

Handbook of Avian Hybrids of the World

EUGENE M. McCARTHY

OXFORD UNIVERSITY PRESS

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For Rebecca, Clara, and Margaret

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For he who is acquainted with the paths of nature,
will more readily observe her deviations; and vice
versa, he who has learnt her deviations, will be able
more accurately to describe her paths.

—Francis Bacon, *Novum Organum* (1620)

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Preface

This book is intended to provide basic information about each of the thousands of types of reported avian crosses, to provide access to documenting literature, and to familiarize readers with the nature of avian hybridization. I have long been interested in hybridization, especially its role in evolutionary processes. I began this book because I wanted to make a thorough survey of hybridization within the context of a well-studied class of organisms. I thought birds would be ideal. There was plenty of data available, much as yet ungathered. Available surveys were far out of date. Moreover, more information on geographic distribution is available for birds than for almost any other major group of organisms. Detailed information on spatial distribution greatly facilitates the identification of hybrid zones. My general approach to the subject has been exploratory. I therefore often include not only *prima facie* evidence, but also facts merely suggesting the occurrence of hybridization. My intention in writing this book was to learn more about the subject myself, and to help and encourage others to study it, too.

The construction of a reference on avian hybridization is an enterprise fraught with hazard. There are many pitfalls related to spelling, nomenclature, and classification, as well as an ever-present risk of factual error, often exacerbated by conflicting reports. For each cross, various details must be accurately determined, to the extent that information is available: Are the hybrids fertile? Are they viable? What do they look like? Do the birds participating in the cross come into natural contact? If so, where? Are there additional reports of the cross that have been omitted? While I have done my utmost to eliminate mistakes, any book dealing with a subject of such complexity is liable to error. In addition, the literature on avian hybridization is so vast that I am sure that I have inadvertently omitted some reported crosses. The bibliography lists more than 5,000 references, but some foreign language publications and articles in out-of-the-way breeding journals have no doubt escaped my attention. Nevertheless, I believe this book does constitute a step forward in the understanding of avian hybridization.

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Introduction

Handbook of Avian Hybrids of the World attempts to list all avian crosses reported in the scientific literature and/or on the Internet (the vast majority of the documentation is of the former type). Quite a few personal communications are also included. It is the broadest survey of its kind to date, listing not only crosses occurring under natural conditions, but also those obtained in captivity. No general reference on this subject has been published in English since 1958 (A. P. Gray's *Bird Hybrids*). Since that time, interest in avian hybridization has been steadily rising, especially with regard to the fields of taxonomy, conservation, and evolutionary biology. In recent years, reports of hybrids have been far more frequent than in the past (Randler 1998). The increase is probably due to a large rise in the number of field observers, better optical equipment, and an enhanced awareness of the existence of avian hybrids. Unusual hybrids are now often prominently featured in birding magazines and are puzzled over by birders in chat rooms on the Internet.

Gray's book continues to be cited, but mostly for lack of anything more up-to-date. There has been a need for a new reference that takes into account the last half century of data. Moreover, although often cited by academics, Gray's book has a decidedly utilitarian perspective, slanted toward the concerns of the breeder rather than the professional biologist. A more recent work on the topic, written for biologists rather than breeders, is E. N. Panov's *Natural Hybridization and Ethological Isolation in Birds* (1989). It is also widely cited, but is still 17 years out of date, written in Russian, and covers only natural hybrids. Data on hybrids produced in captivity can also be important to naturalists. Crosses produced in aviaries often allow identification of specimens obtained in the wild. This book represents an effort to fill these gaps in the literature.

Using This Book

There are various uses for a book of this kind. Hybridization is a phenomenon of basic relevance in biology, whether one is interested in taxonomy, conservation,

evolution, birding, or commercial breeding. What a reader might gain from a reference work on avian hybrids depends on his or her individual interests. A taxonomist might be interested in accessing information on hybridization within a particular group of birds. A conservation biologist might wish to know whether an introduced bird is likely to hybridize with native ones. A zookeeper could have similar concerns if she planned to place a new bird in a mixed flock. There is great interest among birders because of identification problems and potential confusion of hybrids with vagrants. A museum worker, too, might consult such a reference to identify an unusual specimen. Many evolutionary biologists are interested in hybrid zones as important factors in the evolution of natural populations. A breeder might wish to know what crosses have been attempted and what might be likely ones to try.

Since the potential applications of the information contained in this book are so varied, the present section will provide only a description of the nature of that information and how it is organized. It is followed by a brief survey of other topics of biological interest. Some crosses are poorly known, but to the extent that data is available, for each cross this book provides information about (1) the fertility of the hybrids; (2) whether the cross occurs naturally, in captivity, or both; (3) geographic regions where contact between hybridizing populations occurs; and (4) rates at which it occurs. For many of the better-studied crosses, additional details are provided, such as brief descriptions of the hybrids, their behavior, or historical information about the cross.

Major Divisions. For the most part, crosses are grouped into major divisions in terms of the families to which the hybridizing pairs belong (see Table of Contents). For each there is a “cross account” providing information about the cross. Within each major division, cross accounts are listed in alphabetical order. Note that many well-documented crosses are between birds that are frequently treated as being in separate families, for example, ducks (Anatidae) and geese (Anseridae). Where numerous crosses link two families together, as in the case just mentioned, the families are listed together in a single division. The ordering of major divisions follows Sibley and Monroe (1990), except in those cases where families have been combined within a single division.

Finding a Cross. The main body of this book is composed of accounts of the various crosses. A cross account lists information for a cross that may interest biologists, birders, or researchers. Within each major division, cross accounts are listed in alphabetical order by the scientific names of the birds participating in the crosses. For a given pair of birds, the order is based on whichever of the two scientific names comes first in the alphabet. Thus, information about hybridization between Northern Parula and American Redstart is listed under *Parula americana*, not *Setophaga ruticilla* (under *Setophaga ruticilla* a note is included to look under *Parula americana*). To find information about hybridization involving a particular bird, look in the index under the appropriate name (both scientific and English names are listed). Next, turn to the indicated page and look under the scientific name of the bird. Listed there will be information about crosses with any birds having scientific names

that come *after* the scientific name of that bird. Information about hybridization between it and birds having scientific names that *precede* it will be listed under the names of those birds. Thus, since the scientific name of the Tropical Parula (*Parula pitiayumi*) comes before that of the Crescent-chested Warbler (*Parula superciliosa*), information about crossing between the two is listed under the heading of *Parula pitiayumi*:

Parula pitiayumi [Tropical Parula]

See also: *Parula americana*.

- × *Parula superciliosa* [Crescent-chested Warbler] NHR (Texas, U.S.). BRO: highlands of Cen. America. Rappole and Blacklock 1994; Thornton and Thornton 1999. Internet: TXB.

For this poorly studied cross, little information is listed, beyond the fact that natural hybridization has been reported (NHR = natural hybridization reported) from Texas, and that breeding ranges of the birds in question overlap in Central America (BRO = breeding range overlap). The note to “See also: *Parula americana*” indicates that additional information about hybridization of *Parula pitiayumi* can be found under the heading *Parula americana*, which has alphabetic precedence. Information under that heading looks like this (here ENHR means extensive natural hybridization reported):

Parula americana [Northern Parula]

See also: *Dendroica cerulea*; *D. coronata*;

D. dominica; *D. magnolia*.

- × *Parula pitiayumi* [Tropical Parula] ENHR (s U.S.). Mixed nesting pairs and numerous hybrids are reported in ext. s Texas (cen. Val Verde Co.). Apparently, no formal study has been made of this contact region, but distribution data and Internet reports suggest that the hybrid zone is narrow. These birds are sometimes lumped. Lockwood and Freeman 2004 (p. 171); Rappole and Blacklock 1994; Thornton and Thornton 1999. Internet: WFR.

Note that some pairs of birds are listed which have not actually been reported to hybridize. These are cases in which there is only reason to *suspect* hybridization. For example, the observation of mixed pairs in a natural setting is often taken as a strong indication that actual hybridization may be occurring. In fact, initial reports of mixed pairing are commonly followed by reports of hybrids. Mixed pairs are also often reported in captivity. The policy in listing such cases is to state the nature of the evidence, but to append the statement “No hybrids as yet reported.”

Works on hybridization will sometimes list a cross without apparent substantiation from primary reports. A few crosses listed in modern reviews of hybridization were last observed and reported in the 19th century. Some apparently have never been observed at all. Yet, when one author after another cites earlier authors for a cross, who in their turn cite yet earlier authors, the long chain of claims lends the cross an air of veracity not borne out by the evidence. In some cases, these chains of citations can be traced back to an initial report that was quite vague or even mis-cited. In order to terminate such chains, such crosses are listed also in this book, but the cross is struck through to indicate that previous authors appear to have reported it in error. The reason for rejecting the cross is also given. Thus, the fact that various modern authors incorrectly cite Gray as listing hybridization between Hermit and Cape May warblers is indicated as follows:

Dendroica occidentalis [Hermit Warbler]
 × ~~*Dendroica tigrina* [Cape May Warbler]~~ Some
 authors incorrectly cite Gray (1958) as list-
 ing this cross. However, she doesn't.

A *reciprocal* cross is one that occurs between the same types of birds, but with sexes reversed. For example, a rooster crossing with a pheasant hen is the reciprocal cross of a chicken crossing with a pheasant cock. In many cases, the direction of the cross cannot be reversed, that is, the reciprocal cross does not occur. When known, the direction of a cross is given in the cross account. It is sufficient to specify sex for only one of the participants in the cross, which is done by inserting either a male (♂) or female (♀) symbol after its scientific name in the cross heading. For example, in the following cross heading, it can be understood that male Great Black-backed Gulls hybridize with female Herring Gulls even though a sexual status in the cross is specified only for *L. marinus*:

Larus argentatus [Herring Gull]
 × *Larus marinus* (♂) [Great Black-backed Gull]

When a cross is reversible, the symbol ↔ is inserted in the same position. Thus, the fact that both male and female Red-headed Finches are known to cross with the Cut-throat is indicated as follows:

Amadina erythrocephala [Red-headed Finch]
 × *Amadina fasciata* (↔) [Cut-throat]

After further study a cross may turn out to be reversible, even though initial reports give it in only one direction. Directions listed for crosses in this book that are attested by relatively few citations, then, should be viewed as indicating only that the specified direction has been observed, not that the cross is known to be irreversible.

Type and Frequency of Cross. Each cross is classified as to whether it is reported to have occurred in captivity, in a natural setting, or both. In the cross accounts,

these three possible classifications are indicated by acronyms, respectively, CHR, NHR, and CANHR (see the Abbreviation Key, inside the front cover), which appear in each cross account immediately after the names of the hybridizing pair. In the case of naturally occurring crosses, an effort has been made to indicate the frequency with which hybridization occurs. However, exact rates of occurrence are known for relatively few crosses. Intensive study is required to obtain accurate estimates of hybridization rates. Especially in the case of those crosses for which only a few hybrids have been reported, hybridization rates are difficult to judge. When a hybrid of a particular type has been rarely reported, it may be that the cross actually does occur rarely. On the other hand, many crosses involve birds that are poorly studied and/or difficult to observe, such as nocturnally active birds or ones residing in tropical rainforests and other inaccessible locations. In general, avian hybridization is probably underreported, a matter discussed in a later section.

For natural crosses, this book provides only a crude measure of the rate of hybridization, indicated by one of the following acronyms:

NHR (*natural hybridization reported*): This rating indicates that natural hybridization has been reported and that the cross either occurs rarely or has been reported rarely, perhaps due to a lack of study. Since these two cases are difficult to distinguish, an NHR classification is best interpreted as indicating a general lack of specific information concerning rates at which a cross occurs.

ONHR (*ongoing natural hybridization reported*): “Ongoing” indicates either that (1) multiple reports exist of the cross occurring in a natural setting or (2) at least one report indicates that natural hybrids are observed on an ongoing basis (at relatively low levels).

ENHR (*extensive natural hybridization reported*): “Extensive” indicates either that (1) many reports exist of the cross occurring in a natural setting or that (2) at least one report indicates that many natural hybrids are observed on an ongoing basis.

Additional acronyms are constructed by combining the basic types. For example, CAENHI means “*captive and extensive natural hybridization inferred*” (again, see the Abbreviation Key). A question mark is used to express doubt (or in cases of marked doubt, two question marks). Thus, the following cross has been reported, but is of dubious validity:

Turdus merula [Common Blackbird]
 × *Turdus viscivorus* [Mistle Thrush] NHR??
 Old reports. BRO: Eurasia. Ackermann
 1898; Suchetet 1897a.

As might be expected, some crosses are better documented than others. This book lists many crosses, but in the case of some, evidence does not seem to

indicate that hybrids have been produced. Such crosses fall into three categories: ones listed by other authors which seem insufficiently documented, ones that involve reports of mixed courting or nesting (without known production of hybrids), or geographic distributions that suggest, but do not confirm the occurrence of hybridization (parapatric contact zones, altitudinal contact zones). There are also some crosses listed in which the identity of the hybrid is not specifically known. For example, a hybrid can be thought to be the product of one of two possible parental pairs even though it is unknown which of the two pairs were the actual parents.

Fertility and Sterility. A review of published reports of avian hybridization reveals a general tendency toward what might be called dichotomous assessment of hybrid fertility. If an investigator doesn't observe offspring from a hybrid of a particular type, she will likely conclude all hybrids of that type are sterile. If another observer looks at a hybrid of the same type and finds it does produce some offspring, he will likely express the opinion that all such hybrids are fertile. However, the actual ability of hybrids to produce offspring varies from cross to cross, and, for a particular cross, from individual to individual. Although most types of hybrids are less fertile than the parental types that produced them, the degree of fertility varies widely, from crosses producing very infertile hybrids, unknown to produce offspring, to crosses producing progeny appearing to be as fertile as either parent. The degree of fertility varies, too, with age, with gender, and with the direction of the cross. It can often be improved in successive generations by selection and backcrossing. Given this variability, the failure of one, or even several, individuals to produce offspring does not guarantee that another hybrid produced from the same cross will also be unsuccessful. To some extent, hybrids are subject to the same constraints as other birds. For example, they can be too young, or too old, to breed. They can also refuse to breed because of stress induced in captivity. Some evidence even suggests that immunological factors affect a female's ability to conceive (Billingham et al. 1961; Haley and Abplanalp 1970; Vojtiskova 1958). Olsen (1972) found that turkey hens produced fewer fertile hybrid eggs as they developed antibodies to chicken spermatozoa. McGovern (1973) says more goat × sheep hybrid embryos die when mother goats have received skin grafts from sheep and injections of ram leukocytes.

As just mentioned, the sex of a hybrid has a bearing on its fertility. Among the hybrids produced by a cross, when one sex is absent, rare, infertile, or inviable, it will virtually always be the heterogametic sex (Haldane's Rule), which in birds is the female (Haldane 1922). Thus, in avian crosses, females are much more likely than males to be sterile or inviable, and if one sex is absent, or rare, it seems always to be the female. However, there is a continuum of cases. In some crosses, females are as common as males and lay fertile eggs. In others, they lay sterile ones. In still others, they lay no eggs at all. And in some, no females occur. Haldane's Rule can therefore be used as a clue in certain cases. For example, if all, or even the vast majority, of available specimens on which an avian taxon is based are male,

investigators should consider the possibility that the taxon is of hybrid origin (i.e., whether the specimens on which the taxon is based might be hybrid). When two natural populations hybridize on an ongoing basis, but the two types of mtDNA characteristic of the two parental populations remain spatially segregated, the female hybrids will usually be sterile (because mtDNA is maternally inherited).

Although fertility in hybrids does appear to be a matter of degree, reports for most crosses offer no exact quantification of this characteristic. Ideally, studies would examine relative percentages of viable gametes, rates of egg fertilization, and hatchability. But for the most part such exact information is available only for crosses involving domestic birds. Wherever possible, such information is included in the cross account, but for those crosses where it is not, it has been necessary to assess fertility in more general terms. Abbreviations used to describe the fertility of hybrids produced by a given cross—HPF, HPF(♂♂), HPF(♂ & ♀), HPF(+), LFH, LFH(—)—are defined in the Abbreviation Key. The category HPF(♀♀) is not used, since the present survey did not reveal any reliably documented cross in which females are clearly more fertile than males (a finding consistent with Haldane's Rule).

Many researchers working with hybrids expect them to be sterile. The failure to produce offspring in a single experiment will therefore often lead the observer to conclude that the hybrids are sterile. But any organism, whether fertile or infertile, can fail to produce offspring in any given case. However, only ones that are at least partially fertile will actually be able to produce offspring. Therefore, in this book, reports that a hybrid of a certain type has produced offspring have taken priority over conflicting ones that claim hybrids of that type to be sterile. Moreover, the mere failure of an individual, or even a few hybrids of a given type, to produce offspring has not been accepted as evidence that all such hybrids are sterile. Reports of sterility were only accepted when associated with frequent, first-hand experience with the cross. The term *partially fertile* is used in this book in preference to *fertile* or *sterile* because most hybrids that are capable of producing offspring are still not as fertile as their parents. The acronym used to indicate this assessment in the cross accounts is HPF (*hybrids are partially fertile*).

Viability/Inviability. Most crosses are poorly evaluated with regard to the viability of offspring. For example, Gray lists a single report for European Greenfinch (*Carduelis chloris*) × Yellowhammer (*Emberiza citrinella*). She describes results for a single clutch of five eggs. Three eggs were sterile, one hybrid died in the shell, and one survived to maturity. On the basis of such limited data, no firm conclusions can be reached concerning the general viability of offspring produced from this cross. Such cases, in which the available information is of limited predictive value, are not usually described in this book. However, in cases where the hybrids do appear to be less viable than parental types, the acronym LVH (*low viability in hybrids*) is used.

Breeding Range Overlap. With the exception of rare vagrant birds, hybridization occurs where the ranges of the interbreeding populations overlap. These regions

are often referred to as *contact zones*. When hybridization regularly occurs in such regions, they are known as *hybrid zones*. When the populations involved are migratory, only their breeding ranges are relevant (in general, hybridization occurs only during the breeding season). In the case of naturally occurring crosses, the location where contact occurs is essential information for anyone wishing to observe or to further document hybridization of a given type. It also indicates regions where observers should be on guard to discriminate between hybrids and parental types. In the cross accounts, the region in which breeding range overlap occurs between hybridizing populations is often indicated by the acronym BRO (*breeding range overlap*). For example:

Dendroica castanea [Bay-breasted Warbler]
 × *Dendroica coronata* [Myrtle Warbler] NHR.
 BRO: Canada, ne U.S.

In some cases location information is given parenthetically, as in the following cross:

Diuca diuca [Common Diuca-Finch]
 × *Gubernatrix cristata* [Yellow Cardinal]
 ONHR (cen. Argentina). BRO: Gulf of San
 Matías n to Córdoba.

Many birds that have hybridized in captivity have disjunct ranges in the wild. In the cross accounts such birds are indicated by the abbreviation DRS (*disjunct ranges*). For example:

Fulica atra [Eurasian Coot]
 × *Gallinula ventralis* (♂) [Black-tailed Native
 Hen] CHR. DRS.

The amount of range overlap between two birds can be either extensive or localized to narrow zones of peripheral contact. Extensive hybridization generally does not occur in cases of the former type. High levels of fertile hybrids would cause the populations rapidly to merge, while numerous inviable hybrids would cause the population in the overlapping region to crash. Both high and low levels can, however, occur in the latter case (narrow, peripheral contact).

Taxonomic Treatment. The same two populations may be treated by different authors, or even by the same author at different times, as belonging to subspecies of the same species (i.e., as being “conspecific”) or as separate species. For those crosses, where the treatment of the hybridizing pair has been inconsistent in this way, a brief assessment of their history of treatment is included (e.g., “These birds are sometimes treated as conspecific.”). When no such assessment is included in a cross account, it may be assumed that the two birds participating in the cross are usually treated as separate species. These assessments have been included to give the reader a better notion of the relative taxonomic status of the hybridizing pair.

Such changes in treatment are often prompted by new data, but much of the inconsistency also arises from the difficulty biologists have had in agreeing on a satisfactory definition of *species*. As Ernst Mayr comments in *The Growth of Biological Thought* (1982, p. 273), “The history of the numerous attempts to achieve a satisfactory biological species definition has been told repeatedly.” The meaning of the word *species* continues to be a matter of controversy. If two avian taxa hybridize and produce fertile hybrids, they obviously do not qualify as separate species under a strict form of the biological species concept *à la* Dobzhansky (1940) and the early Mayr (1942, 1963), that is, a group of interbreeding organisms reproductively isolated from other such groups. And yet, many taxa that are known to hybridize are, in fact, treated separately because they satisfy various less restrictive definitions of *species*. Thus, when two hybridizing populations can be distinguished on the basis of certain characteristic traits, they are good “phylogenetic species” (Cracraft 1989; Zink and McKittrick 1995). When they tend more to mate with their own kind than to hybridize, they are good “recognition species” (Paterson 1985). Furthermore, when pre- and postmating isolating mechanisms reduce the reproductive capacity of hybrids and heterospecific pairs, hybridizing taxa can even be good “biological species” in terms of Ehrlich and Raven’s (1969) modification of the biological species concept (which allows isolation to be a matter of degree). The opinions of ornithologists vary so widely on the proper definition of *species*, that on a definitional basis it is often difficult to determine whether a given hybridizing pair should be treated separately. In deciding such matters, this book instead relies on a well-respected standard—if birds are listed with separate English common names in Sibley and Monroe’s *Distribution and Taxonomy of Birds of the World* (1990), then they are listed separately here. Spellings of scientific and English names of listed birds also follow Sibley and Monroe. For this reason, certain words (most notably “grey”) commonly conform to British, not American orthography. In addition, various formerly recognized taxa now known or suspected to be of hybrid origin are listed, though they do not appear in that publication. The reasons for certain other departures from Sibley and Monroe’s nomenclature are noted where they occur.

General Information. Many cross accounts include additional information of general interest, such as descriptions of the associated hybrid zones or of the hybrids themselves. Although hybrids are, in general, intermediate in appearance between their parents, they may be similar to one parent with respect to one trait while being similar to the other with respect to another. Often a particular trait allows hybrids to be distinguished from pure types. In other cases hybridity subtly affects a range of characters, so that the bird is generally intermediate in appearance, but without salient traits that can be used to diagnose it as hybrid. In such cases, no description is included in the cross account because an accurate one would be too lengthy. Descriptions are usually omitted also in cases where the hybrid has been reported only from captivity and the ranges of the parents are disjunct. Of course, no description can be provided when none has been published.

Documentation. Citations of reports documenting the occurrence of a given type of cross appear at the end of each cross account. An effort has been made to identify every possible source. Whenever possible, the documentation for each cross has been traced back to its primary source (i.e., eye-witness reports). However, it has not always been possible to do so. For certain crosses only non-primary sources are available. For example, some crosses are known to professionals, but are not attested by published papers. Thus, Sibley and Monroe, in their *Distribution and Taxonomy of Birds of the World* (1990), mention many naturally occurring crosses, but frequently they attest them with mere personal communications. These authors are widely respected in the field and presumably reliable, but many of the crosses they mention are not documented by published papers. Of the many wood-warbler (Family Parulidae) crosses listed in this book, two seem to be attested by Dunn and Garrett (1997) alone, which is a field guide, because a thorough search of the literature revealed no primary sources associated with those two crosses. Dunn and Garrett are, however, reputable professionals. There seemed to be no reason not to list a cross on their word alone. Presumably they have access to unpublished data and personal communications indicating that these crosses do occur. Anonymous, untitled reports often appear in certain breeding journals. These are cited by giving the name of the journal, year, and page number. In some cases (relatively few), citations refer to Internet sites or personal communications rather than to published reports. Internet citations are given as abbreviations, the meanings of which are listed in Appendix III. Citations with illustrations of the hybrid are indicated with a dagger (†).

The Maps. In a few cases, multiple populations hybridize in chains or other complex geographic patterns that are difficult to describe verbally. In such cases, maps are provided to facilitate understanding of the spatial relationships of the participating populations. In the literature the same name is often used to describe different populations. By showing the ranges of the populations involved in the cross, maps help the reader identify the exact populations referred to by names appearing in text. However, since in many cases different authors provide conflicting range data, the maps presented in this book should be viewed as efforts to summarize available information. The geographic boundaries of the populations mapped are sometimes inexactly known and the locations of hybrid zones are approximate. Nevertheless, maps are quite helpful in some of the more complex situations.

What Is a Hybrid? Suppose two populations are consistently distinct with respect to one or more characters. A descendant of matings between those populations that is discernibly mixed with respect to those characters is a *hybrid*. Thus, a hybrid might be defined as a bird mixing the physical traits of two different types. Then again, in genetic terms a hybrid might be a bird heterozygous at a nuclear locus distinguishing two parental populations. This definition is broad enough to include all of the entities usually encompassed by the term hybrid, but it does not include any other types. Note, in particular, that almost any pair of populations treated as

separate species will fall within the purview of this definition, since such pairs will, in general, be consistently distinct with respect to one or more characters—usually many. Note, too, that under this definition the descendants of hybrids can cease to be hybrids. For example, many generations of backcrossing to one parental population or the other could eliminate all discernible mixture in individuals distantly descended from an initial hybrid cross.

Compound hybrids are produced by successive matings between more than two different types of birds. For example, Sandnes (1957) first produced a hybrid between a Golden Pheasant and a Lady Amherst's Pheasant (*Chrysolophus pictus* × *C. amherstiae*), then mated it with a Common Pheasant (*Phasianus colchicus*) to produce a three-way hybrid. Such hybrids occur both in captivity and in nature. Thus, Harrison and Harrison (1965a) report a presumed natural three-way hybrid of Pintail Duck (*Anas acuta*) with Mallard (*A. platyrhynchos*) and Gadwall (*A. strepera*). Multiple hybrids are common among captive falcons (e.g., Barbary/Gyr × Peregrine/Lanner). A commercially produced multiple hybrid, known as the Flame Macaw, is created by first crossing a Blue-and-yellow Macaw (*Ara ararauna*) with a Scarlet Macaw (*Ara macao*), and then crossing the hybrid with a Green-winged Macaw (*Ara chloroptera*). Hybrids with even more complex ancestry are commonly obtained, and also occur in a state of nature (four-way hybrids, five-way hybrids, etc.). They mix the traits of all the various types from which they are descended.

Hybrids vs. Intergrades. When a biologist thinks of two interbreeding populations as belonging to the same species, she often will say they “intergrade” rather than “hybridize.” The tendency is to reserve the latter term for interbreeding between populations viewed as separate species. Not every bird listed in this book has had a consistent history of taxonomic treatment. The question of whether a given natural population is a “good species” can often be contentious. Most of the hybridizing pairs listed are composed of birds usually treated as separate species. Many listed birds, however, have not been awarded separate specific status by all authors. Some pairs, too, were formerly treated as separate species, but now are usually treated as a single species (i.e., they have been “lumped”). Others were formerly treated as conspecific, but now as separate species (they have been “split”). In this book the policy has been to steer a neutral course on such issues, so *hybridization* has been substituted for *intergradation* wherever possible, except when other authors are being quoted. This approach avoids giving the impression that judgments are being made concerning proper taxonomic status. To some extent, this issue may be irrelevant, since many biologists seem to use the two terms interchangeably, with the same author speaking of “hybrid zones” between “conspecifics” and elsewhere of “intergrades” between “species.” In truth, hybridization between taxa treated as separate species may well represent essentially the same process as hybridization between taxa treated as conspecific (Rieseberg and Wendel 1993, p. 71). However, if two birds are usually treated as conspecific, they are listed in this book under the name under which they are usually lumped. For example, a case involving populations usually lumped under *Anas specularoides* is listed as follows:

Anas specularioides [Crested Duck] Two populations (*alticola*, *specularioides*) treated as races of this bird, have been treated as separate species (Andean and Patagonian crested ducks). They hybridize in Chile at ~35°S. Shirihai 2002.

Another drawback of the word *intergradation* is its ambiguity. It is used not only to refer to situations where interbreeding occurs, but also to refer to clinal variation. A cline is a graded series of differences exhibited within a population (usually along a geographic line or across a region of environmental transition). Such differences can be with respect to morphological traits or genetic ones. Thus, the Eastern Towhee (*Pipilo erythrophthalmus*) is white-eyed in the southeastern United States, but there is a clinal transition to red-eyed in the north (Sibley 2000). This phenomenon, too, is called *intergradation*. Here *intergrade* has precisely the same meaning as it does in ordinary, non-biological usage: “to merge gradually one with the other through a continuous series of intermediate forms” (*Webster’s New Collegiate Dictionary*). *Intergradation* came to be applied to hybridization between populations because variation in hybrid zones is commonly clinal in nature. Some zones, especially, are very wide and the rate of change across the zone is gradual. Hybridization may lead to *intergradation* (*sensu* Webster) of populations, but not always. Some populations interbreed regularly but maintain a sharp discontinuous boundary where they interface. Hoffmann’s Woodpecker (*Melanerpes hoffmannii*) and the Red-crowned Woodpecker (*M. rubricapillus*) each have extensive ranges, but they are often said to “intergrade” in Costa Rica because they hybridize there (Short 1982a). In this case, however, there is interbreeding without a gradual blending. The characteristics of these two birds have remained distinct. No blending occurs. It’s misleading to use *intergrade* instead of *hybridize* to describe populations that are sharply distinct because populations might be supposed erroneously to blend gradually when they don’t. The meaning of *hybridization* is clear. It refers to interbreeding that may, or may not, result in the production of a broad cline between affected populations.

Identifying Hybrids

When a sighted bird doesn’t match any description in the field guide, an experienced birder will always consider the possibility of a hybrid. Some of the methods used to make such determinations are straightforward and accessible to anyone. Others are open only to professionals because they require technical facilities and the collection of specimens. A cross is best documented when all different possible methods are used. However, few crosses have been studied so thoroughly. Even with basic techniques it is often possible not only to determine with a fair degree of confidence that a bird is hybrid, but even to identify the likely parents involved in the cross. In fact, a bird can be identified as a hybrid only in relation to its

parents. Many crosses have already been documented and a description published. This book supplies many such descriptions, when they can be briefly expressed. Where they cannot, the reader can learn more about a particular hybrid by looking at the references and Internet sites listed under the cross.

It is always possible, though, that a bird might represent a cross that has not been previously described. Such individuals are far more interesting, but their identification is also more difficult. The correct parents can, however, often be deduced. Identification involves both a consideration of what birds might be capable of coming into contact to mate, and how parental traits are usually expressed in their hybrids.

Contact

If a hybrid occurs in an aviary containing a single pair of birds, the identification of its parents is straightforward. Such crosses are the single most reliable method of identifying a bird as a hybrid of a particular kind. Known hybrids produced in captivity are an important factor in recognizing natural hybrids, because a hybrid of the same type produced under natural circumstances will look the same. But many putative hybrids will be of unknown parentage and will not match any known specimen. Such birds can be encountered either in a natural setting or in an aviary containing multiple types of potential parents. In the latter case the hybrid is still known to be the offspring of *some* pair of inmates in the cage. No others could have come into contact to mate. But the actual pair producing the hybrid must be deduced on the basis of other evidence (see next section).

In the case of natural hybrids, too, the possible parental pairings can be limited by considering what pairs have potential mating contact. Birds with disjunct breeding ranges are always unlikely candidates as parents of natural hybrids. True, some individuals do stray far outside their normal range, and for this very reason are more likely to accept mates not of their own kind. One recent highlight of California birding was an Arctic Tern (*Sterna paradisaea*) that returned and mated 7 years running with a Forster's Tern (*S. forsteri*) at Hayward Regional Shoreline (Terrill et al. 2000). Still, this case was sensational by the very fact that it was so unusual. The vast majority of hybrids are produced in regions where the margins of two ranges meet, bringing distinct types into repeated contact. In many cases, these contact zones are hundreds or even thousands of kilometers long and contain vast numbers of hybrids. A hybrid picked at random is therefore far more likely to be derived from a contact zone than from a vagrant mating.

Hybrids produced by migratory birds tend to return each season to the region where they were bred. Thus, the ringed hybrid young of the Forster's/Arctic pair just mentioned returned after migration to Hayward even though its Arctic Tern parent had bred far south of its normal range (Terrill et al. 2000). This strong tendency to return to familiar breeding grounds means that hybrids of unknown type sighted in summer are more likely to be near the place where they were bred.

A pair of birds are therefore likely as parental candidates if they not only come into regular contact during their breeding seasons, but also come into contact near the place where the putative hybrid was sighted or collected. The same general reasoning applies to a bird seen in winter or during migration. For example, hybrids between Williamson's Sapsucker (*Sphyrapicus varius*) and the Red-naped Sapsucker (*S. nuchalis*) have been collected in southern Arizona and northwestern Mexico (Short and Morony 1970) because these regions are directly south of the parents' contact zones. A migrant sighted in California is more likely to have been bred in Oregon than in Maine. Whatever the season, hybrids produced by sedentary birds are most often observed in the vicinity of where they were bred.

Reports of mixed matings are an unequivocal demonstration of breeding contact. In a mixed mating, two different types of birds form a pair bond and nest together. Copulation may be observed even in cases where no hybrids are yet known. Nevertheless, observations of mixed matings are often precursors of reports of actual hybrids. Young raised by mixed pairs are usually assumed to be hybrid. Such was the case, for example, with young recently raised by a Cattle Egret/Snowy Egret (*Bubulcus ibis/Egretta thula*) pair in Florida (Paul and Schnapf 1998). In such cases it should be kept in mind, though, that the young may be the product of an extra-pair mating (i.e., one between the female and some male other than her mate).

Expression of Parental Traits in Hybrids

As already mentioned, a bird descended from matings between two or more parental types will mix the characteristics of those types. The analysis of a hybrid's traits will therefore often allow the identification of its parents. The traits of parents are expressed in hybrids in two typical ways. They are either intermediate or combined.

Intermediacy. With respect to most traits, size, color, texture, and so on, hybrids are usually intermediate between the parents that produced them. In the absence of data from captive crosses, natural hybrids are often identified as hybrids on the basis of this trait. In fact, hybrids are routinely referred to as "intermediates." Thus, in a detailed study of a natural hybrid between a Goldeneye (*Bucephala clangula*) and a Hooded Merganser (*Lophodytes cucullata*), Ball (1934) found that the hybrid was intermediate between its parents with respect to many characteristics. These included overall length, wing and tail length, width and length of bill, degree of development of head crest, and a variety of other features. The Flame-rumped Tanager (*Ramphocelus flammigerus*), which has a red rump, and the Lemon-rumped Tanager (*R. icteronotus*), which has a yellow one, hybridize extensively in the Andes. The rumps of their hybrids are intermediate in coloration, in varying shades of orange.

Intermediacy is observed not only in the physical characters of hybrids but even in their behavior and calls. Thus, Evans (1966) found that when displaying

on the lek, hybrids between Sharp-tailed Grouse (*Tympanuchus phasianellus*) and Greater Prairie-Chicken (*T. cupido*) hold their wings further out than do prairie chickens, but not so far as do Sharp-tailed Grouse. Mitchell (2000) notes that hybrid hummingbirds often perform dive displays that are intermediate between their parents'. Jung et al. (1994) describe a junco \times sparrow hybrid (*Junco hyemalis* \times *Zonotrichia albicollis*) that sang a song that mixed those of its parents. Migratory patterns of hybrids are often intermediate between those of their parents (Sibley 1994).

Combined Traits. With respect to some traits, a hybrid may resemble one of its parents, while with respect to another, it may resemble the other. For example, the plumage pattern of a hybrid's head will often resemble that of one parent, while that of its body will resemble the other. Brooks (1907) collected a hybrid between the Blue Grouse (*Dendragapus obscurus*) and Sharp-tailed Grouse (*Tympanuchus phasianellus*). He was confused when he first saw it because in front it looked like a sharp-tail, but in back it looked like a blue. Frauendorf et al. (1997) report that the song of hybrids between the Common and Black redstart (*Phoenicurus phoenicurus*, *P. ochruros*) closely approximates that of a pure Black Redstart (which may be due to the fact that the Black Redstart usually plays the role of male parent in this cross so that young hybrids are not usually exposed to the song of Common Redstarts). Hybrids between Black-capped and Carolina chickadees (*Parus atricapillus* and *P. carolinensis*) may sing the song of both parents or a combination of the two. Some traits in hybrids closely approach one parent because the relevant genes, derived from that parent, are dominant over those of the other parent. Male first generation (F_1) hybrids between the Blue-winged and Golden-winged warblers (*Vermivora pinus* and *V. chrysoptera*) combine dominant traits of both parents. They have the white underparts of a Golden-winged, but reduced facial pattern (eye-line only) of a Blue-winged.

Heterotic Traits. With respect to some traits, a hybrid may fall well outside the range of parental variation. Such traits are said to be *heterotic*. For example, hybrids between Yellow Cardinal (*Gubernatrix cristata*) and Red-crested Cardinal (*Paroaria coronata*) can be larger and stronger than either parent. Nevertheless, the typical hybrid, produced by the typical hybrid cross, is intermediate in size. The cardinal hybrid just mentioned provides an example of *positive heterosis*, in which the hybrid exceeds the range of variation exhibited by its parents. Cases of *negative heterosis* also occur, in which the hybrid falls below the range of parental variation with respect to a given trait. Heterosis more commonly affects quantitative traits (i.e., ones governed by multiple genes with cumulative effect).

Intrinsic Traits of Hybrids

Certain traits can be clues that a bird is a hybrid even when the parentage of the bird is unknown. These are variability, rarity, and reduced fertility.

Variability. Pure populations unaffected by hybridization are relatively uniform. F_1 hybrids, too, will usually also be uniform, genetically and morphologically, even when the two parental types differ markedly. This lack of variation results from each F_1 hybrid receiving much the same genetic complement from each parental type each time the cross occurs. However, when hybrids mate among themselves or backcross to produce later generations, a wide variety of genetic segregates can arise because parental genes are variously combined in different individuals. For this reason, variability is an indication that a population may be the product of hybridization.

Rarity. Some types of hybrids are very rare. For example, the one between the Amethyst Hummingbird (*Calliphlox amethystina*) and the Glittering-bellied Emerald (*Chlorostilbon aureoventris*) is known from just one specimen. Another rare hybrid is that between the Pine Grosbeak (*Pinicola enucleator*) and the Purple Finch (*Carpodacus purpureus*), which was last reported by Thompson (1894). Research for the preparation of this book has revealed a plethora of cases in which a bird known from a small number of specimens was first treated as a species, but was eventually recognized as a hybrid. Thus, if there are few examples of a bird, and no evidence that it was once more abundant, consideration should be given to the possibility that it might actually be a hybrid, especially if it is known from a region where two potential parents come into contact.

Reduced Fertility. In most crosses, hybrids produce fewer viable gametes (spermatozoa and ova), than do their parents. They also often have under-developed or deformed sex glands (ovaries and testes). Eggs laid by certain types of hybrids are abnormally small, for example, those laid by hybrids between the Brazilian Teal (*Amazonetta brasiliensis*) and Bahama Pintail (*Anas bahamensis*). Examination of the spermatozoa of hybrids, even under the light microscope, often reveals structural abnormalities. Sex-drive is reduced in some, but by no means all, types of hybrids. Therefore, if a bird shows signs of reduced fertility, it may well be hybrid.

Hybrid Zones

Hybrid zones are regions where genetically distinct populations come into contact and produce hybrids. They are found in all major groups of sexually reproducing organisms (Barton and Hewitt 1989). Populations on opposite sides of a hybrid zone may differ not only with respect to their genetic make-up, but also with respect to almost any type of character—appearance, behavior, physiology, or song. Certain characteristics permit the identification of hybrid zones.

Increased Variability. Since variability is a trait of later generation hybrids, high levels of variability within a natural population are an indication that the population is of hybrid origin or is actually a hybrid zone. Of course, observed variation may also reflect inherent variation within a population rather than hybridization. But if (1) the variation occurs primarily in the vicinity of the breeding range of

another bird, and (2) birds in that vicinity tend also to be more similar to that other bird, hybridization is the more tenable explanation. Variability is also an indication of fertility, since (1) F_1 hybrids must be at least partially fertile if later generations are to occur, and (2) variation produced by hybridization is typically seen only in later generations. Thus, variability itself is a factor that can aid not only in the identification of hybrid zones, but also in predicting the fertility of hybrids. In this book, when the fertility of the hybrids produced by a cross is surmised solely from the existence of variation in natural hybrid populations, the acronym HPF(vh) is used (hybrids are inferred to be partially fertile due to the existence of variability in the hybrids). Many hybrid zones exhibit a continuum of variation, spanning the gap between parental types. Within a hybrid zone composed of partially fertile hybrids, the hybrids that occupy regions closer to a particular parental type tend to be more similar to that parent. For example, in the southwest of Papua New Guinea there is a hybrid zone between the Greater Bird of Paradise (*Paradisaea apoda*) and the Raggiana Bird of Paradise (*P. raggiana*). In it, birds vary geographically in appearance, from very similar to the Greater in the west to almost identical to the Raggiana in the east.

Morphological Intermediacy. Within a hybrid zone, birds exhibit morphological intermediacy, that is, they are intermediate in appearance between the two parental types. Thus, hybrid zones are often first discovered when a region is encountered where intermediate birds occur or when intermediate specimens are discovered in museum collections. Birds in a hybrid zone are also genetically, behaviorally, and physiologically intermediate. For example, hybrid egg incubation times are typically near the midpoint between those of the two parental types.

Geographic Intermediacy. Hybrid zones occur between the ranges of the parents producing the hybrids. Thus, if the members of an avian population not only have characteristics which are intermediate between those of two putative parents, but also occur in a region that is geographically intermediate between them, then the intermediate population is likely to have had its origin in hybridization between those putative parents.

PHPs. Thus, even when no hybrids have been explicitly reported, it is still possible in certain cases to infer the existence of a hybrid zone. Since hybrids are typically intermediate with respect to numerous traits, any population is likely to be of hybrid origin if it is composed of birds that are intermediate between two distinct types with regard to a variety of different features (morphological, genetic, physiological, behavioral, etc.). In works on avian taxonomy, birds, and populations of birds, are often referred to as “intermediates.” Used as a noun, “intermediate” has much the same meaning as “hybrid” or “apparent hybrid.” The equivalence of intermediates and hybrids is clear. In arguing against a proposal that two populations should be awarded separate specific status, taxonomists will often mention intermediates as evidence a single species is involved, and explicitly say they do so because intermediates are a sign of interbreeding. That is, they think

intermediates are hybrids. A report of intermediates, then, is tantamount to a report of hybridization.

One must keep in mind, however, that it is possible in any given situation that intermediates might arise through natural selection for traits adapted to an intermediate environment, which would be a form of convergence.* However, the number of cases in which such geographic and morphological intermediacy has been proven to have been brought about by selection alone, without hybridization, is miniscule (if, indeed, any proven case is on record at all). On the other hand, hybridization does, without question, produce geographically intermediate populations with intermediate traits. Convergence, then, is usually not as good an explanation in the case of two closely related birds, as it is, say, in the case of traits held in common between two distantly related organisms (e.g., the presence of sharp, grasping appendages in both a tiger and a preying mantis). Thus, when a population is not only morphologically, but also geographically, intermediate between two other populations, it is likely to be the product of hybridization between the other two. After all, hybrid zones are always located where parental populations come into contact and interbreed, and such regions lie *between* the ranges of the two parents and are composed of intermediate birds (hybrids). In this book such populations are listed as PHPs (*putative hybrid products*). The word putative is used to emphasize that such populations have not been explicitly reported to be of hybrid origin, but are nevertheless likely to be. They are cases of probability, not certainty. When a cross account is based on the reported existence of a PHP, the cross is rated as ENHI (*extensive natural hybridization inferred*). Such populations are listed both to note the likely occurrence of hybridization and to encourage their further investigation. In addition, populations that have been treated as a race of one species by some authors, but treated as a race of some other species by others, are also likely to be the products of hybridization. Such histories of treatment suggest the birds in question are intermediate in character. Therefore, if they also occur in an intermediate geographic locale, they are likely products of hybridization between the two populations to which they have been alternately assigned. In the cross accounts, some populations of this nature are also listed as PHPs.

In quite a few cases, crosses have also been rated as ENHI on the basis of comments in the literature to the effect that birds in population *X* are similar to those of population *Y* in the geographic region adjacent to *Y*. Such a state of affairs is generally indicative of extensive gene flow (although again, the possibility must always be considered that such traits might have arisen through selection for traits adapted

*Similarly, although two populations sharing an mtDNA haplotype usually indicates gene flow, it is sometimes suggested that such a finding may reflect what is called "retained ancestral polymorphism" (e.g., Takahata and Slatkin 1984; Neigel and Avise 1986). However, if the shared haplotype occurs mainly near the contact zone, explanation in such terms becomes untenable (the hypothesis predicts no spatial bias). In fact, there appears to be no case in which the traits of intermediate populations have been conclusively demonstrated to result from retained polymorphism, as opposed to gene flow. Thus, explanations of this sort must always be received with reservation.

to an intermediate environment). In such situations the word *approach* is used with the meaning “are similar to.” For example, in connection with the American and Yellow-billed magpies, Sibley (2000, p. 358) notes that the southern populations of the former that are adjacent to the latter “average smaller and smaller-billed, than northern and show some bare blackish skin around the eye, thus approaching Yellow-billed in appearance.” This finding suggests that these two birds interbreed extensively.

Compound Hybrid Zones. Compound hybrids, produced from crosses between multiple types, have already been mentioned. Compound hybrid zones, involving multiple participants, also exist. Three hummingbirds—the Purple-throated, White-throated, and Grey-tailed mountain-gems (*Lampornis calolaema*, *L. castaneiventris*, and *L. cinereicauda*)—have a three-way zone in southern Central America (Sibley and Monroe 1990; Stiles and Skutch 1989). In Australia, five types of sittellas (genus *Daphoenositta*) hybridize where they come into contact along five lines that radiate from a juncture in central Queensland (Short et al. 1983a). Near this center, hybrids may have ancestry involving all five different sittellas.

Mobile Zones. Many natural hybrid zones are mobile. The hybrid zone between the Golden-winged and Blue-winged warblers (*Vermivora chrysoptera* and *V. pinus*) in the eastern United States falls under this heading. The Blue-winged Warbler takes over more territory from the Golden-winged every year. The zone is slowly moving northward. Some predict the process will end in the Golden-winged’s extinction. Others say zone movement results from changes in the environment associated with human activities (e.g., agriculture and global warming). They believe the zone will stabilize geographically as soon as the Golden-winged retreats into cooler rural regions where it can hold its own against the Blue-winged.

In recent years, vast sums have been spent to prevent hybridization between the Ruddy Duck (*Oxyura jamaicensis*) and the White-headed Duck (*O. leucocephala*). The former, a New World native, was introduced in England and has now spread to Spain, where it hybridizes so intensely with the latter that conservationists fear pure White-headed Ducks will cease to exist in Spain. This situation, too, represents a mobile zone.

Presumption of Continuity. One policy in this book is to refer to an entire contact zone as a hybrid zone when hybridization is known to occur in at least some parts of the contact zone. Because of the work involved, most zones are not studied along their entire lengths. There is no reason to think that hybridization does not occur in unsampled regions of contact if it does occur in sampled regions. Nor is there reason, without evidence, to think that hybridization is patchily distributed along a poorly studied zone, when it is continuous along most well-studied ones. A presumption of continuity, then, is more logical, and really, more conservative, than an assumption that hybridization does not occur in any geographic region where evidence, positive or negative, is lacking.

Split Ranges. Since movement or expansion of a hybrid zone results from one bird taking over range from another, there is always the potential for the receding bird's range to be split. For example, the advancing front might reach a coastline. Under such circumstances, the distribution of the bird losing ground could become discontinuous, splitting on either side of the range of the advancing bird. This process may account for certain situations where a bird has two ranges separated by the range of another bird (also known as a "leapfrog" distribution). In the cross entries, cases which might fall under this heading are noted by insertion of the term *split range*. Examples are such hybridizing pairs as the Turquoise and Collared jays (*Cyanolyca turcosa* and *C. viridicyana*) of the Peruvian Andes, or the Hooded and Carrion crows (*Corvus cornix* and *C. corone*) of Eurasia.

Stability. It might be expected that two parental populations that form a hybrid zone, with thousands or even millions of mixed matings per year, would rapidly blend together and become indistinguishable. In such cases gene flow, the exchange of genes between populations, would seem to be unimpeded. Experience with actual hybrid zones, however, shows that the two types on either side of a hybrid zone usually remain distinct. Thus, Collar (1997, p. 421) notes that Buffon's Macaw (*Ara ambigua*) and the Military Macaw (*A. militaris*) are "sometimes treated as conspecific, but in spite of evidence of interbreeding the characters of the two forms are consistently different over their respective ranges." Differences between hybridizing populations can remain stable over long periods of time—many such hybridizing pairs showing no significant tendency to blend, even after decades of observation. Bullock's Oriole (*Icterus bullocki*) and the Baltimore Oriole (*I. galbula*) hybridize intensely, and yet outside the hybrid zone the two populations have remained pure.

Some zones are surprisingly stable. Moore (1995, p. 5) asserts that the zone between the Yellow-shafted and Red-shafted flickers (*Colaptes auratus* and *C. cafer*) is at least 6,000 years old. Fossil documentation of avian hybrid zones is difficult because paleontological remains of terrestrial animals are relatively rare, especially ones with delicate bone structure. However, Mayr (1982, p. 284) refers to "a case of two species of California oaks (*Quercus*), hybrids of which are known from the Pliocene to the present, and yet where the two species have retained their essential integrity." The Pliocene ended some 1.6 million years ago. Surely, if Mayr's oaks were going to merge, they would have done so by now. He goes on to say (p. 284) that "the genetics of such situations is not understood at all, for it seems as if some part of the genotype of the two species is not affected by the hybridization. The two species, in such a case, seem to remain 'reproductively isolated,' in the sense that they do not fuse into a single population."

During the last 20 years, progress has been made in elucidating this phenomenon. Various factors are now thought to keep hybridizing populations from blending over time. Two types of explanations are generally offered: one, cast in terms of environmental factors, the other, in terms of dispersal and selection against hybrids. Those of the first type, *environmental gradient models*, attribute the

maintenance of hybrid zones to the differing habitat requirements of the two parental types participating in the cross (Barton and Hewitt 1989; Endler 1973, 1977; Haldane 1948; May et al. 1975; Slatkin 1973). A prominent example of a zone believed to be maintained by an environmental gradient is the just mentioned hybrid zone between the Yellow-shafted and Red-shafted flickers (Moore and Price 1993). Good et al. (2000) make a similar case for the hybrid zone between Glaucous-winged and Western gulls (*Larus glaucescens* and *L. occidentalis*).

A special case of the environmental gradient model is the *environmental mosaic model* (Harrison and Rand 1989; Rand and Harrison 1989). It describes situations where the differing habitats are patchily distributed. Hybridization occurs where the two environments meet. Because of the high dispersion capabilities of most birds, avian mosaic zones seem rare. However, there may be cases that fit this model. Thus, hybrid zones between the Spotted and Yellow-rumped pardalotes (*Pardalotus punctatus*, *P. xanthopygus*) in southern Australia lie along junctures of sclerophyll forest and mallee woodland (Ford 1987). Another special case of this model is the *bounded hybrid superiority model* (Moore 1977; Moore and Buchanan 1985; Moore and Price 1993; Pierotti and Annett 1993), which assumes hybrids are fitter than the parental types in the transitional portion of the environmental gradient, but less fit outside the hybrid zone.

Nevertheless, the location of a hybrid zone often seems not to depend on environmental conditions. For example, the zone between the Black and Painted francolins (*Francolinus francolinus* and *F. pictus*) extends across India from the Gulf of Kachchh to the Bay of Bengal. The one between the Rock Pigeon (*Columba livia*) and Hill Pigeon (*C. rupestris*) begins in northern India and ends in southern Siberia. Each of these zones passes through such a wide variety of environments that it seems unlikely that zone maintenance is habitat-related. Such situations, where the role of the environment is at best obscure, are explained as *tension zones* (Barton and Hewitt 1985; Bazykin 1969; Key 1968; Moore 1977). Tension zones occur when dispersal of hybrids from the zone is balanced by influx of parental birds. The mechanism is simple. When parental types have a reproductive advantage, they keep the zone narrow by moving into it at higher rates than hybrids move out. This bias in dispersal keeps the genetic influence of hybrids from spreading outside the zone. In general, the larger the selective disadvantage against hybrids, the narrower a tension zone will be; the more mobile the participating organisms, the wider it will be (Barton and Gale 1993). A probable example of a tension zone is the one between the Black-capped Chickadee (*Parus atricapillus*) and the Carolina Chickadee (*P. carolinensis*), which extends across the eastern United States from New Jersey to Kansas through a variety of environments. Bronson et al. (2003) monitored the reproductive success of mated pairs within this zone and found that unmixed parental pairs of either parental type produced more than twice as many fledglings per nest as did hybrid pairs.

Much debate has focused on which of these factors is more important in maintaining zone stability. The two, however, are not mutually exclusive. A tension zone could exist in a region of transitional habitat. Thus, Delpont et al. (2004) argue that

both habitat characteristics and a balance of dispersal and selection seem to play a role in maintaining a hybrid zone between the Damaraland and Red-billed hornbills (*Tockus damarensis* and *T. erythrorhynchus*).

Causes of Hybrid Infertility. Various theories have been proposed to account for the observation that hybrids are commonly less viable and/or fertile than their parents. One such explanation, *reinforcement*, suggests natural selection acts directly to increase reproductive isolation. In this scenario, two populations descend from a single ancestral population and diverge in geographic isolation. Reinforcement is thought to occur when the populations come back into contact (“secondary contact”). At this stage, natural selection is said to favor those individuals that mate with their own kind. Thus, it is said, reproductive isolation eventually becomes complete, as hybrids become less viable and fertile. Reinforcement, however, is controversial (Butlin 2005). Selection for infertile, inviable offspring does seem a contradiction in terms—natural selection is a process favoring traits aiding, not hindering, the production of offspring. Indeed, in later editions of the *Origin*, Darwin himself (1872, vol. 2, p. 21) concluded “after mature reflection” that natural selection could not favor the production of sterile hybrids. In his own words: “The sterility of first crosses and of their hybrid progeny has not been acquired through natural selection.” Darwin’s advocate, Thomas Huxley, also doubted that selection would favor either a physiological inability to cross or the production of sterile offspring (Huxley 1898, p. 150; 1901, pp. 257, 309).

A different explanation, not involving selection for sterility, the Dobzhansky–Müller (D-M) Model (Bateson 1909; Dobzhansky 1937; Müller 1942) does enjoy wide favor. It suggests that postzygotic isolation (inviability and infertility of hybrids) can evolve without natural selection if it is based on the incompatibility of two or more genetic loci. However, any explanation of a general phenomenon (in this case, hybrid sterility) should identify a general causative mechanism that would be expected to produce that phenomenon. Its proponents (e.g., Coyne and Orr 1998, p. 295) say it is “entirely possible” that the process described by the D-M Model would produce without natural selection populations that are intersterile.* However, though it avoids any claim that selection favors sterility, the D-M model fails to specify any other causative mechanism that would lead one to expect hybrids to be less fertile than their parents.

Moreover, even birds that have presumably been isolated for many millions of years are known to produce partially fertile hybrids. For example, the Red Siskin

*The D-M model’s reasoning: if an ancestral population has genotype *aabb*, a mutation (allele *A*) can be fixed by selection (or drift) in a descendant population if *Aabb* and *AAbb* aren’t detrimental. Also, another allele (*B*) can become fixed in a second population if *aaBb* and *aABB* are not unfavorable. Given this situation, Coyne and Orr (1998, p. 295) say it is “entirely possible that when the *AAbb* and *aABB* populations come into contact, the resulting *AaBb* hybrids could be sterile or inviable. The *A* and *B* alleles have never been ‘tested’ together within a genome, and so may not function properly in hybrids.”

(*Carduelis cucullata*), a South American bird, produces partially fertile offspring with Old World birds such as the Canary (*Serinus domesticus*) and the Eurasian Siskin (*Carduelis spinus*). South America has been isolated from Europe and Africa by the Atlantic Ocean for more than 100 million years (Briggs 1987). Thus, it seems development of sterility in these hybrids is either an exceedingly slow process or that a common ancestor of these birds was somehow able to pass the oceanic barrier.

On the other hand, many closely related taxa, ranging from plants to mammals, differ in chromosome number and/or with respect to the structure of individual chromosomes (Bengtsson 1980; Bogart 1969, 1972; Bush et al. 1977; Chiarelli 1975; Cribiu et al. 1988; Dowler 1989; Gardner and Patton 1972; Gorman and Atkins 1968; Matthey 1949; Qumsiyeh et al. 1988; Stebbins 1971; Thaeler 1980; White 1973a, 1973b, 1978). In particular, such *karyotypic* differences exist among birds (Bed'Hom et al. 2003; Bulatova et al. 1973; Castro et al. 2002; Francisco and Galetti 2001; Radjabli et al. 1970; Ribeiro et al. 2003; Schmutz and Oliphant 1987; Shields 1982; Shoffner et al. 1979; Sultana and Bhunya 1981; Valverde de Oliveira et al. 2001). In the present context, the word *structure* refers to differences in chromosomes resulting from inversions, translocations, deletions, or duplications. When individuals with different karyotypes mate, the resulting hybrids are *structurally heterozygous*. Structural heterozygosity usually has an adverse effect on fertility (Epstein 1986; Grant 1985; McCarthy et al. 1995).

Karyotypic differences, then, can be used to explain how certain types of hybrid infertility arise. Within a given population there is selection for a single uniform karyotype because variation of karyotypes results in the production of structural heterozygotes of low fertility. However, within a second population, isolated by distance from the first, there can be selection for uniformity with respect to some other karyotype. Thus, the karyotype of one population can evolve independently of the karyotype of another. As a result, natural selection for uniformity within each group can create two different karyotypes. Hybrids between such populations are structural heterozygotes. Therefore, their fertility is expected to be reduced. Their sterility is not selected for in any direct way; rather it is incidental to the selection for karyotypic uniformity within populations. Populations treated as species often have distinct karyotypes, hence, matings between such populations often produce relatively infertile hybrids. It is unknown how many hybridizing taxa differ in this way. Birds, in particular, are poorly studied in this respect. So it is impossible at present to assess how many types of hybrids fall under the purview of this model.

Karyotypes and the Maintenance of Hybrid Zones. When such chromosomal differences do cause infertility, populations break up spatially into separate geographic regions (Capanna 1973; Dowler 1989; Macey and Dixon 1987; McCarthy et al. 1995; White 1973a, 1973b, 1978). Spatial segregation on either side of a zone probably occurs because (1) karyotypically mixed populations produce many infertile offspring, and so tend to shrink; and (2) karyotypically pure populations produce fertile offspring and tend to expand. With time, mixed populations come to occupy relatively narrow interface regions (hybrid zones) between more extensive

regions occupied by pure, karyotypically uniform, fully fertile types. The population dynamics of such situations fit the tension zone model, but presumably, each of the pure parental populations would tend to occupy those regions where they had a reproductive advantage (as in environmental gradient models). In fact, examples are known of such chromosomally defined populations breaking up along an environmental gradient (Macey and Dixon 1987; Stebbins 1971; White 1978).

Thus, in those situations where pairs of hybridizing taxa differ karyotypically, chromosomal models provide an explanation of how populations remain morphologically distinct despite ongoing interbreeding. The two karyotypes on either side of such zones can have different genetic content and thus could define different organisms with different morphologies. Under such circumstances selection for the fertility of uniform karyotypes within a population would select, too, for morphological uniformity.

Hybrid zones are widely viewed as sources of gene flow (i.e., as causing genetic mixture of the participating populations). That is, they are regions where the breeding ranges of the parental populations overlap, where mixed matings and hybrids occur. However, as has just been explained, a tension zone may serve as a buffer, actually preventing gene flow. There is gene flow into the zone, but not between the two parental populations. Although the two are interbreeding, they are, in a real sense, reproductively isolated. In spatial computer simulations, where the parents are assumed to differ with respect to karyotype, hybridizing populations can remain distinct indefinitely (McCarthy et al. 1995). In narrow zones, gene flow is prevented by the low fitness of hybrids, in wide ones, by distance itself.

PCZs and ACZs. A line of contact where two populations meet without significant overlap is known as a *parapatric contact zone* (PCZ). One common way in which hybrid zones are first detected, prior to detailed analysis, is through the identification of a PCZ (Ford 1987). Two populations can also be separated by altitude. There is contact at a certain elevation with one bird occurring above that level, and the other below. In this book these regions are referred to as *altitudinal contact zones* (ACZs). Hybridizing populations commonly meet in ACZs. Indeed, in many cases populations that come into contact in both mountainous and non-mountainous region will have both an ACZ in the mountainous region and a PCZ in the non-mountainous one. In such cases the bird that occurs at higher elevations in the mountains will occur to the north (or, in the Southern Hemisphere, to the south) of the PCZ. That is, there is a parallel segregation of the populations on the basis of temperature preference. Thus, pairs of taxa are sometimes listed in this book, even when they are not known to produce hybrids, simply because they are similar and have a PCZ. Such pairs are included in the lists to encourage and facilitate investigation of the relevant contact zones. Similarly, since the existence of an ACZ can be a clue that hybridization is occurring, some pairs of similar birds are listed simply because they are known to interface at an ACZ. However, in such cases, when no actual hybrids have been reported, the lack of such reports is noted in the cross account.

Penetration. While it is true that in the case of many hybrid zones the parental populations remain distinct, certain hybrid traits can sometimes penetrate far outside a zone into otherwise pure parental populations (Barton and Hewitt 1989). For example, the hybrid zone between Red-backed and Rufous-tailed shrikes (*Lanius collurio* and *L. isabellinus*) lies in the Kirghiz Steppe. Individuals with a white primary patch, indicative of probable gene flow from *L. isabellinus*, also occur far west of the zone (Greece, Hungary, Germany, Sweden) within populations that appear to be pure *L. collurio* (Chylarecki 1991). Such findings are expected. In organisms as mobile as birds it would be more surprising if no hybrid ever moved away from the zone. So aberrant individuals, such as the white-patched shrikes, can perhaps be accounted for in terms of vagrant hybrids, ones that occasionally fly to regions far removed from the zone.

Hybrid Populations and Taxa

Wide Zones and Hybrid Populations. When hybrids occur only at low frequency, parental populations can overlap broadly without significant genetic consequence. For example, the Mourning Warbler (*Oporornis philadelphia*) and Canada Warbler (*Wilsonia canadensis*) have almost identical breeding ranges in the boreal forests of Canada and the northeastern United States. But there are only a few reports of hybridization between them and the situation appears stable. Levels of hybridization do not appear to be high enough to significantly affect either population.

On the other hand, if mixed matings produce progeny at higher rates, and those offspring are more fertile and viable, entire populations can become hybrid. For example, since the Mallard (*Anas platyrhynchos*) was introduced in New Zealand, it has hybridized extensively with the Pacific Black Duck (*A. superciliosa*). Marchant and Higgins (1990, p. 1333) say “many completely fertile hybrids are known from captivity and the wild.” Indeed, these hybrids are more vigorous than either parental type. As a result, the hybrid population is now very large. Hybrids today outnumber both parental types. Pure *A. superciliosa* individuals make up less than 5% of the total population. Pure Mallards are below 40%. All remaining birds are hybrid. The Rusty Grebe (*Tachybaptus rufolavatus*) is confined to Lake Alaotra on Madagascar where it hybridizes so intensely with the invading Little Grebe (*T. ruficollis*) that it may have already ceased to exist as a separate genetic entity. The Yellow-throated Miner (*Manorina flavigula*) and Black-eared Miner (*M. melanotis*) hybridize intensively in southeastern Australia. Contact occurs just east of Adelaide. Backcrossing results in a continuum of hybrids, with the darkest almost indistinguishable from the Black-eared Miner, and the palest almost like the Yellow-throated. *M. flavigula* ranges over most of Australia, while *M. melanotis* has a restricted range. Virtually no pure flocks of Black-eared Miners remain (Higgins et al. 2001).

Fertile Zones Contain Few F_1 Hybrids. Many hybrid zones are so wide that the two pure parental types almost never come into contact to produce F_1 hybrids. In such

cases virtually all individuals within the zone are later-generation hybrids and backcrosses. In northeastern Australia, the hybrid zone between Gould's Bronze-Cuckoo (*Chrysococcyx russatus*) and the Little Bronze-Cuckoo (*C. minutillus*) is an example (Higgins 1999). Such, too, is the case with the hybrid zones between Bullock's and Baltimore orioles (*Icterus bullocki* and *I. galbula*), and between the Rose-breasted and Black-headed grosbeaks (*Pheucticus ludovicianus* and *P. melanocephalus*) on the Great Plains of North America (Anderson and Daugherty 1974; Misra and Short 1974). The phenomenon is common, not only in bird hybrid zones, but also in those of a wide variety of non-avian taxa (Harrison 1993, p. 6).

Introgression and Introduction. Often used in connection with hybrid zones, the word *introgression* has had many meanings. It was originally defined by Anderson and Hubricht (1938, p. 396) as the "infiltration of germ plasm from one species into another through repeated backcrossing of the hybrids to the parental species." More recently, there has been an attempt to limit use of the term to situations involving permanent infiltration of genes from one population into another (Stebbins 1959; Heiser 1973). Thus, Rieseberg and Wendel (1993, p. 7) define it as the "permanent incorporation of alien alleles into a new, reproductively integrated population system." The word is normally used in situations where extensive natural backcrossing occurs. Thus, whatever its precise definition might be, introgression depends on the existence of numerous partially fertile hybrids. In this book, there is greater focus on whether fertile hybrids have been reported than on determining whether introgression has occurred. Also there is greater emphasis on determining rates of natural hybridization.

Introgression has been an element of various evolutionary scenarios in which foreign genes move into a new population and then undergo natural selection in the same way as an ordinary mutation would. It is interesting, then, that aviculturists have long used an analogous process, known as *introduction*, to obtain new types of birds. The approach is to identify a bird possessing some desirable trait and then to hybridize it with a domestic stock lacking the trait. If hybridization can be achieved, the next step is to backcross the hybrids to the domestic breed in order to "introduce" the trait. Basically, the process is the following: (1) birds from the "target stock" (i.e., the stock into which the trait is to be introduced) are crossed with some other stock having the desired trait; (2) hybrids with the trait are backcrossed to the target stock; (3) individuals among the backcross progeny exhibiting the trait are selected, and backcrossed again or bred among themselves; (4) selection over a number of generations stabilizes the trait and gradually eliminates other, undesirable traits that may be present (low fertility prominent among them); (5) the new breed becomes entirely stable when birds of both sexes are sufficiently fertile to maintain the breed without further backcrossing. This is the method that Duncker (1927a, 1927b, 1928, 1934) used to introduce red coloration into canary stocks. Domestic canary hens were crossed with the South American Hooded Siskin (*Carduelis cucullata*). Partially fertile male hybrid progeny were then backcrossed to introduce the trait. Attempts to introduce a new trait often end in failure because the hybrids turn out to be too infertile or inviable. Still, many such

efforts are successful. Perhaps natural selection acts through an analogous process within the context of variable hybrid zones to favor the emergence of new types of organisms.

Hybrids Treated as Taxa. As has already been mentioned (p. 23), the width of a hybrid zone depends in part on the fitness of the hybrids produced. When they are relatively infertile and inviable, the zone will be narrower (all other factors being equal). When the hybrids are more fertile/viable, it will be wider. Thus, even in crosses where the hybrids are relatively fit, a hybrid zone may act to isolate the parental types from each other—the zone is so wide that they are isolated by distance. For example, four types of South American toucans often treated as species (*Ramphastos ariel*, *R. citreolaemus*, *R. culminatus*, and *R. vitellinus*) are recognizable as types within their respective ranges, but are separated by very broad hybrid populations (Winkler and Christie 2002).

Ornithologists often treat wide hybrid zones as races or species. This practice is understandable—a hybrid zone has a geographic distribution (as is the case in a non-hybrid taxon), the birds within the zone have characteristic traits (as is the case in a non-hybrid taxon), and in broad hybrid zones they are relatively fertile and viable (as is the case in a non-hybrid taxon). Thus, although they are not usually thought of as populations, wide hybrid zones do, in fact, have all the essential features of populations as ordinarily described within the context of evolutionary theory. Birds within a hybrid zone are even reproductively isolated, to some extent (by distance), from birds outside the zone. Moreover, they are typically quite variable, an important point, since variability is the grist of natural selection. Thus, most of the theoretical mechanisms of natural selection, ordinarily conceived as occurring within the context of an ordinary population isolated by distance, should also be applicable to the populations composing wide hybrid zones.

Indeed, many hybrid populations listed in this book have been treated as species or races. One such population, *crossensis*, occurs in equatorial Africa (Bight of Biafra). It has been treated as a race of the Green-throated Sunbird, *Nectarinia rubescens*, but is now thought to be a hybrid population produced by crossing between *N. rubescens* and the Buff-throated Sunbird (*N. adalberti*). Short and Horne (2001, p. 413) say three populations (*osculans*, *pintoi*, and *theresae*), formerly treated as races of the Channel-billed Toucan (*Ramphastos vitellinus*), are now considered to be of hybrid origin. In Australia, three other populations, *roseicapillus*, *kuhli*, and *albiceps*, are still treated as races of the Galah (*Cacatua roseicapillus*). All hybridize where they come in contact. However, *kuhli* is geographically and morphologically intermediate between the other two and is therefore a likely product of hybridization between them (Ford 1987; Hall and Frith 1974; Higgins et al. 2001). Moreau's Sunbird (*Nectarinia moreaui*) is thought to be a stabilized hybrid population produced by hybridization between Loveridge's Sunbird (*N. loveridgei*) and the Eastern Double-collared Sunbird (*N. mediocris*). The Adelaide Rosella, *Platycercus adelaidae*, is the natural hybrid of *P. elegans* and *P. flaveolus* (Collar 1997; Ford 1987; Forshaw 1973, 1981; Irwin et al. 2001; Juniper and Parr

1998; Meise 1975). In southeast Australia, it is abundant within its limited range (which could also be viewed as a hybrid zone).

Many taxa have also been described on the basis of one or a few specimens. On the basis of five specimens, a hummingbird of northeast Brazil was described as a species, the Flame-rumped Sapphire (*Hylocharis pyropygia*). It is now thought to be a hybrid of two other birds (Sibley and Monroe 1990; Schuchmann 1999), the Glittering-bellied Emerald (*Chlorostilbon aureoventris*) and the White-chinned Sapphire (*Hylocharis cyanus*). Cooper's Sandpiper, described as a species (*Calidris cooperi*) by Baird on the basis of a single specimen collected in 1833, is probably a hybrid between the Sharp-tailed Sandpiper (*Calidris acuminata*) and Curlew Sandpiper (*C. ferruginea*). Sibley and Monroe (1990, p. 121) list the Intermediate Parakeet (*Psittacula intermedia*) and say it is likely a "good species." But as late as 1973, Forshaw (p. 338) noted that only five specimens were known. This bird of northern India has long been treated as a species, but has recently been recognized as a hybrid (Rasmussen and Collar 1999a, 1999b, 1999c). Grimmett et al. (1998, p. 420) say "recent evidence from captive-bred birds strongly suggests that this form is of hybrid origin." It is now thought to be derived from hybridization between the Plum-headed and Slaty-headed parakeets (*Psittacula cyanocephala* × *P. himalayana*).

This practice of describing hybrids as races or species is common, apparently, because a hybrid is easily recognizable as a hybrid only in comparison with its parents. When no such comparison is made, a hybrid seems simply to be a distinct type and the describer imagines it to be a species or race of gradual origin. When one realizes that hybridization produces intermediate birds and intermediate populations of birds, and that such birds and populations are different from either parent (i.e., that they are different *types* of birds), it's easy to see how a researcher concerned only with sorting and classifying types might overlook the hybrid nature of the specimens being classified. A wide hybrid zone connecting two parental types with a continuum of intermediate types could easily be taken for a clinally varying species or subspecies. A hybrid specimen that looks different from any known bird might be described as a new species. Since many formerly recognized taxa have turned out to be hybrid, many now recognized probably will, too. Many taxa of known or likely hybrid origin are listed in this book. They are marked with an asterisk in the Index.

Rare Hybrids Mistaken for Endangered Species. Since certain types of hybrids are rare, and since many types of hybrids have been treated as species, the conservation biologist should be aware that hybrids may sometimes be treated as rare or endangered species. For example, the Imperial Pheasant (*Lophura imperialis*) was long treated as a species, but is now known to be a natural hybrid (Rasmussen 1998; Hennache and Dickinson 2000; Hennache et al. 2003). It occurs in Vietnam at the juncture of the ranges of Edwards's Pheasant (*Lophura edwardsi*) and the Silver Pheasant (*L. nycthemera*), the two birds that cross to produce it. In 1923, Jean Delacour, a French ornithologist, obtained two specimens of this bird in

Vietnam and took them back to France for investigation. He described them as a new species (originally known as *Gennaeus imperialis*) and actually crossed them with various other pheasants (see crosses listed under *Lophura imperialis*). No other Imperial Pheasant was recorded until 1990, when a survey rediscovered it in Ha Tinh Province. A fourth specimen was collected in 2000. Until its hybrid origin was recognized, it was considered one of the most threatened pheasants in the world and was listed as critically endangered by the World Conservation Union (IUCN). Considerable resources were spent on its conservation and efforts to breed it in captivity. The recognition of such cases, then, is of prime importance to conservationists because money spent on protecting such “endangered species” that are actually rare hybrids could be much better spent elsewhere. Such birds are rare only because their parents rarely produce them, not because they are endangered.

Causes of Hybridization

Imprinting. Early in life most types of birds pass through a brief receptive period during which external stimuli determine their future choice of mate. The psychological process creating this preference is known as *imprinting*. Certain characteristics become established at that time that will later elicit courting and mating in the adult. Most birds will readily imprint on whatever bird raises them. In fact, early exposure can cause a nestling to imprint even on a non-bird or an inanimate object. Thus, Ardrey (1969) describes a case of a peacock raised in a reptile house at a zoo imprinting on a giant tortoise. Ever after, it followed the tortoise and showed no interest in others of his own kind. Lorenz (1970) showed Greylag goslings can imprint even on inanimate objects, such as a beach ball.

In captivity, birds often adopt nestlings not of their own kind. But some types of birds are more willing to play the role of foster parent than are others. In the case of certain hybrid crosses, in which the biological parents often abandon their young, breeders regularly resort to fostering. Birds commonly used for this purpose are the Bengalese (*Lonchura domestica*) and the domestic canary (*Serinus domestica*). Such adoptions are apparently fairly common in a natural setting also. A variety of reports are on record. For example, Briedhagen (1984) reports a Dunlin (*Calidris alpina*) adopting the brood of a Temminck’s Stint (*C. temminckii*). Some cases are bizarre. For example, a captive female Golden Eagle once hatched and reared three chickens (*The Ibis* 1896, p. 261).

Direct fostering is not necessary for imprinting. Beardslee and Mitchell (1965) report a case of a Prothonotary Warbler (*Protonotaria citrea*) singing the song of the Yellow Warbler (*Dendroica petechia*) and tending Yellow Warbler young. A male bird may learn an “incorrect” song by hearing it from a foster parent or even from a bird singing near the nest. He may later sing that song and attract a mate not of his own kind. For example, Lemaire (1977) showed that hybridization resulted when an accident of early learning led a Reed Warbler (*Acrocephalus*

scirpaeus) as an adult to sing a song that combined elements of *A. scirpaeus* song with those of the Marsh Warbler (*A. palustris*). Female birds tend to choose mates that sing the songs they were exposed to early in life (Baker et al. 1981; Grant and Grant 1996a).

Availability of Mates. In captivity, birds are commonly kept without access to mates of their own kind. If some other type of bird is present in the cage, hybridization will often result. Mating can occur even between the most disparate partners. Thus, with regard to captive doves, long-time aviculturist Arthur Butler (1906c, p. 346) comments that

I have had abundant evidence that they are not only desirous of breeding with those of another species, but with any other bird in the enclosure with them, though in no respect related and perchance not more than an eighth or tenth their bulk. A Passerine dove which I still have so persecuted a hen Zebra-finch with its attentions that I had to remove it to another cage, while three Steel-barred or Picui-doves which I had for some years would coo and bow to any other dove however large it was: but it is not only among the *Columbae* that one notices these depraved traits, for in my 'Foreign Finches' 1st ed. p. 78 I have recorded the fact of a Rosella parrakeet trying its utmost to induce a Red-crested Cardinal to accept it as a husband.

In such cases, the urge to mate apparently overcomes any tendency that a bird may have to restrict its attention to mates that present normal cues. Similarly, in a natural setting, when a bird is on the edge of its range, it may not meet a mate of its own kind. The same is true of a vagrant disoriented during migration or blown off course by a storm, and stranded on a foreign shore. If some other bird is present, hybridization may result.

Disturbed Habitats. Many authors (e.g., Anderson 1948, 1949; Anderson and Hubricht 1938; Lenz 1959; Stebbins 1959; Arnold et al. 1990) have proposed that environments disturbed by human activities are conducive to hybridization. However, in the vast majority of natural crosses listed in this book, there seems to be little evidence that hybridization has been the result of human disturbance. In fact, many avian hybrid zones are very lengthy, stretching across a variety of habitats, disturbed and undisturbed. Many seem to have existed for long periods of time, and there is no indication they are the products of recent human activity. Indeed, there are cases where humans seem to have actually interrupted pre-existing hybridization. For example, in southern Nigeria the Bearded and Green-backed bulbuls (*Criniger barbatus* and *C. chloronotus*) show signs of former hybridization, but their ranges are now separated by expanding human populations. Explanations of hybridization in terms of human intervention must be taken with a grain of salt because they accommodate a long-standing prejudice, namely, that hybrids do not ordinarily occur in a state of nature. The evidence presented in this book is entirely inconsistent with such an idea.

Underreporting

Although a wide variety of crosses are already known, there is reason to suppose that many types of avian hybrids have not yet been reported that could be observed in nature or obtained in captivity. Many others reported are probably more common than is generally supposed. Various factors contribute to underreporting.

Hybrid Zones Are Local. In many cases, hybrids are common within a restricted region (the hybrid zone) and occur only rarely elsewhere. Such is the case, for example, with hybrids between the Black-headed and Rose-breasted grosbeaks, already mentioned (Sibley 2000, p. 467). Surveys taking into account the entire ranges of the parental birds are therefore likely to convey the impression that hybrids are rare, when in fact they are common in the region where the two parents interface.

Female Hybrids Are Hard to Detect. In most types of birds, female plumage differs less than that of males, which can make female hybrids difficult or impossible to identify in the field, a very common problem in a wide variety of crosses. For example, female hybrids in the duck genus *Aythya* are hard to pick out and many are probably overlooked (Randler 2001b; Sibley 2000).

Male Hybrids Often Appear Female. In many crosses, hybrids that appear to be female are actually male. Both plumage and behavioral traits can be feminine. This factor can also result in underreporting because, as noted in the previous section, differences are often less distinctive in females. Thus, male hybrids produced by crossing between the Golden-fronted Woodpecker (*Melanerpes aurifrons*) and the Red-bellied Woodpecker (*M. carolinus*) tend to have female plumage. In general, because of retarded testicular development, a male hybrid may spend a greater proportion of his life looking like a female than would a non-hybrid male. Many hybrids, when they do take on male plumage, show a delay in doing so. This phenomenon has long been recognized. Thus, Riddle and Johnson (1939) report that male hybrids between Collared Dove and Ring Dove (*Streptopelia decaocto* and *S. risoria*) often have female plumage or take on male plumage quite late. Birds that are in the process of changing from the plumage of one sex to the other, or that seem intermediate with respect to sex, are known as *intersexes*. Such birds can be of either sex, but seem more often to be male, perhaps because male hybrids are themselves more common in birds.

Male hybrids may also fail to sing, or sing less, than pure males. For example, noting that hybrids between the Blue-winged Warbler (*Vermivora pinus*) and Golden-winged Warbler (*V. chrysoptera*) stop singing earlier than non-hybrids, Confer and Tupper (2000, p. 546) say that this factor has probably led to an underestimate of hybrid frequencies in southern New York because “most of the fieldwork by previous researchers in this area was conducted after the date when hybrids cease singing.” Hybrids between the Double-barred Finch (*Taeniopygia bichenovii*) and the Zebra Finch (*T. guttata*) may look like females, but eventually sing like males.

Hybrids Between Similar Types Are Hard to Detect. Short and Robbins (1967, p. 542) assert that “the remarkable appearance of intergeneric hybrids renders them more likely to be noticed by collectors and banders than the usually less obvious hybrids between congeneric species.” In general, hybrids between similar birds are more difficult to detect and therefore less likely to be reported (Randler 2004b). Hybrids between the Eastern and Western meadowlarks (*Sturnella magna* and *S. neglecta*) are an example (Jaramillo and Burke 1999). Similarly, Short and Horne (2001, p. 453) say the Thick-billed and Lesser honeyguides (*Indicator conirostris* and *I. minor*) are so similar that hybridization between them is “difficult to determine.” This difficulty probably accounts, at least in part, for the lack of reported hybrids in certain categories of birds. Thus, Holyoak (2001) says that the dearth of reports in caprimulgids may result from difficulties in recognizing hybrids between birds that are themselves often hard to distinguish.

Backcross Hybrids Are Easily Missed. In natural crosses where the F_1 hybrids are partially fertile, backcross hybrids are often produced. Such individuals are often highly similar to the parental type to which the backcross occurs. Immelmann (1982) notes that when hybrids between Long-tailed Finch (*Poephila acuticauda*) and Black-throated Finch (*P. cincta*) backcross to either parent, the resulting hybrids are almost identical to that parent. According to Gray (1958), when hybrids between the Ferruginous Pochard (*Aythya nyroca*) and the Red-crested Pochard (*Netta rufina*) backcross to the Ferruginous parent, the resulting offspring are scarcely distinguishable from *A. nyroca*. The Black-throated Green Warbler (*Dendroica virens*) and Townsend’s Warbler (*D. townsendi*) hybridize in southwestern Canada (Alberta). Dunn and Garrett (1997, p. 305) note that genetic analysis showed a bird was hybrid even though it “was exactly identical to Townsend’s in appearance.” The Townsend’s Warbler also hybridizes with the Hermit Warbler (*D. occidentalis*) in Washington State (U.S.). Rohwer et al. (2001) found that throughout a 2,000 km coastal strip to the north, birds that look like pure Townsend’s warblers are for the most part cytoplasmically hybrid (i.e., they have Hermit Warbler mtDNA). In many types of crosses, backcross hybrids are more fertile and thus more likely to backcross again to the same parent, so that their progeny will be even more similar to that parent, and so forth. Such hybrids can be very hard to identify.

Since hybrids can be highly cryptic, closely resembling one parental type or the other, in this book the term “possible hybrid” is avoided, although it is much used in the literature, and widely considered a conservative assessment. In truth, any bird of unknown parentage is a “possible hybrid” because many hybrids are not at all obvious and are identified as such only after detailed analysis. On the other hand, when birds have many traits that are intermediate between those of two other types, it is more than merely possible that they are hybrids—it is *probable*.

Song May Be Like That of Pure Parent. Another problem with surveys based on song is that the song of a hybrid is often similar to that of one of its parents. For example, Frauendorf et al. (1997) reported that a hybrid between a Common Redstart (*Phoenicurus phoenicurus*) and Black Redstart (*Phoenicurus ochruros*) had

a song like that of a pure Black Redstart. A song-based survey would report any such individual as a Black Redstart, not a hybrid.

Molecular Data. Some genetic studies of hybrid zones suffer from poor experimental design. A sufficient number of markers must be used to prevent high rates of false negatives, especially in cases where later generation backcross hybrids occur (Arnold 1997). Thus, among hybrids of known parentage descended from matings between the Red-legged and Rock partridges (*Alectoris rufa* and *A. graeca*), Negro et al. (2001) found that six RAPD primers that produced 11 markers allowed detection of all F_1 hybrids and first backcrosses to Red-legged Partridge, and all but one hybrid among 18 second backcrosses, but only 18 out of 27 third backcrosses. If the same method were applied to evaluate birds in a hybrid zone many hybrid birds would be overlooked. Bensch et al. (2002) found similar a problem in studies of specimens from the Pyrenees contact zone between the Common and Iberian chiffchaffs (*Phylloscopus collybita* and *P. brehmii*). A larger number of markers allowed detection of hybrids among birds previously believed, on the basis of song and mtDNA, to be pure parentals.

Parents May Themselves Be Poorly Known. Many types of birds are difficult to study because they breed in inaccessible habitats (tropical rainforests, remote islands, cliffs) or have habits that make them hard to investigate (e.g., are nocturnally active). Thus, very little is known of the breeding biology of puffbirds (Bucconidae) because they reside in neotropical jungles. Hybridization in such birds, although it may occur frequently, would likely go unobserved. Many birds are also poorly known because their diet makes them difficult to keep in captivity. Gramivorous birds (e.g., finches) are easily kept and have been extensively hybridized in captivity. In comparison, captive hybridization is not nearly so well studied for insectivores such as tanagers and wood warblers.

Differential Viability. Many crosses show differential viability, especially distant ones. That is, not all eggs hatch and, of those that do, not all survive to maturity. In general, the percentage of eggs that hatch (hatchability) is lower in distant crosses, as is the number of individuals that survive to adulthood. This phenomenon can make it difficult to determine whether a given uninvestigated cross is obtainable. Small sample sizes might suggest a cross doesn't work, when more matings would produce a hybrid. Jamieson (1950) reported two fertile eggs from a cross between the Yellowhammer and European Goldfinch, but the hybrids died in the shell. It is an open question whether some hybrids from this cross would have hatched from a larger sample. In crosses between domestic fowl (*Gallus gallus*) and guinea fowl (*Numida meleagris*), egg fertility is fairly high (~70% of eggs set), but only about 20% ever hatch, and fewer survive to adulthood (see cross account). In some crosses, birds very rarely reach maturity. When Sarvella (1971) artificially inseminated Japanese Quail (*Coturnix japonica*) with the semen of Common Pheasants (*Phasianus colchicus*), only about 6% of the eggs were fertile. Of these, about 1 in 6 hatched and only about 1 in 20 of those that hatched reached

adulthood. The low viability of this cross might have led a less persistent researcher to claim it couldn't be obtained.

Failure to Publish. Many observations of hybrids are not formally published. For example, according to the Birds Australia Rarities Committee (www.birdsaustralia.com.au), there are several “reliable, but unpublished reports” of hybrids in Australia between the Sooty and Pied Oystercatcher (*Haematopus fuliginosus* and *H. longirostris*). Birding associations commonly assign ring numbers to certain types of hybrids, presumably because they are known to occur, even when no published reports of the hybrid are available. An example is the hybrid between the Mallard Duck (*Anas platyrhynchos*) and Steller's Eider (*Polysticta stelleri*), which is assigned a ring number on a Danish birding site (www.engelstedsgade.dk).

Lack of Awareness. In the past, many birders and ornithologists tended to think of avian hybrids as very rare. An observer does not look for something she does not expect to see. Over the years, then, many encounters with hybrids have likely gone unreported, written off as sightings of aberrant birds or morphs. However, knowledge of avian hybrids is on the increase. Randler (1998, 2001b) suggests a growing awareness of the existence of hybrids and improved identification literature have caused the recent escalation in avian hybridization reports. Higgins and Davies (1996, p. 307) note that certain new sandpiper hybrids lately reported probably reflect “increasing interest in plumages, hybridization and field identification of waders rather than changes in breeding habits and distribution.” Even today, though, many may assume natural avian hybrids are so rare that they are unlikely to see one. This attitude tends to prevent consideration that a sighted bird might be hybrid, and in the long run results in systematic reporting bias.

Typological Perspective. In the rush to classify sighted birds, individual variation can be overlooked. While some birds are obviously intermediate between two types, many a bird that is not so exactly intermediate will end up classified as a pure bird of the type to which it tends. For example, there is a hybrid zone between the Tufted Titmouse and the Black-crested Titmouse (*Parus bicolor* and *P. atricristatus*) in Texas and Oklahoma (U.S.). Birds hybridize freely within this zone. A website maintained by the USGS (www.mp2-pwrc.usgs.gov/bbs/AOUSplt1.htm) notes that “there is a tendency for observers to specifically identify all titmice detected on routes in or near this hybrid zone.” This predisposition to record hybrids as pure parentals guarantees underreporting. Regarding this propensity of birders to overlook hybrids, famed ornithologist David Sibley remarks (1994, p. 164) “the human brain has a remarkable capacity to ignore glaringly inappropriate features while categorizing a bird based on other, more familiar, features. My experience is that an unexpected hybrid does not stand out at first glance.”

In fact, there is a tendency for writers to talk of variation “within a species,” even when much of the variation is known to be the product of hybridization with some other bird. Thus, Kaufmann (1990) points out that it is not possible to identify hybrids between the Red-naped and Yellow-bellied Sapsuckers (*Sphyrapicus*

nuchalis and *S. varius*) with certainty in the field because “the parental forms are similar enough that a bird which seems intermediate could just be an extreme variant of one form or the other.” Similarly, Sibley (2000, p. 207) says identification of adult Yellow-legged Gulls is difficult because “all characteristics overlap with rare individual Herring Gulls.” Speaking of “rare individual Herring Gulls” obscures the fact that such birds are probable hybrids. These two birds (*Larus cachinnans* and *L. argentatus*) are known to hybridize extensively in southwestern France and northern Spain, and rare, vagrant hybrids are known to occur in North America (Sibley’s region). Nevertheless, there is a tendency to think of these birds as “unusual Herring Gulls.” The same tendency is seen in the writings of many ornithologists, where variation that spans the gap between hybridizing populations is often expressed as “overlap in variation between species.” Such a perspective is bound to decrease the number of hybrids reported.

Future Research

For many years, animal hybrids were believed to occur only rarely, and, even then, primarily in captivity. The thousands of publications cited in this book demonstrate that avian hybrids, at least, cannot be so easily dismissed. Hybrid zones listed in the cross accounts occur in virtually every country of the world. In many of those zones, hybrids are produced in huge numbers. The number of individual hybrids produced in any single, major hybrid zone probably far exceeds the total number of individual hybrids produced from all known crosses observed in captivity. And yet, many assert that under natural conditions avian hybridization is rare.

Much remains to be learned about hybridization in birds. Almost every topic in the field cries out for additional research. In particular, there is a widespread tendency to view hybrids stereotypically as absolutely sterile. The data compiled in this book irrefutably demonstrate that many hybrids are partially fertile, but available information is insufficiently quantified. To properly investigate the phenomenon of hybrid fertility, it will be necessary to assess a wide range of hybrid types in terms of the number of viable gametes they produce. Evaluations of gamete quality, fertilization rates, and hatchability would also be of interest. Since hybrids from the same cross can vary widely in fertility, such comparisons should examine enough individuals from each cross to attain statistical significance. The fertility of both F_1 individuals and backcrosses should be evaluated. Comparisons of the viability of hybrids with that of the parental types would also be useful. The differential viability seen in many distant crosses is a matter of curiosity and an interesting subject of research. Why, in certain crosses (e.g., domestic fowl \times turkey), do different F_1 individuals differ so much in viability, with some dying early in development and others surviving to adulthood? This phenomenon is poorly understood, but may have an immunological basis. Also, there is the question of the degree of correlation between relationship and crossability. How closely related must two organisms be if they are to hybridize successfully? This question remains largely unanswered.

Much remains to be done, too, with regard to identifying unrecognized hybrid zones and new types of hybrids. These questions can be addressed both through captive hybridization and by field research. Parapatric and altitudinal contact zones, in particular, should be studied, because their investigation is likely to reveal previously unreported types of natural hybrids. Many are listed in this book. The large number of hybrids and hybrid populations that have been treated as races and species suggests that many populations currently so treated will turn out to be hybrid. The conservationist, then, should be especially keen to identify rare hybrids treated as endangered species. There are also many cases on record in which hybridization has endangered or even led to the extinction of natural populations (Finnley 1979; Fuchs 1975; Greig 1980; Hughes 1996a, 1996b, 2000; Ma and Lambert 1997; Ortlieb 1988; Peterson and Brisbin 1998; Rhymer and Simberloff 1996). Genetic swamping of this sort can be very rapid. Making proper decisions in such cases requires not only accurate knowledge of the cross under consideration, but also an adequate understanding of the genetic processes involved. The latter requirement dictates the development of realistic genetic models based on an accurate knowledge of factors encouraging hybridization (e.g., availability of mates, behavior, anatomical factors, spatial distribution of participants, etc.).

It would also be interesting to gain a better understanding of the processes creating and stabilizing hybrid populations. For the evolutionary biologist, hybridization has exciting potential as a source of variation and rapid evolution. One can imagine new types of birds coming into existence through the expansion of successful hybrid zones or through natural processes analogous to the introduction process used in artificially breeding new types of birds (see p. 38). How many currently recognized taxa had such an origin? Only further study of hybrids and hybridization will tell.

Cross Accounts

Ostriches, Rheas, and Kiwis

Families *Apterygidae*, *Rheidae*,
Struthionidae

Apteryx australis [Brown Kiwi]

- × *Apteryx mantelli* [Northern Brown Kiwi]
ENHR. BRO: N. Zealand. The Kapiti Island Brown Kiwi is a PHP of this cross. These birds are usually lumped, but Baker et al. suggested they be split. Baker et al. 1995. Internet: KIWI, NZGOV.
- × *Apteryx oweni* [Little Spotted Kiwi] NHR. BRO: N. Zealand. Internet: NZGOV.

Rhea americana [Greater Rhea]

- × *Rhea pennata* [Lesser Rhea] CHR. HPF. Wassenaar Breeding Center (Holland) had 13 hybrids in two years. *Avicultural Magazine* 1905 (p. 375); Delacour 1936a; Finn 1929; Folch 1992; Hopkinson 1926; *IZY* 1968, 1969.

Struthio camelus

[Common/Southern Ostrich]

- × *Struthio molybdophanes* [Somali Ostrich] CANHR. HPF. PCZ in cen. Kenya. These birds are often lumped. Anonymous 1920; Brown et al. 1982; Duerden 1919a, 1919b; *IZY* 1971; Snow 1978; Stevenson and Fanshawe 2002 (p. 2).

Tinamous

Family *Tinamidae*

Crypturellus boucardi

[Slaty-breasted Tinamou]

- × *Crypturellus cinnamomeus* [Thicket Tinamou] ONHR (Honduras). Cabot 1992; Monroe 1968 (p. 42). Internet: DIGI.

Crypturellus cinnamomeus [Thicket Tinamou]

See: *Crypturellus boucardi*.

Crypturellus obsoletus [Brown Tinamou]

- × *Crypturellus traylori* [Traylor's Tinamou] PCZ (Peru). No hybrids as yet reported. Blake 1977 (p. 36).

Crypturellus tataupa [Tataupa Tinamou]

A captive hybrid involving this bird has been reported from the Olmense Zoo (Belgium). The other bird participating in the cross was not specified. Internet: ISIS.

Crypturellus traylori [Traylor's Tinamou]

See: *Crypturellus obsoletus*.

Tinamus solitarius [Solitary Tinamou]

See Appendix 2.

Brush-turkeys and Scrubfowls

Family *Megapodiidae*

Alectura lathami [Australian Brush-turkey]

A population (*robinsoni*), treated as a race of this bird, is intermediate in morphology and

range between two others (*lathami*, *purpureicollis*) so treated and is thus a PHP of this cross.

Megapodius affinis [New Guinea Scrubfowl]

× **Megapodius eremita** [Melanesian Scrubfowl] ENHR (New Guinea). HPF(vh). These birds differ in many ways (e.g., size, length of crest, coloration of wings, flanks, and mantle). There are variably intermediate hybrid populations on Karkar and Bagabag Is., off the ne coast of New Guinea. Mayr and Diamond say *M. eremita*-like hybrids became more common on Karkar over the last century. Hybrids are similar to Australia's *M. freycinet* (Dusky Scrubfowl). Coates 1985; Diamond and LeCroy 1979; Jones et al. 1995 (pp. 31, 191); Keartland 1901; Mayr 1938; Mayr and Diamond 2001; Meise 1975.

× **Megapodius geelvinkianus** [Biak Scrubfowl] ENHR (New Guinea). HPF(vh). There is a hybrid zone in the Mios Num region (Geelvink Bay) where birds are variably intermediate. Jones et al. 1995 (p. 31).

× **Megapodius reinwardt** [Orange-footed Scrubfowl] ENHR? A population in se New Guinea may be derived from this cross. Jones et al. 1995 (p. 222).

Megapodius cumingii [Tabon Scrubfowl] Hybrids between two populations (*cumingii*, *pusillus*), usually treated as races of this bird, occur on Sulu I. and on Maratua. Jones et al. 1995 (p. 171).

Megapodius eremita [Melanesian Scrubfowl] See also: *Megapodius affinis*.

× **Megapodius reinwardt** [Orange-footed Scrubfowl] ENHR. HPF(vh). Variable intermediate populations exist on the islands of Trobiand, D'entrecasteaux, and Louisiade off the e tip of New Guinea. They have been treated as a race (*macgillivrayi*) of *M. reinwardt*. Birds closer to the range of *M. reinwardt* approach it in appearance. Jones et al. 1995 (pp. 28, 221); Mayr 1938.

Megapodius forstenii [Forsten's Scrubfowl]

× **Megapodius freycinet** [Dusky Scrubfowl] ENHR (e Indonesia). Birds in the Obi group in the Moluccas are geographically and

morphologically intermediate and are thus a PHP of this cross. *Megapodius forstenii* is listed by Jones et al., but not by Sibley and Monroe (1990). Jones et al. 1995 (p. 28).

Megapodius freycinet [Dusky Scrubfowl] See also: *Megapodius forstenii*.

× **Megapodius reinwardt** [Orange-footed Scrubfowl] ONHR. BRO: w Vogelkop (New Guinea). HPF(vh). Plumage of hybrids is like that of the New Guinea Scrubfowl (*M. affinis*). Jones et al. 1995 (pp. 28, 186, 212).

Megapodius geelvinkianus

[Biak Scrubfowl] See: *Megapodius affinis*.

M. geelvinkianus is listed by Jones et al., but not by Sibley and Monroe (1990).

Megapodius reinwardt

[Orange-footed Scrubfowl]

See: *Megapodius affinis*; *M. eremita*;

M. freycinet. Jones et al. 1995 (pp. 31–32)

speculate that a population in the mts of se New Guinea may represent hybrids between *Megapodius reinwardt* and some other previously existing, unknown type of Brush-turkey that has been genetically swamped by *M. reinwardt*.

Talegalla cuvieri [Red-billed Brush-turkey]

× **Talegalla fuscirostris**

[Black-billed Brush-turkey] ENHI.

ACZ in New Guinea (Iwaka and

Utakwa valleys). *T. cuvieri*

occurs above *T. fuscirostris*. A population (*meyeri*) s of Geelvink Bay is intermediate in morphology and range and, thus, a PHP of this cross. Jones et al. 1995 (pp. 28, 113).

Talegalla fuscirostris

[Black-billed Brush-turkey]

See also: *Talegalla cuvieri*.

× **Talegalla jobiensis** [Brown-collared

Brush-turkey] NHR?? ACZ in e New Guinea

(~147°E, above Port Moresby). *T. jobiensis*

occurs above *T. fuscirostris*. Jones et al.

(p. 114) briefly mention some specimens

from the Ta River region that may be this

hybrid. Jones et al. 1995 (pp. 28, 109, 114).

Talegalla jobiensis

[Brown-collared Brush-turkey]

See: *Talegalla fuscirostris*.

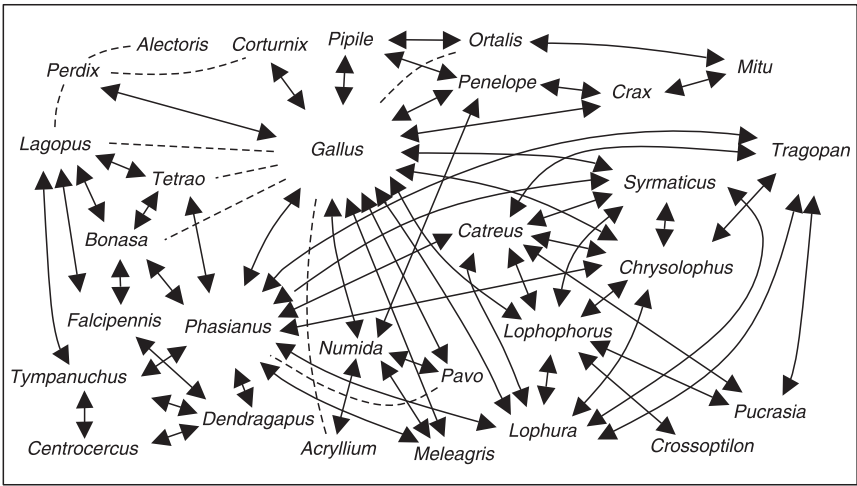


Figure 1. Hybridizing galliform genera. Arrows indicate reported hybridization. Dotted lines indicate questionable reports.

Upland Game Birds

Families *Cracidae*, *Meleagridae*, *Numididae*, *Phasianidae*, *Tetraonidae*

Note: Five families are listed here together under the heading Upland Game Birds because reports of hybridization connect them (see Figure 1). Hybrids are reported for all pheasant genera, except four rarely bred in captivity (*Afropavo*, *Argusianus*, *Ithaginis*, *Rheinartia*).

- Acryllium vulturinum* [Vulturine Guineafowl]
 × *Gallus gallus* [Domestic Fowl/Red Junglefowl] CHR? An old report of this cross is plausible since *A. vulturinum* is closely related to *Numida meleagris*, which is definitely known to hybridize with domestic fowl. Rothschild 1913.
- × *Numida meleagris* (♀) [Helmeted Guineafowl] CHR. Older reports mention fertile hybrids. BRO: e Africa. Ghigi 1927, 1936a; Hertwig 1936; Hopkinson 1926; Laidlay 1929; Renshaw 1915; Taibel 1936; Takahashi et al. 1975.
- Agriocharis ocellata* [Ocellated Turkey]
 × *Meleagris gallopavo* (↔) [Turkey] CHR. DRS. HPF(♂♂). Asmundson and Ogasawara

introduced variability into domestic turkey lines by backcrossing ♂ hybrids to *M. gallopavo* ♀♀, and then selecting desirable traits in the progeny. Ackermann 1898; Asmundson and Ogasawara 1966; Ghigi 1936b; Ghigi and Delacour 1931; Hopkinson 1940b; Lorenz et al. 1956[†]; Porter 1994 (p. 364); Quinteros et al. 1964.

- Alectoris barbara* [Barbary Partridge]
 × *Alectoris graeca* [Rock Partridge] NHR (Mediterranean). Moltoni 1924[†].
- × *Alectoris rufa* [Barbary Partridge] PCZ (Strait of Gibraltar). No hybrids as yet reported. See Figure 2. Harrison 1982 (p. 112); Sibley and Monroe 1990 (pp. 11–12); Spanò 1979.
- Alectoris chukar* [Chukar]
 × *Alectoris graeca* [Rock Partridge] ENHR (s Bulgaria, ne Greece). Hybrid zone is s of Rhodope Mts. in Thrace. See Figure 2. These birds are sometimes lumped. Cramp and Simmons 1980; Dias 1992; Dragoev 1974; Goodwin 1986b; Lorenzini et al. 1991; Panov 1989; Petrov et al. 1969; Randi et al. 1992; Watson 1962b.
- × *Alectoris magna* [Rusty-necklaced Partridge] ENHR (n cen. China). See Figure 2. ACZ at

2,500 m. These birds are sometimes lumped. Bernard-Laurent 1984; Chen et al. 1999; Randi et al. 1992; Watson 1962a.

× *Alectoris rufa* [Red-legged Partridge] ENHR. In Spain, France, and England, introduction of *A. chukar* has led to hybridization. These birds are sometimes lumped. Barbanera et al. 2005; Baratti et al. 2005; Cramp and Simmons 1980; Dias 1992; Goodwin 1986b, 1986c; Harrison 1982; Panov 1989; Potts 1989, 1991, 1996a, 1996b; Swan 1991; Wilkinson 1987.

Alectoris graeca [Rock Partridge]

See also: *Alectoris barbara*; *A. chukar*.

× *Alectoris melanocephala* (♀) [Arabian Partridge] CHR. DRS. Hopkinson 1930, 1931a, 1933a; Meinertzhagen 1954 (p. 563).

× *Alectoris rufa* [Red-legged Partridge] CAENHR. A narrow hybrid zone exists in the s Alps (France, Italy). *A. graeca* has also been extensively introduced into the Iberian Peninsula where concern has now arisen over its hybridization with the native *A. rufa*. This hybrid was treated as a species (*Perdix labatici*). See Figure 2. These

birds are sometimes lumped. Ackermann 1898; Bernard-Laurent 1984, 1987; Bernard-Laurent and Gossmann 1985; Ceugniet and Aubin 2001; Ceugniet et al. 1999; Dias 1992; Legendre 1936 (p. 319); Lorenzini et al. 1991; Martorelli 1913[†]; Moltoni 1924; Randi and Bernard-Laurent 1998, 1999; Randi et al. 1998; Spanò 1979; Suchetet 1897a. Internet: DIGI.

× *Gallus gallus* [Domestic Fowl/Red Junglefowl] CHR?? Modern listings of this cross trace to 19th century papers cited by Ackermann (1898, p. 24).

× *Perdix perdix* [Grey Partridge] NHR?? BRO: se Europe. Suchetet 1897a.

Alectoris magna [Rusty-necklaced Partridge]

See: *Alectoris chukar*.

Note: Two populations (*guichardi*, *melanocephala*), treated as races of *Alectoris melanocephala*, hybridize in Dem. Yemen (w Hadramaut). Meinertzhagen 1954.

Alectoris melanocephala [Arabian Partridge]

See also: *Alectoris graeca*.

× *Alectoris philbyi* [Philby's Partridge] These birds have an ACZ (~1500 m) in sw Saudi

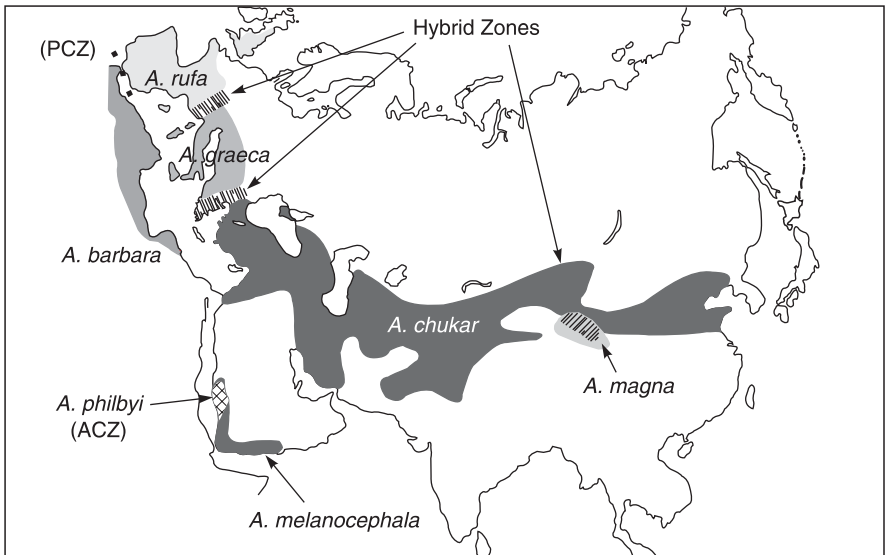


Figure 2. Contact zones between *Alectoris* partridges. Hatched regions: hybrid zones.

- Arabia (Azir Mts.). See Figure 2. Harrison 1982 (p. 112); Sibley and Monroe 1990 (pp. 11–12); Randi et al. 1992; Spanò 1979.
- Alectoris philbyi*** [Philby's Partridge]
See: *Alectoris melanocephala*.
- Alectoris rufa*** [Red-legged Partridge]
See also: *Alectoris barbara*;
A. chukar; *A. graeca*.
- × *Perdix perdix* [Grey Partridge] NHR?? BRO: w Europe. Old reports. Evans 1922; Suchetet 1897a; Yarrell 1843.
- Arborophila charltonii*** [Chestnut-necklaced Partridge]
× *Arborophila chloropus* [Scaly-breasted Partridge] ENHI. A population of n Vietnam (*tonkinensis*) is intermediate and, so, a PHP of this cross. McGowan 1994.
- Arborophila chloropus***
[Scaly-breasted Partridge]
See: *Arborophila charltonii*.
- Arborophila javanica*** [Chestnut-bellied Partridge]
× *Arborophila orientalis* [Grey-breasted Partridge] ENHI (cen. Java). A population (*lawuana*) on Mt. Lawoe is morphologically and geographically intermediate, and thus a PHP of this cross. Mees 1996 (pp. 18–19; see also Figures 5 and 6).
- Arborophila orientalis*** [Grey-breasted Partridge] See: *Arborophila javanica*.
- Bonasa bonasia*** [Hazel Grouse]
× *Lagopus lagopus* [Willow Ptarmigan] ONHR. BRO: Eurasia. Hybrids fairly common in Scandinavia. See: *Bonasa bonasia* × *Lagopus scoticus*. Berlioz 1927; Collett 1886; de Juana 1994 (p. 402); Gray 1958; Hachisuka (Marquess) 1928; Panov 1989; Peterle 1951; Suchetet 1897a.
- × *Lagopus mutus* [Rock Ptarmigan] NHR? BRO: Eurasia. Old reports. Arrigoni Degli Oddi 1893b[†]; Suchetet 1897a.
- × *Lagopus scoticus* [Red Grouse] DRS. This hybrid has been reported to occur naturally, but the ranges of the parental types are disjunct. The bird in question is probably *Bonasa bonasia* × *Lagopus lagopus* (*L. scoticus* is often lumped with the latter). Pleske 1887; Panov 1989.
- × *Tetrao tetrix* (↔) [Black Grouse] ONHR. BRO: Eurasia. Berlioz 1927; Collett 1906; de Juana 1994 (p. 405); Hachisuka (Marquess) 1928; Lucanus 1918; Ogilvie-Grant et al. 1912; Panov 1989; Peterle 1951; Pleske 1887; Rautian and Rautian 1985; Schaanning 1920–1923[†].
- Bonasa umbellus*** [Ruffed Grouse]
× *Dendragapus canadensis* [Spruce Grouse] NHR? BRO: n U.S., Canada. De Juana 1994 (p. 401).
- × *Dendragapus obscurus* [Blue Grouse] NHR. BRO: nw U.S. Batterson 1957; Tufts 1975.
- × *Phasianus colchicus* [Common Pheasant] NHR? BRO: n U.S., s Canada. The specimen has been lost. Bump 1947; Peterle 1951 (p. 220).
- Catreus wallichii*** [Cheer Pheasant]
× *Chrysolophus pictus* (♂) [Golden Pheasant] CHR?? DRS. Cronau 1902 (p. 71).
- × *Lophophorus impeyanus* [Himalayan Monal] CHR. BRO: Himalayas? The London Zoo had a ♂ hybrid in 1904. Günther 1904b; Rothschild 1904; ZSL 1904.
- × *Lophura lathami* [Horsfield's Pheasant] CHR? BRO: Himalayas. Rothschild 1904.
- × *Lophura nycthemera* [Silver Pheasant] CHR. DRS. Cronau 1902 (p. 75); Serebrovsky 1929; Suchetet 1897a; *The Field* 1904.
- × *Phasianus colchicus* [Common Pheasant] CHR. DRS. Hybrids are usually ♂. Brentana 1914; Cronau 1902 (p. 20); Gray 1958; Legendre 1936; Ogilvie-Grant 1893 (p. 138); Ogilvie-Grant et al. 1912; Suchetet 1897a (p. 940); ZSL 1904.
- × *Pucrasia macrolopha* [Koklass Pheasant] CHR. *Avicultural Magazine* 1936 (p. 123); Johnsgard 1983b.
- × *Symaticus reevesii* (↔) [Reeves's Pheasant] CHR. DRS. Ackermann 1898; Bartlett 1898; Cronau 1899 (p. 106), 1902 (p. 75); Slater 1873.
- × *Tragopan temminckii* [Temminck's Tragopan] CHR. DRS. Bretana 1914; Ghigi 1903; Ogilvie-Grant 1893 (pp. 276, 318).

Centrocercus urophasianus [Sage Grouse]

× *Dendragapus obscurus* [Blue Grouse] NHR.

BRO: nw U.S. De Juana 1994 (p. 408); Rensel and White 1988.

× *Tympanuchus phasianellus* (♂?) [Sharp-tailed Grouse] ONHR (nw U.S., sw Canada).

BRO: sw Alberta, ne Wyoming, Montana, w Dakotas. Eng describes two hybrids taken from a single flock. Sage Grouse are more than twice as large as Sharp-tailed Grouse. Aldridge et al. observed two hybrids on a single lek in se Alberta. Since two hybrids have been observed in a single flock on two different occasions, this hybrid must be fairly common. However, it was first reported in 1971. Aldridge et al. 2001; de Juana 1994 (p. 408); Eng 1971[†]; Kohn and Kobriger 1986; Williams 1979.

Chrysolophus amherstiae [Lady Amherst's Pheasant]

× *Chrysolophus pictus* (↔) [Golden Pheasant] CAENHR. Hybrid zone in s China (Yunnan, Sichuan). HPF(♂&♀). Males tend to be more fertile than ♀♀. Hybrids common in captivity. Marquess Hachisuka describes hybrids in detail. Sandnes (1957) mated an F₁ ♀ (*C. amherstiae* ♀ × *C. pictus*) to a *P. colchicus* ♂ and produced a fertile three-way ♂ hybrid (four other three-way hybrids of this kind, one ♂ and three ♀♀, produced no offspring). He used this ♂ to found a line of several successive generations of backcrosses to *Chrysolophus*. In early generations (F₁ and first three backcrosses), ♀♀ could not be used for matings because of sterility, but in subsequent crosses (fourth and fifth) they could. Hatchability also increased with backcrossing. Allen 1966; Beever 1934; Cuénot 1941; Danforth 1950; Danforth and Sandnes 1939; Deng 1974; Ghigi 1947a; Gray 1958; Guyer 1909c (p. 194); Hachisuka (Marquess) 1928 (pp. 72–75, Frontispiece[†], Plate 19[†]); He et al. 1993; Heard 1996; Hertwig 1936; Higuchi 1971; Hopkinson 1926; Howman 1979; IZY 1961, 1962, 1966, 1969, 1970, 1979, 1998; Mayr 1942; Nightingale 2005;

Sandnes 1954, 1957 (p. 431); Suchetet 1897a (p. 940); Taibel 1934, 1936; Thomas and Huxley 1927; Twist 1945; Yamashina 1943a; ZSL 1900, 1949. Internet: DIGI.

× *Lophophorus impeyanus* (♂) [Himalayan Monal] CHR. LFH(–). BRO: n Myanmar and adj. China? *Avicultural Magazine* 1968 (p. 211); Hachisuka (Marquess) 1928; Huxley 1941[†]; Lambert 1939; Thomas and Huxley 1927; Wormald 1939.

× *Lophura swinhoii* [Swinhoe's Pheasant] CHR. DRS. Beever 1932.

× *Phasianus colchicus* (↔) [Common Pheasant] CHR. BRO: s China. HPF(♂♂). Cavazza 1931a; Ghigi 1922/1923, 1932c; Gray 1958; Guyer 1909c (p. 194); Hachisuka (Marquess) 1928; Hopkinson 1926; Serebrovsky 1929; Stéphan 1903.

× *Phasianus versicolor* (↔) [Green Pheasant] CHR. DRS. HPF(♂♂). Specimen in British Museum. Suchetet lists a three-way hybrid *C. pictus* (♂) × (*C. amherstiae* × *Phasianus versicolor*). Berlioz 1927; Cavazza 1931a, 1931b; Cronau 1902 (p. 66); Delacour 1927; Ghigi 1922/1923, 1936a, 1942; Gray 1958; Hachisuka (Marquess) 1928 (pp. 75, 76); Hertwig 1936; Hopkinson 1926, 1933a; Labbe 1932; Suchetet 1897a (p. 350); Taibel 1934.

× *Symaticus ellioti* (♂) [Elliot's Pheasant] CHR?? BRO: s China? Cronau 1902.

× *Symaticus reevesii* [Reeves's Pheasant] CHR. BRO: s China. IZY 1979.

× *Tragopan caboti* (♂) [Cabot's Tragopan] CHR. LFH. BRO: s China? Hachisuka

(Marquess) 1928; Thomas and Huxley 1927.

Chrysolophus pictus [Golden Pheasant]

See also: *Catreus wallichii*; *Chrysolophus amherstiae*.

× *Gallus gallus* (↔) [Domestic Fowl/Red Junglefowl] CHR. LFH(–). BRO: s China. Hypogonadic ♂♂ and ♀♀. Beever 1934, 1952; Boosey 1951a; Guyer 1909c (p. 194); Gray 1958; Higuchi 1971; Malinowska 1958; Marchlewski 1951; Maru and Ishijima 1968; Ogilvie-Grant 1893 (p. 341); Thomas 1951.

- × *Lophura leucomelanos* [Kalij Pheasant]
CHR. BRO: s China? Warsaw Zoo (Poland)
had a ♂ hybrid in 1969. IZY 1971;
Rothschild 1904.
- × *Lophura nycthemera* (↔) [Silver Pheasant]
CHR. HPF(♂♂). BRO: s China. Specimen
in British Museum. Beaver 1934;
Cavazza 1931a; Cronau 1899 (p. 107);
Delacour 1949c, 1949d (p. 193);
Ghigi 1947b; Gray 1958; Hachisuka
(Marquess) 1928; Hertwig 1936; Poll 1908
(p. 129), 1910 (p. 35), 1911c (p. 439
and Tafel 2[†]), 1921[†]; Serebrovsky 1929;
Seth-Smith 1934; Taibel 1936; Vecchi 1937.
- × *Phasianus colchicus* (↔) [Common
Pheasant] CHR. HPF(♂♂). BRO: s China.
Common in captivity. Differential viability in
F₁. High pre-hatching mortality. Cavazza
1931a; Cronau 1899 (pp. 107, 139);
Danforth 1949; Danforth and Sandnes
1939; Fuller 1836; Gray 1958; Hachisuka
(Marquess) 1928; Hertwig 1936; Hopkinson
1926, 1933a; IZY 1965, 1966, 1967, 1968,
1970, 1971; Lönnberg 1935; Ogilvie-Grant
et al. 1912, Petzsch 1956; Poll 1908
(p. 129), 1910 (p. 35), 1911c (p. 438 and
Tafel 3[†]), 1921; Sandnes 1954, 1957;
Serebrovsky 1929; Suchetet 1897a
(p. 86); Taibel 1934, 1936; Thomas and
Huxley 1927.
- × *Phasianus versicolor* (♂) [Green Pheasant]
CHR. DRS. HPF Ackermann 1898; Friedel
1873 (p. 213); Hachisuka (Marquess)
1928 (p. 75); Gray 1958; Hopkinson 1933a;
Yamashina 1943c.
- × *Symaticus reevesii* (↔) [Reeves's Pheasant]
CHR. HPF(♂♂). BRO: s China. Specimen
in British Museum. Suchetet lists a three-way
hybrid with an *S. ellioti* ♀. Beaver 1934;
Cavazza 1931a; Cronau 1899 (pp. 106, 139,
141), 1902 (p. 66); Ghigi 1903; Gray 1958;
Hachisuka (Marquess) 1928; Hertwig 1936;
Hopkinson 1926; IZY 1970; Poll 1908
(p. 129), 1910[†], 1911c (p. 439 and Tafel 1[†]);
Rothschild 1904; Sandnes 1954;
Serebrovskii 1935[†]; Suchetet 1897a (p. 350).
- × *Symaticus soemmerringii* (♂)
[Copper Pheasant] CHR. DRS. HPF(♂♂).

Cronau 1899 (p. 139), 1902 (p. 71);
Gray 1958. Hopkinson 1933a; Hachisuka
(Marquess) 1928 (p. 77); Poll 1911c
(p. 439 and Tafel 1[†]); Yamashina 1943a[†].

Coturnix sp.

- × *Colinus* sp. See: *Coturnix* sp. × *Perdix perdix*.
 - × *Perdix perdix* [Grey Partridge] CHR?? HPF
A commercial hybrid was allegedly
produced by crossing Grey Partridge with
(unspecified) members of *Colinus* and
Coturnix. ABA 1968 (vol. 37, no. 4193).
- #### **Coturnix coromandelica** [Rain Quail]
- × *Coturnix coturnix* [Eurasian Quail]
PCZ/ACZ (n India). Apparent
intermediates (?) occur (i.e., supposedly
pure *C. coromandelica* with more extensive
cinnamon on flanks). However, no hybrids
are as yet explicitly reported. See Figure 3.
Grimmett et al. 1998 (p. 350);
Harrison 1982.
 - × *Coturnix delegorguei* [Harlequin Quail]
CHR. DRS. Gray 1958 (p. 93).
 - × *Coturnix pectoralis* [Stubble Quail] CHR.
Hopkinson 1926.
- #### **Coturnix coturnix** [Eurasian Quail]
- See also: *Coturnix coromandelica*.
- × *Coturnix delegorguei* (♀) [Harlequin Quail]
CHR. BRO: sub-Saharan Africa.
Brickell 1989 (p. 232).
 - × *Coturnix japonica* (↔ usu. ♀) [Japanese
Quail] CAENHR. HPF(♂&♀). There are
fears that introducing Japanese quail in
Mediterranean countries could lead to
genetic contamination of native Eurasian
Quail. However, although hybrids of both
sexes are partially fertile, Lepori found low
hatchability in eggs produced from
backcrossing. Moreover, Pala and
Lissia-Frau (1966, 1967) found in F₁ × F₁
matings that only one egg was fertile out of
140 and none hatched. Major disorders of
spermiogenesis in F₁ ♂♂ were also
observed. These birds presumably hybridize,
also, where their ranges meet near Lake
Baikal in Siberia. They differ somewhat in
plumage, but primarily in their calls (which
Collins and Goldsmith compared
to that of their hybrid) and are often

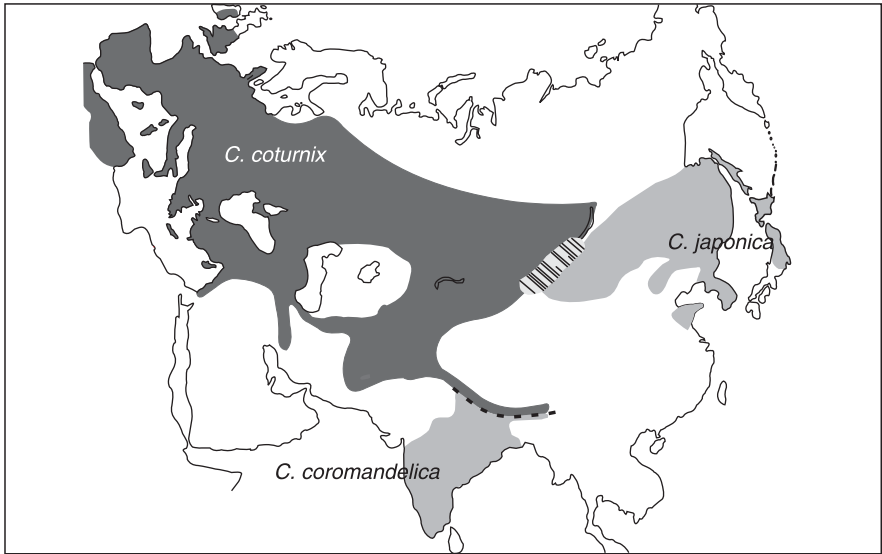


Figure 3. Contact zones between *Coturnix* quail. Hatched region: hybrid zone. Dotted line: PCZ/ACZ.

lumped. Hybrids occur in n India also during winter. Lissia-Frau and Pala describe two masculinized ♀ F₁ hybrids and their gonads. The same researchers (1968) obtained the cross in reverse of the usual direction. See Figure 3. Ali and Ripley 1973 (vol. 2, p. 40); Collins and Goldsmith 1998; Deregnacourt and Guyomarc'h 2003; Deregnacourt et al. 2002, 2005; Grimmett et al. 1998 (p. 350); Guyomarc'h 2003; Lepori 1964; Lissia-Frau and Pala 1966; Pala and Lissia-Frau 1966, 1967, 1968.

Coturnix delegouei [Harlequin Quail]

See: *Coturnix coromandelica*; *C. coturnix*.

Coturnix japonica [Japanese Quail]

See also: *Coturnix coturnix*.

× *Gallus gallus* (usu. ♂) [Domestic Fowl/Red Junglefowl] CHR. *C. japonica* ♀ × *G. gallus* ♂: Viable hybrids have been produced by artificial insemination. Wilcox and Clark found that ten hybrids hatched from 2,282 eggs set (0.4%), usually on the 19th day, and thus were intermediate between chicken (21st day), and quail (17th day). Six of the ten hybrids died within 4 days of hatching but four lived 4–11 months. They were,

for the most part, healthy and free of morphological defects. All hybrids lacked a comb and were closer to the quail in weight. Haley et al. (1966) report that artificial selection substantially increased the fertility of ♀ quail mated to ♂ chickens. However, Haley and Abplanalp concluded that ♀ quails develop an immune response to fowl spermatozoa when repeatedly inseminated with rooster semen. Haley et al. (1966) note that mature hybrids weighed 367 g on average (vs. 159 g for ♀ quail, and 2,003 g for domestic fowl ♂♂). *C. japonica* ♂ × *Gallus gallus* ♀: Grazietti and Grazietti (1967) say they produced fertile hybrids of both sexes with the cross in this direction, but this claim needs confirmation; other researchers have failed to do so (e.g., Mitsumoto and Nishida; Sarvella and Marks; Wilcox and Clark). Brush 1967; Damme 1991; Grazietti and Grazietti 1967; Greenfield 1988; Haley 1967; Haley and Abplanalp 1970; Haley et al. 1966; Jeon et al. 1997; Manwell et al. 1963; Mathis and McDougald 1987; McFarquhar and Lake 1964; Mitsumoto and Nishida 1958;

- Ogasawara and Huang 1963; Okamoto et al. 1991; Sarvella 1971; Sarvella and Marks 1970; Sarvella and Morris 1976; Sarvella et al. 1977; Silversides and Mérat 1991; Spangler 1965[†]; Taibel 1968; Takashima and Mizuma 1981; Wilcox and Clark 1961[†].
- × *Meleagris gallopavo* (♂) [Turkey]
Reynaud obtained 15 fertile eggs by artificial insemination, but in all cases development arrested at an early stage (blastoderms did not develop beyond intermediate primitive steak stage). The reciprocal cross was not attempted. Reynaud 1974.
 - × *Phasianus colchicus* (♂) [Common Pheasant]
CHR. Mortality is high at all stages of development, but decreases after the first post-hatching week. Only about 6% of eggs obtained by artificial insemination are fertile. Of these, about one in six hatch and only about one in 20 of those that hatch reach adulthood. A specimen is in the Smithsonian (USNM #553798). Sarvella 1971[†].
- Coturnix pectoralis** [Stubble Quail]
See: *Coturnix coromandelica*.
- Crax sp.**
- × *Crax fasciolata* [Bare-faced Curassow]
NHR (Bolivia). Two taxa, *Crax estudilloi* (Estudillo's Green-billed Curassow) and *Crax viridirostris* (Green-billed Curassow), are both based on a specimen from Beni, Bolivia, now thought perhaps to be a hybrid between *Crax fasciolata* and some other member of *Crax*. See: *Crax alberti* × *Crax rubra*. Del Hoyo 1994 (p. 362); Joseph 1999; Joseph et al. 1999; Sibley and Monroe 1990 (p. 9); Vuilleumier and Mayr 1987 (p. 140); Internet: DIGI, REM.
- Crax alberti** [Blue-billed Curassow]
- × *Crax alector* [Black Curassow] CHR. BRO: cen. Colombia. IZY 1966, 1967, 1968; Taibel 1966, 1972a.
 - × *Crax fasciolata* (♂) [Bare-faced Curassow]
CHR. DRS. HPF Bronzini 1940[†], 1946; del Hoyo 1994 (p. 361).
 - × *Crax globulosa* [Wattled Curassow] CHR. DRS. IZY 1971, 1972; Taibel 1971.
 - × *Crax rubra* (♂) [Great Curassow] CHR. HPF BRO: ne Colombia. Taibel suggested that *Crax viridirostris* (Green-billed Curassow) might be this hybrid. However, the locality of the type specimen (Beni, Bolivia) seems not to fit this idea. See: *Crax* sp. × *Crax fasciolata*. Del Hoyo 1994 (pp. 359, 361); Taibel 1950[†].
 - × *Gallus gallus* (♀) [Domestic Fowl/Red Junglefowl] CHR?? All listings of this hybrid seem to trace back to a single very old report. Aquarone 1869.
 - × *Mitu mitu* [Alagoas Curassow] CHR. DRS. *M. mitu* may be extinct in the wild. Taibel 1971.
 - × *Mitu tuberosa* (♂) [Razor-billed Curassow]
CHR. HPF (♂ & ♀). BRO: Brazil, s of Amazon. Most eggs are infertile, but some hybrids survive to maturity. Taibel (1962) says these hybrids bred inter se. *Avicultural Magazine* 1964 (p. 128); Taibel 1949c[†] 1961.
 - × *Penelope pileata* [White-crested Guan] CHR. DRS. Del Hoyo 1994.
- Note:** *Crax alector* is referred to as *Crax nigra* in the original report.
- Crax alector** [Black Curassow]
See also: *Crax alberti*.
- × *Crax globulosa* [Wattled Curassow] CHR? DRS. In an old paper Broca says hybrids of both sexes are fertile. Sibley and Monroe (1990, p. 9) note that these birds may be in contact in n Brazil. Broca 1859; del Hoyo 1994 (p. 361).
 - × *Crax rubra* [Great Curassow] CHR? DRS. In an old paper Broca says hybrids of both sexes are fertile. Broca 1859; del Hoyo 1994 (pp. 359, 361).
- Crax blumenbachii** [Red-billed Curassow]
- × *Gallus gallus* (♀) [Domestic Fowl/Red Junglefowl] CHR. Ruschi and Amadon say the ♀ parent was a "Leghorn hen and the hybrid, like its mother, was entirely white but much larger in size. It behaved and carried itself like a curassow, was very wild, and had no comb." Ruschi and Amadon 1959 (p. 441).

Crax estudilloi [Estudillo's Green-billed Curassow]

See: *Crax* sp. × *C. fasciolata*.

Crax fasciolata [Bare-faced Curassow]

See also: *Crax* sp.; *C. alberti*.

× *Crax rubra* [Great Curassow] CHR. DRS. Taibel 1964b[†].

× *Penelope* sp. CHR? del Hoyo 1994 (p. 362).

Crax globulosa [Wattled Curassow]

See also: *Crax alberti*; *C. alector*.

× *Crax rubra* (♀) [Great Curassow] CHR. In an old paper Broca says hybrids of both sexes are fertile. The 1908 report in *Avicultural Magazine* refers to “*Crax hecki*,” now considered to be ♀ plumage of a barred morph of *C. rubra*. *Avicultural Magazine* 1908 (p. 348), 1909 (pp. 23–30)[†]; Broca 1859; Hopkinson 1926 (p. 264); IZY 1979; Pocock 1908; ZSL 1906, 1908.

Crax rubra [Great Curassow]

See also: *Crax alberti*; *C. alector*; *C. fasciolata*; *C. globulosa*.

× *Penelope pileata* (♀) [White-crested Guan] CHR. DRS. Gray 1958.

× ~~*Penelopina nigra* [Highland Guan]~~ Some authors cite Gray (1958) for this cross, but she doesn't list it.

Crax viridirostris [Green-billed Curassow]

See: *Crax alberti* × *C. rubra*;
Crax sp. × *C. fasciolata*.

Crossoptilon sp.

× *Lophophorus impeyanus* [Himalayan Monal] CHR. BRO: e Himalayas (with *C. crossoptilon*). Beever 1932.

Crossoptilon auritum [Blue Eared-Pheasant]

× *Crossoptilon crossoptilon* (♀) [White Eared-Pheasant] NHR. BRO: w China (Sichuan, Yunnan). *Avicultural Magazine* 1950 (p. 65); Johnsgard 1986; Porter 1957; Stefani 1933; Suchetet 1897a.

× *Crossoptilon mantchuricum* (♀) [Brown Eared-Pheasant] CHR. HPF (♂ & ♀). Backcross hybrids (F₁ × Blue) are almost identical to *C. auritum*. DRS. *Avicultural Magazine* 1932 (p. 7); Delacour 1933b; Ghigi 1934b[†]; Gray 1958; Liu et al. 1996; Hopkinson 1933a; Stefani 1933.

Crossoptilon crossoptilon

[White Eared-Pheasant]

See also: *Crossoptilon auritum*.

× *Crossoptilon harmani* [Tibetan Eared-Pheasant] ENHR (China). BRO: e Tibetan Plateau. HPF. These birds are sometimes lumped, but Sibley and Monroe (1990, p. 20) say “*C. harmani* appears to be a valid species.” Lu and Zheng 2000, 2001.

× *Crossoptilon mantchuricum*

[Brown Eared-Pheasant] CHR. DRS. *Avicultural Magazine* 1947 (p. 131).

Crossoptilon harmani

[Tibetan Eared-Pheasant]

See: *Crossoptilon crossoptilon*.

Crossoptilon mantchuricum

[Brown Eared-Pheasant]

See also: *Crossoptilon auritum*;
C. crossoptilon.

× *Lophophorus impeyanus* (♀)

[Himalayan Monal] CHR?? Poll 1911c.

× *Lophura nycthemera* [Silver Pheasant] CHR. DRS. HPF (♂♂). Delacour 1949c; 1949d (p. 193); Ghigi 1947b; Gray 1958; Rothschild 1904.

Dendragapus canadensis [Spruce Grouse]

See also: *Bonasa umbellus*.

× *Dendragapus franklinii* [Franklin's Grouse]

ENHR (w Canada). The hybrid zone extends from s Alaska to sw Alberta and n cen. British Columbia. These birds are often lumped. Jewett et al. 1953; Panov 1989; Short 1967 (p. 21); Sibley 2000 (p. 142). Internet: DIGI.

× *Dendragapus obscurus* [Blue Grouse]

NHR. BRO: nw U.S., w Canada. De Juana 1994 (p. 401).

× *Lagopus lagopus* [Willow Ptarmigan] ONHR.

BRO: n Canada. De Juana 1994 (p. 401); Hachisuka (Marquess) 1928 (p. 65); Hopkinson 1926; Lincoln 1950; Lumsden 1969; Peterle 1951; Taverner 1932.

Dendragapus franklinii [Franklin's Grouse]

See also: *Dendragapus canadensis*.

× *Dendragapus obscurus* [Blue Grouse]

NHR (Idaho). BRO: nw U.S., w Canada. Jollie 1955[†].

Dendragapus fuliginosus [Sooty Grouse]

- × *Dendragapus obscurus* [Blue Grouse] ENHI. These birds are often lumped. Intermediate populations separating them in the nw U.S. (Washington) and sw Canada (Brit. Columbia) are PHPs of this cross. Jewett et al. 1953; Munro and Cowan 1947; Sibley and Monroe 1990 (p. 22); Short 1967 (p. 21). Internet: DIGI.

Dendragapus obscurus [Blue Grouse]

- See also: *Bonasa umbellus*; *Centrocercus urophasianus*; *Dendragapus canadensis*; *D. franklinii*; *D. fuliginosus*.
- × *Phasianus colchicus* [Common Pheasant] ONHR (N. America). Most hybrids are ♂. Anthony 1899; Blackburn and Gray 1977; Hachisuka (Marquess) 1928[†]; Hudson 1955; Jewett 1932[†]; Johnsgard 1983b; Suchetet 1897a.
- × *Tympanuchus phasianellus* (♀) [Sharp-tailed Grouse] CANHR. BRO: w Canada, nw U.S. Brooks describes a hybrid taken at Osoyoos, Brit. Columbia, now in the Provincial Mus. (Victoria, Vancouver I.). Its upper parts are colored like a ♀ Blue Grouse, the lower, like a ♂ Sharp-tailed. The collector said it bothered him when he first saw it “for one way it was blue grouse, and the other way chicken.” Hancock reports a captive cross. Brooks 1907[†] (p. 167); Hachisuka (Marquess) 1928; Hancock 2004; Lincoln 1950; Panov 1989.

Note: Reported hybridization of *Francolinus leucoscepus* and *F. swainsonii* with *F. afer* may be with *F. cranchii* since *afer* and *cranchii* are often lumped.

Francolinus afer [Bare-throated Spurfowl]

- × *Francolinus cranchii* [Cranch's Spurfowl] ENHR (Zambia) HPF(vh). These birds are often lumped. Hybridization occurs w of Luangwa R., s to 13°30', also E. Prov. plateau in Ludazi. Hybrids' chests are streaked or vermiculated, abdomen streaked brown, black, or white. Benson et al. 1971 (p. 83); Sibley and Monroe 1990 (p. 14).
- × *Francolinus leucoscepus* [Yellow-necked Francolin] ONHR. BRO: nw Tanzania, s Kenya. PCZ? Hassan and Naylor 2002.

- × *Francolinus swainsonii* (♂) [Swainson's Francolin] CAENHR (ne Zimbabwe Zambia). Hybrid zone is near Harare. Hybrid was treated as species, Cooper's Spurfowl (*Pternistes cooperi*). Benson et al. 1971 (pp. 83–84); Brickell 1989 (p. 232); Clancey 1980; Hall 1963; Irwin 1971; McGowan 1994 (p. 500); Roberts 1947.

Francolinus albogularis

[White-throated Francolin]

- × *Francolinus coqui* [Coqui Francolin] ENHI (n sub-Saharan Africa). Sibley and Monroe say *Francolinus schlegelii* is morphologically intermediate. Moreover, it occurs in a region adj. to a PCZ between these two birds. *F. schlegelii* is thus a PHP of this cross. Sibley and Monroe 1990 (p. 13).

Francolinus bicalcaratus [Double-spurred Francolin]

- × *Francolinus erckelii* (♂) [Erckel's Francolin] CHR. HPE Bronzini 1939[†], 1946.

Francolinus castaneicollis

[Chestnut-naped Francolin]

- × *Francolinus erckelii* [Erckel's Francolin] ENHI. A population in Djibouti is intermediate in morphology and range and, thus, a PHP of this cross. It has been treated as a species (*Francolinus ochropectus*) and awarded endangered status due its rarity and limited distribution. McGowan 1994 (p. 594).

Francolinus clappertoni

[Clapperton's Francolin]

- × *Francolinus pictus* [Painted Francolin] NHR (cen. Africa). Hall 1963.

Francolinus coqui [Coqui Francolin]

See: *Francolinus albogularis*.

Francolinus cranchii [Cranch's Spurfowl]

See: *Francolinus afer*.

Francolinus elgonensis [Elgon Francolin]

See: *Francolinus levaillantii* × *F. psilolaemus*.

Francolinus erckelii [Erckel's Francolin]

See: *Francolinus bicalcaratus*; *F. castaneicollis*.

Francolinus francolinus [Black Francolin]

- × *Francolinus pictus* (♀) [Painted Francolin] ENHR (India). Hybrid zone stretches from the Gulf of Kachchh to near Agra, then sw to the Bay of Bengal near Cuttack. Ackermann 1898; Grimmett et al. 1998 (p. 348); Hall

1963; Harrison 1982 (pp. 113–114); McGowan 1994 (p. 489); Sibley and Monroe 1990 (p. 12); Suchetot 1897a. Internet: DIGI.

Francolinus hildebrandti [Hildebrandt's Francolin]

× *Francolinus natalensis* [Natal Francolin] ONHR (e Zambia). Hall 1963; McGowan 1994 (p. 498); Sibley and Monroe 1990 (p. 13).

Francolinus leucoscepus [Yellow-necked Spurfowl]

See also: *Francolinus afer*.

× *Francolinus rufopictus* [Grey-breasted Spurfowl] ENHR. BRO: n Tanzania. PCZ. McGowan 1994 (p. 499); Sibley and Monroe 1990 (p. 14). Internet: DIGI.

Francolinus levaillantii [Red-winged Francolin]

× *Francolinus psilolaemus* [Moorland Francolin] ENHI (w Kenya). A population (*elgonensis*) has been treated as a race of both these birds and as a separate species. This history of treatment suggests *elgonensis* as a PHP of this cross. Sibley and Monroe 1990 (p. 13).

Francolinus levaillantoides

[Orange River Francolin]

× *Francolinus shelleyi* (♂) [Shelley's Francolin] CHR. BRO: se Africa. Brickell 1989 (p. 232).

Francolinus natalensis [Natal Francolin]

See also: *Francolinus hildebrandti*.

× *Francolinus swainsonii* [Swainson's Francolin] ENHR (w Zimbabwe). Hockey et al. 2005; McGowan 1994 (p. 498).

Francolinus ochropectus [Ochre-breasted Francolin]

See: *Francolinus castaneicollis* × *F. erckelii*.

Francolinus pictus [Painted Francolin]

See: *Francolinus clappertoni*; *F. francolinus*.

Francolinus psilolaemus [Moorland Francolin]

See: *Francolinus levaillantii*.

Francolinus rovuma [Kirk's Francolin]

× *Francolinus sephaena* [Crested Francolin] ENHR. Hybrid zone is in Ethiopia and Kenya. These birds are sometimes lumped. McGowan 1994 (p. 493); Sibley and Monroe 1990 (p. 13). Internet: DIGI.

Francolinus rufopictus [Grey-breasted Francolin] See: *Francolinus leucoscepus*.

Francolinus schlegelii [Schlegel's Francolin]

See: *Francolinus albogularis* × *F. coqui*.

Francolinus sephaena [Crested Francolin]

See: *Francolinus rovuma*.

Francolinus shelleyi [Shelley's Francolin]

See: *Francolinus levaillantoides*.

Francolinus swainsonii [Swainson's Francolin]

See: *Francolinus afer*; *F. natalensis*.

Note: Reports of hybridization for both Red Junglefowl, of n India and se Asia, and for its captive equivalent, the Domestic Fowl, are combined here under *Gallus gallus*. The relationship of these birds is very close. In fact, ongoing hybridization between them in s Asia has reduced pure Red Junglefowl stocks to virtually nil. Brisbin et al. (2002, 217) say that “Although red junglefowl are considered abundant both in captivity and in the wild, and have usually not been accorded any particular conservation concern, almost all populations show morphological characteristics suggestive of past hybridization with domestic birds, and indeed pure genomes may prove to be now extinct in the wild.” See also Peterson and Brisbin (1998). Since *G. gallus* has been introduced throughout much of the world, natural crosses between feral domestic fowl and other birds occur also outside *G. gallus*'s native range.

Gallus gallus [Domestic Fowl/Red Junglefowl]

See also: *Acryllium vulturinum*; *Alectoris graeca*; *Chrysolophus pictus*; *Coturnix japonica*; *Crax alberti*; *C. blumenbachii*; Appendix 2.

× *Gallus lafeyetti* (♂) [Ceylon Junglefowl] CANHR (natural hybridization with feral *G. gallus* in Sri Lanka). HPF (♂ & ♀). Yellow comb patch of *G. lafeyetti* occurs in 1/4 of hybrids, but much reduced in size. Male hybrids have black spurs of Ceylon Junglefowl. Crow like domestic's, but with some traits of other parent. Clucking notes of ♀ F₁ hens like *G. lafeyetti*. Ackermann 1898; Deraniyagala 1953, 1958; Gray 1958; Grimmett 1998 (p. 360); IZY 1968; Kuwayama and Ichinoe 2003; Lotsy and

- Kuiper 1922–1924; Suchetet 1897a; Thomas 1906, 1907.
- × *Gallus sonneratii* (↔) [Grey Junglefowl] CAENHR. PCZ: e India (Godavari Valley). HPF(♂ & ♀). Some sterile individuals occur. Ackermann 1898; *Avicultural Magazine* 1932 (p. 356), 1952 (p. 136), 1953 (p. 100), 1954 (pp. 15, 223); Blaauw 1917; Cavazza 1931a; Danforth 1958; Darwin 1883; Delacour 1927; Ghigi 1916[†], 1943[†], 1948; Gray 1958; Grimmett 1998 (p. 359); Hopkinson 1926, 1933a; *IZY* 1962; Johnsgard 1986; Johnson 1952, 1953, 1954a, 1954b; Kimball 1954; Morejohn 1968; Newill 1932; Steiner 1945 (pp. 243–248); Wissel and Stefani 1940; Yealland (J. J.) 1953. Internet: DIGI.
- × *Gallus varius* (↔) [Green Junglefowl] CHR. HPF(♂ & ♀). BRO: Java. Bolle 1856; Cavazza 1931a; Darwin 1883; Delacour 1927, 1929; Ghigi 1942; Gray 1958; Hopkinson 1926, 1933a; Kimball 1954; Lotsy 1920; Lotsy and Kuiper 1922–1924; Steiner 1939, 1945; Taibel 1934; Weaver 1948; *ZSL* 1860. Internet: FEAT[†].
- × *Lagopus lagopus* [Willow Ptarmigan] CHR. Johnsgard 1983b (p. 90).
- × *Lagopus scoticus* (♀) [Red Grouse] CHR. Millais exhibited this hybrid to the British Ornithologists' Club. Millais 1899a, 1899b; W__ [sic] 1908[†].
- × *Lophophorus impeyanus* (♂) [Himalayan Monal] CHR. LFH? Jean Delacour obtained this hybrid in 1925. Beever 1932; Delacour 1927; Hopkinson 1926.
- × *Lophura diardi* [Siamese Fire-backed Pheasant] CHR? Delacour 1927.
- × *Lophura leucomelanos* (♀) [Kalij Pheasant] CHR. Ovaries of a ♀ F₁ were larger than those of either parental type, but follicles were abnormal and egg development abortive. Gray 1958; Hopkinson 1926.
- × *Lophura nycthemera* (♀) [Silver Pheasant] CHR. Most hybrids die as embryos. Antonius 1933; Cronau 1899; Higuchi 1971; Malinowska 1958; Marchlewski 1950a[†], 1950b; Suchetet 1897a (p. 947).
- × *Meleagris gallopavo* (♀) [Turkey] CHR. Adult hybrids have been reported, but the great majority are inviable and do not complete development. In one study, of 120 eggs that reached the point at which a hybrid embryo could be confirmed, 23 hatched and four were still alive at ages varying from 9 to 19 weeks. Quinn et al. found that when a hen turkey was artificially fertilized with rooster semen, 20% of of 278 eggs were fertile (from the reciprocal cross less than 1% were fertile). Of 56 fertile eggs, 42 died in the first day, four more on the second day, two more on the third, another on the sixth, and one survived at least 23 days. It was intermediate in appearance between chicken and turkey, but in certain characteristics it was more similar to chicken (head shape, presence of comb, coloration). In the reciprocal cross only five eggs were fertile out of 656; only one developed into an embryo that lived 3 days. After turkey hens were inseminated daily with rooster semen, Poole and Olsen found that the rate of fertilization declined to almost zero after 3 weeks. This probably indicates that the hens developed an immunity to the foreign semen after repeated exposure (see also Olsen 1972). Morton says the direction of this cross was known at least as early as the time of Cuvier. Asmundson and Lorenz 1957; Billingham et al. 1961; Hachisuka (Marquess) 1928 (Plate 18[†]); Mathis et al. 1983; Harada and Buss 1981; Hopkinson 1934; Kempenich-Pinto et al. 1970; Kondo 1947; Makos and Smyth 1970; Morton 1847b; Olsen 1962, 1972; Poda 1985; Poole and Olsen 1967; Prager and Wilson 1979; Przi Bram 1910; Quinn et al. 1937; Ryle 1957; Ryle and Simonsen 1956; Sarvella and Morris 1976; Sarvella et al. 1977; Stevens 1963; van Breda 1954; Warren and Scott 1935.
- × *Numida meleagris* (↔ usu. ♀) [Guineafowl] CANHR. Hybrids of both sexes are hypogonadic, and gametogenesis, when present, is severely disrupted. In artificial insemination experiments, egg fertility is fairly high (~70% of eggs set), but reported hatchabilities vary widely, presumably due to varying

methodology. However, in a large-scale study carried out by Petitjohn, in which 50 Rhode Island Red cocks were crossed with 300 guineafowl hens, 69.1% of fertile eggs contained hybrids that hatched and were still alive after 12 weeks. Despite earlier reports to the contrary, Petitjean found that viable hybrids can also be obtained by crossing hens with guineafowl cocks (egg fertility was only about 12.6%, but 52.9% of these fertile eggs contained hybrids that hatched and were still alive after 12 weeks).

Incubation time for hybrids is intermediate at 23.6 days (vs. 21 for chicken and 28 for guineafowl). More ♂♂ hatch than ♀♀. Most mature hybrids are ♂. Both Bourke and Poda report natural hybridization in w Africa (e.g., Nigeria, Berkina Faso), where *G. gallus* is introduced. The young hybrids are more similar to guineafowl, but as they mature they become more like domestic fowl. Hybrids can be bigger than either parent, up to twice as large. Partial sex reversal occurs in this cross. The presence of testes was the only indication that a hybrid examined by Curto and Vecciotti was ♂. When parents were injected regularly with blood from the other parent bird, a significant increase was found by Vojtiskova in the the number of hybrids reaching maturity, and by Gromov in hatchability. The difference was attributed to decreased immunological reactivity. Marquess Hachisuka describes these hybrids. They have fleshy barbels beneath the eyes, as do guineafowl, but they are reduced in size. The head lacks helmet and comb and is generally covered with feathers. Chin and throat are bare. Leroy and Barbier describe the hybrids in detail. This cross has been known for more than 200 years. Antonius 1932¹, 1933; Baraë 1877; Bechstein 1789–1795 (vol. 3, p. 198); Beddard 1899; Buffon 1770–1783; Bolle 1856; Bourke 1967; Cavazza 1931b; Croizier 1967; Curto and Vecciotti 1957[†]; Esteban 1963[†]; Funk 1938; Gray 1958; Gromov 1966a, 1966b, 1967; Guyer 1905,

1909a, 1909b, 1909c, 1912; Hachisuka (Marquess) 1928 (Plate 15[†]); Hertwig 1936; Kaminiski et al. 1971, 1972; Leroy and Barbier 1971; Leroy et al. 1972[†]; Levi 1936; Levi 1945; Marchlewski 1937; Mathis and McDougald 1987; Moltoni 1929[†]; Morton 1847a; Ogorodnii 1966; Owen 1941[†]; Pearl and Gowen 1914; Petitjean 1969; Poda 1985; Prager and Wilson 1975; Ruus and Paesalu 1970; Sasaki 1937; Sato et al. 1967; Steklenev 1965; Steklenev and Kozikova 1989; Takahashi 1982; Vilaró 1897[†]; Viljoen and de Bruin 1935[†]; Vojtiskova 1958; von Willemoes-Suhm 1865. Internet: GUIN[†].

- × *Ortalis guttata* [Speckled Chachalaca] CHR?? According to Goodfellow, these birds cross readily, but this is an old, anecdotal report. Goodfellow 1902 (p. 228).
- × *Ortalis vetula* (♂) [Plain Chachalaca] CHR? Old record. Dresser says these hybrids were favored as gamecocks in Mexico during the 1800s. Dresser 1866; Dugès 1868.
- × *Pavo cristatus* (♂) [Common Peafowl] CHR. Hybrids are obtained by artificial insemination. Viability is usually low, but some individuals reach maturity. Most (all?) hybrids are ♂. Few fertile eggs (about 2%). Cavazza 1931a; Gray 1958, Hachisuka (Marquess) 1928 (Plate 18[†]); Hertwig 1936; Hopkinson 1926 (p. 262), 1933a; Mathis et al. 1983; Silver 1954c; Tinjakov 1933a[†], 1933b[†], 1934[†].
- × *Penelope sp.* Gray lists this hybrid and cites Guyer, who said there was such a specimen in the collection of the British Museum. However, Esteban (p. 290) inquired and was told by a museum official that it was missing. The official suggested that Guyer could have taken his information from Ogilvie-Grant (footnote, p. 490), who merely mentions a sternum, supposedly from a hybrid of this type. However, Esteban also quotes Holmberg: "For the [Buenos Aires] Zoo, they have brought me more than once, a kind of *Penelope*, that comes not only from Paraguay, but also from Misiones Province. They tell me it is a hybrid between the domestic chicken and a bird of the forest, and that in

that region these birds sometimes are seen in the company of chickens, with which they form permanent associations” (translated by E. M. McCarthy*). Esteban 1963; Gray 1958 (p. 79); Guyer 1909c; Holmberg 1895; Ogilvie-Grant 1893.

- × *Penelope superciliaris* (♀) [Rusty-margined Guan] CHR. DRS. Ruschi and Amadon describe a hybrid obtained in Brazil. Ruschi and Amadon 1959.
- × *Perdix perdix* [Grey Partridge] CHR. Five chicks were produced by artificial insemination of a domestic hen; only one survived. Ackermann 1898 (p. 24); Carbonero Bravo 1945, 1948; de Cuenca 1976; Gray 1958.
- × *Phasianus colchicus* (↔ usu. ♂) [Common Pheasant] CHR. BRO: along China’s border with Vietnam, Thailand, and Myanmar (as well as extensive feral contact worldwide). LFH(–). Most hybrids have been obtained by artificial insemination, but they have been produced, too, from ordinary matings in captivity (e.g., Watanabe and Ashida 1964; Peterle 1951). Peterle mentions a case of a ♂ pheasant brooded under a White Rock hen which later mated with its foster mother and produced hybrids. A wild hybrid was reported by von Studnitz. This cross was known at least as early as the 18th century. When Sandnes (1957) artificially inseminated *P. phasianus* ♀♀ with domestic fowl semen, 34% of 1,045 eggs were fertile, of which 39% hatched. Sandnes found a high rate (about 1/3) of cerebral hernia in this cross. Hybrids hatch on 24th day. Sarvella reported a triploid hybrid. Purohit concluded that low fertility of hybrids is due to structural differences in the chromosome complements of the parents. In one of the oldest reports, Fuller claims a ♂ hybrid successfully backcrossed to *P. colchicus*. ABA 1969 (vol. 37, no. 1130); Antonius 1933; Asmundson and Lorenz 1955; *Avicultural Magazine* 1958 (p. 93)[†], 1967, (p. 137); Bacharach et al. 1960; Basrur 1969; Bewick 1826; Bhatnagar 1969; Bhatnagar et al. 1972; Boosey 1952a; Brush 1967; Chandler 1946; Coster 1945; Cutler 1918; Danforth 1949; Danforth and Sandnes 1939[†]; Frisch 1775 (p. 56); Fuller 1836; Gowe 1957; Gray 1958; Hachisuka (Marquess) 1928; Hagedoorn 1948; Hamilton 1860; Henslow 1834; Hertwig 1936; Higgon 1939[†]; Hopkinson 1926; Lowe 1932; Makos and Smyth 1970; Malinowska and Ptak 1966; McGrath et al. 1972; Nagy and Ernhaft 1969; Ogilvie-Grant et al. 1912; Peterle 1951; Poll 1910 (p. 49), 1911c[†]; 1912; Purohit 1977; Sandnes 1937, 1954, 1957; Sandnes and Landauer 1938; Sarvella 1973; Sarvella and Morris 1976; Sarvella et al. 1977; Sasaki 1954; Shaklee and Knox 1953, 1954[†]; Sladie 1967; von Studnitz 1937; Suchetet 1897a (pp. 104, 351, 622, 946); Taibell 1932c; Watanabe 1965; Watanabe and Ashida 1964[†]; Wheeler 1910; Yamashina 1941c, 1942b[†], 1943a[†], 1943c; Yarrell 1831.
- × *Phasianus versicolor* (↔) [Green Pheasant] CHR. DRS (widespread feral contact). Hopkinson 1933a; Watanabe 1964; Watanabe et al. 1963; Yamashina 1942b[†], 1943a[†].
- × *Pipile jacutinga* (♂) [Black-fronted Piping-Guan] CHR. Ruschi and Amadon say a hybrid was “slow and deliberate in its movements like a guan, but its calls were like those of a chicken.” Ruschi and Amadon 1959 (p. 441).
- × *Symaticus soemmerringii* (♂) [Copper Pheasant] CHR. Hachisuka (Marquess) 1928.
- × *Tetrao tetrix* (♂) [Black Grouse] CHR?? DRS. LVH? Ackermann 1898 (pp. 23–24); Bartlett 1898; Hachisuka (Marquess) 1928; Lönnberg 1918b[†]; Schaanning 1920–1923; Vale 1900.

*Original Spanish: “Para el Jardín Zoológico [de Buenos Aires] me han traído más de una vez, una especie de *Penelope*, procedente no sólo de Paraguay sino de Misiones, diciéndome que era un producto híbrido de gallina doméstica y de un ave silvestre, y que algunas veces solían aparecer tales piezas acompañando a las gallinas, con las que se asociaban permanentemente.”

× *Tetrao urogallus* (♂) [Western Capercaillie] CHR. HPF? Skjervold and Mjelstad (1992) artificially inseminated 25 hens with semen from 22 capercaillies. Of 1,148 incubated eggs, eight embryos developed and three hatched after 24 days (approximate mean of parents' incubation times). Surprisingly, seven of the eight showing development, and all of three that hatched and reached maturity, were sired by a single capercaillie. The hybrids had feathered legs down to the feet like capercaillies. When young, they sounded like chickens, when older, more like capercaillies. Sperm survival was drastically reduced for capercaillie semen in hen sperm storage glands (in comparison with that of roosters). Skjervold and Mjelstad say their results strongly indicate a genetic component in sperm survival and that treatment of recipient hens with immunosuppressive drugs would therefore be of interest. In an old report Schröder (1880) says several hybrids were reared. He also alleges that hybrids of both sexes were fertile in backcrosses to domestic fowl, to which, supposedly, the backcross hybrids were very similar. Ackermann 1898 (p. 23); Bartlett 1898; Przi Bram 1910 (p. 87); Schröder 1880; Skjervold and Mjelstad 1992; Vale 1900; Yarrell 1871 (vol. 1, p. 56).

Gallus lafeyetti [Ceylon Junglefowl]

See also: *Gallus gallus*.

× *Gallus varius* [Green Junglefowl] CHR. Ackermann 1898.

Gallus sonneratii [Grey Junglefowl]

See also: *Gallus gallus*.

× *Gallus varius* (♀) [Green Junglefowl] CHR. HPF. Hybrids often are larger than either parent. Finn 1931; Hopkinson 1933a; Lotsy and Kuiper 1922–1924; Weaver 1948.

× ~~*Lophura nycthemera* (♀) [Silver Pheasant]~~ Some cite Hachisuka for this cross, but he mentions only a mixed mating. Hachisuka (Marquess) 1928.

Gallus varius [Green Junglefowl] See: *Gallus gallus*; *G. lafeyetti*; *G. sonneratii*.

Lagopus sp.

× *Tetrao tetrix* [Black Grouse] NHR (Norway). Haldås 1974.

Lagopus lagopus [Willow Ptarmigan]

See also: *Bonasa bonasia*; *Dendragapus canadensis*; *Gallus gallus*.

× *Lagopus mutus* [Rock Ptarmigan] NHR? BRO: n N. America, n Eurasia. Collett 1886, 1906; de Juana 1994 (p. 402); Harper 1953; Lumholtz 1920–1923; Panov 1989; Suchetet 1897a; Todd 1963.

× *Lagopus scoticus* [Red Grouse] ENHI. An intermediate population exists in w Norway. These birds are often lumped. Ackermann 1898; Kihlén 1914[†]; Ogilvie-Grant 1908; Schaanning 1924[†]; Sibley and Monroe 1990 (p. 22). Internet: DIGI.

× *Perdix perdix* [Grey Partridge] NHR? Old report. Suchetet 1897a.

× *Phasianus colchicus* [Common Pheasant] NHR? Cronau 1902 (p. 22); Suchetet 1897a (p. 99).

× *Tetrao tetrix* (↔) [Black Grouse] CAENHR. BRO: n Eurasia. HPF? Hybrids are larger than either parent. This hybrid was already known in the 1800s. It has been treated as a species (*Tetrao lagopoides*). Ackermann 1898; Behm 1916; Collett 1886[†], 1906; de Juana 1994 (pp. 402, 405); Dresser 1876; Evans 1922; Grieg 1912; Hachisuka (Marquess) 1928 (Plate 13[†]); Haldås 1974; Hopkinson 1926; Lloyd 1867; Lönnberg 1904; Loudon 1897, 1907; Meyer 1886; Ogilvie-Grant et al. 1912; Palmgren 1911[†]; Panov 1989; Pulliainen 1982; Rautian and Rautian 1985; Rothschild (Lord) 1923; Schaanning 1920[†], 1920–1923[†]; Suchetet 1897a; Szielasko 1925; Ušakov 1911.

× *Tetrao urogallus* [Western Capercaillie] ONHR. Collett 1906; de Juana 1994 (p. 402); Grieg 1890[†]; Hachisuka (Marquess) 1928; Ogilvie-Grant et al. 1912; Pearson 1894; Pulliainen 1982; Suchetet 1897a.

Lagopus leucurus [White-tailed Ptarmigan]

× *Tympanuchus phasianellus* [Sharp-tailed Grouse] NHR (N. America). Panov 1989.

Lagopus mutus [Rock Ptarmigan]

See also: *Bonasa bonasia*; *Lagopus lagopus*.

- × *Lagopus scoticus* [Red Grouse] NHR. BRO: U.K. Chamberlain 1892; Collett 1886; Newton 1878; Ogilvie-Grant 1907, 1908[†]; Ogilvie-Grant et al. 1912; Panov 1989; Suchetet 1897a; *The Field* 1908.
- × *Phasianus colchicus* [Common Pheasant] NHR? A single, very old report. Ackermann 1898.
- × *Tetrao tetrrix* (↔) [Black Grouse] ONHR (Norway). Collett 1898a[†], 1906; de Juana 1994 (pp. 403, 405); Hachisuka (Marquess) 1928; Hopkinson 1926; Panov 1989; Schaanning 1920[†], 1920–1923[†]; Suchetet 1897a.
- Lagopus scoticus*** [Red Grouse]
See also: *Bonasa bonasia*; *Gallus gallus*; *Lagopus lagopus*; *L. mutus*.
- × *Perdix perdix* [Grey Partridge] NHR?? Evans 1922; Yarrell 1843 (vol. 3, p. 114).
- × *Phasianus colchicus* [Common Pheasant] CHR?? All modern listings of this cross appear to trace to Vale. Vale 1900.
- × *Tetrao tetrrix* [Black Grouse] CAONHR. BRO: British Isles. *Avicultural Magazine* 1904 (p. 300); Collett 1886; Gladstone 1909; Gray 1958; Hachisuka (Marquess) 1928; Hopkinson 1926; Lowe 1930b; Macpherson 1897; Millais 1909a[†], 1909b; Ogilvie-Grant 1909a, 1909b[†]; Ogilvie-Grant et al. 1912; Panov 1989; Peterle 1951; Schaanning 1920–1923; Suchetet 1897a; Tegetmeier 1893a.
- × *Tetrao urogallus* [Western Capercaillie] ONHR (Eurasia). Panov 1989; Pulliainen 1982; Seibt 1978.
- Lophophorus impeyanus*** [Himalayan Monal]
See also: *Catreus wallichii*; *Chrysolophus amherstiae*; *Crossoptilon* sp.; *C. mantchuricum*; *Gallus gallus*.
- × *Lophura lathami* (♀) [Horsfield's Pheasant] CHR. This hybrid was obtained by Duvergner in 1888. *Bulletin de la Société Nationale de France* 1888 (p. 715), Hopkinson 1926 (p. 257).
- × *Lophura leucomelanos* (♀) [Kalij Pheasant] CHR. LFH. BRO: n India, Nepal. Cronau 1899 (p. 139); Gray 1958; Guyer 1909c (p. 199); Hopkinson 1926; Rothschild 1904.
- × *Lophura nycthemera* (♂) [Silver Pheasant] CHR. BRO: n Myanmar and adj. China? Hopkinson 1926; Seth-Smith 1909.
- × *Pucrasia macrolopha* [Koklass Pheasant] CHR. BRO: s Himalayas. Johnsgard 1983b (p. 94).
- Lophura diardi*** [Siamese Fire-backed Pheasant]
See also: *Gallus gallus*.
- × *Lophura ignita* (♀) [Viellot's Fireback] CAENHR. BRO: se Asia. Davison 1996; Gray 1958; IZY 1979; Johnsgard 1983b.
- × *Lophura leucomelanos* (♀) [Kalij Pheasant] CHR. DRS. HPF(♂♂). Delacour 1949d (p. 193); Martorelli 1912[†].
- × *Lophura lineata* [Lineated Pheasant] CHR. BRO: Thailand. Brentana 1914; Cronau 1899 (p. 141); Ghigi 1903; Ogilvie-Grant 1893 (pp. 291, 301); Suchetet 1897a (p. 397).
- × *Lophura nycthemera* (♀) [Silver Pheasant] CHR. HPF(♂♂). BRO: se Asia. Delacour 1949d (p. 193); Ghigi 1941a; Hopkinson 1926; Low 1929.
- × *Lophura swinhoii* [Swinhoe's Pheasant] CHR. DRS. HPF(♂♂). Cronau 1899 (p. 139); Delacour 1949d (p. 193); Rothschild 1904.
- × *Symaticus soemmerringii* [Copper Pheasant] CHR. DRS. Beever 1932.
- Lophura edwardsi*** [Edwards's Pheasant]
- × *Lophura imperialis* (♂) [Imperial Pheasant] CHR. HPF(+). BRO: Vietnam. Since *L. edwardsi* is now known to be one of the parents producing *L. imperialis* by hybridization, this cross is actually a backcross. See *L. edwardsi* × *L. nycthemera*. Delacour 1949c; Carpentier et al. 1975.
- × *Lophura leucomelanos* (♀) [Kalij Pheasant] CHR. DRS. Hopkinson 1939a.
- × *Lophura nycthemera* (↔) [Silver Pheasant] CAONHR. BRO: Vietnam. HPF. Hybrids of this type were reported at the London Zoo in the late 1940s. The Imperial Pheasant (*Lophura imperialis*), long treated as a species, is now known to be a natural hybrid from this cross. In 1923, Jean Delacour obtained two specimens of this bird in Vietnam (n border of Quang Tri Province). He took them back to France for investigation, where they survived for many

years. He described them as a new species (originally known as *Gennaemus imperialis* Delacour and Jabouille) and even crossed them with various other pheasants (see crosses listed under *L. imperialis*). No other Imperial Pheasant was recorded until 1990, when a survey (conducted by Birdlife International) rediscovered it (Ha Tinh Province). A fourth specimen was taken in 2000. Until its hybrid origin was recognized, it was considered one of the most threatened pheasants in the world (!) and was listed as critically endangered by the World Conservation Union (IUCN). Examination of museum specimens, breeding experiments, and analysis of DNA, all have recently shown the Silver Pheasant is a hybrid produced by this cross. Internet reports suggest also that another bird, the Vietnamese Fireback, sometimes treated as a species (*L. hathinensis*), sometimes as a subspecies of *L. nycthemera*, may also be derived from this cross. Hennache and Dickinson 2000; Hennache et al. 2003; IZY 1970, 1977; Rasmussen 1998; ZSL 1948, 1949.

- × *Lophura swinhoii* (♀) [Swinhoe's Pheasant] CHR. HPF(♂♂). DRS. Delacour 1925, 1927, 1929, 1949c, 1949d; Gray 1958; Hopkinson 1926, 1933a.

Lophura erythrophthalma [Crestless Fire-backed Pheasant]

- × *Lophura leucomelanos* [Kalij Pheasant] CHR. DRS. HPF(♂♂). Bretana 1914; Delacour 1949d (p. 193); Ghigi 1903, 1934/1935; Hopkinson 1926 (p. 257); Ogilvie-Grant 1893 (pp. 284, 302); Vale 1900.

Lophura ignita [Viellot's Fireback]
See also: *Lophura diardi*.

- × *Lophura lathami* (♀) [Horsfield's Pheasant] CHR. DRS. HPF(♂♂). Ghigi 1934/1935; Hertwig 1936; Rothschild 1904.
- × *Lophura leucomelanos* (♀) [Kalij Pheasant] CHR. HPF(♂♂). DRS. This hybrid occurred at the Jardin d'Acclimatation (Paris) in 1870. Cronau 1899; Delacour 1949d (p. 195); Hopkinson 1926 (p. 257).

- × *Lophura nycthemera* [Silver Pheasant] CHR. HPF(♂♂). BRO: se Asia. Delacour 1949d (p. 193); Ghigi 1941a; Rothschild 1904.

- × *Lophura rufa* [Malaysian Fireback] CHR. ENHI. HPF(vh). A variable population in se Sumatra (*macartneyi*) is geographically and morphologically intermediate and, thus, a PHP of this cross. These birds are often lumped. Delacour 1949d (p. 195); Ghigi 1931; McGowan 1994.

- × *Lophura swinhoii* [Swinhoe's Pheasant] CHR. DRS. Delacour 1937a (p. 135); Rothschild 1904.

Note: The Imperial Pheasant, long treated as a species (*Lophura imperialis*), is now known to be of hybrid origin. See *Lophura edwardsi* × *L. nycthemera*. The crosses listed here under *Lophura imperialis* involved two birds Delacour brought to France from Vietnam in 1923.

Lophura imperialis [Imperial Pheasant]
See also: *Lophura edwardsi*.

- × *Lophura lathami* (♀) [Horsfield's Pheasant] CHR. DRS. HPF(♂♂&♀). Carpentier et al. 1975; Ghigi 1934/1935.
- × *Lophura nycthemera* (♀) [Silver Pheasant] CHR. HPF(♂♂). Since *L. nycthemera* is now known to be one of the parents that produced *L. imperialis* by hybridization, this cross is actually a backcross. Carpentier et al. 1975; Delacour 1949d; IZY 1966, 1969, 1970; Weaver 1948.

- × *Lophura swinhoii* (♀) [Swinhoe's Pheasant] CHR. HPF(+). DRS. Delacour 1949c; Carpentier et al. 1975.

Lophura lathami [Horsfield's Pheasant]
See also: *Catreus wallichii*; *Lophophorus impeyanus*; *Lophura ignita*; *L. imperialis*.

- × *Lophura leucomelanos* (♀) [Kalij Pheasant] CHR. BRO: Nepal, n India. HPF(♂♂&♀). These birds are now usually lumped. *Avicultural Magazine* 1933 (p. 133); Cronau 1899 (p. 102); Delacour 1927; Hopkinson 1926 (p. 258); Ghigi 1907 (pp. 793, 796), 1909; Gray 1958; Suchetet 1897a (p. 597).
- × *Lophura lineata* [Lineated Pheasant] CHR. PCZ in Myanmar (at 20°N). These birds are now usually lumped. HPF(♂♂&♀). Brentana

- 1914; Gray 1958; Guyer 1909c (p. 195); Hopkinson 1926 (p. 258); Suchetet 1897a (p. 595); Taibel 1934.
- × *Lophura nycthemera* (♂) [Silver Pheasant] CAENHR (n Myanmar). HPF(♂ & ♀). Bartlett 1898; Beebe 1937[†]; Cronau 1902 (p. 24); Ghigi 1907 (p. 794), 1909, 1932/1933; Gray 1958; Hopkinson 1926 (p. 258); Mayr 1942; Meise 1928a, 1975; Rothschild (Lord) 1923; Stanford and Ticehurst 1939; Tegetmeier 1875, 1893b; Thomas 1922, 1923; Johnsgard 1983b, 1986. Internet: DIGI.
 - × *Phasianus colchicus* (♂) [Common Pheasant] CHR. BRO: ne Myanmar and adj. China. PCZ? Brentana 1914; Ghigi 1903; Guyer 1909c; Hachisuka (Marquess) 1928 (p. 76); Rothschild 1904.
 - × *Phasianus versicolor* (♂) [Green Pheasant] CHR. DRS. Brentana 1914; Cronau 1899 (p. 141), 1902 (pp. 22, 29); Ghigi 1903; Guyer 1909c (p. 194); Hopkinson 1926 (p. 260); Ogilvie-Grant 1893 (p. 393); Vale 1900.
- Lophura leucomelanos*** [Kalij Pheasant]
See also: *Chrysolophus pictus*; *Gallus gallus*; *Lophophorus impeyanus*; *Lophura diardi*; *L. edwardsi*; *L. erythrophthalma*; *L. ignita*; *L. lathami*.
- × *Lophura lineata* (♂) [Lineated Pheasant] CHR. DRS. HPF(♂ & ♀). These birds are often lumped. See *Lophura leucomelanos* × *L. nycthemera*. Brentana 1914; Ghigi 1907 (pp. 793, 796), 1909; Gray 1958; Guyer 1909c (p. 195); Hopkinson 1926 (p. 258); Rothschild 1904; Suchetet 1897a (pp. 81, 597); Taibel 1934.
 - × *Lophura nycthemera* (↔) [Silver Pheasant] CAENHR. BRO: n Myanmar. HPF(+). Delacour (p. 193) describes these hybrids as completely fertile and notes the existence of variable hybrid populations e of the Irrawaddy (p. 201), where they meet. ACZ (*nycthemera* occurs above *leucomelanos*). Delacour says (p. 202) very different-looking birds are found there in the same party and (p. 201) that “It is also probable that some well-established subspecies have originated in ancient hybridization. Nevertheless they do not differ on that ground from many other subspecies of birds; they show constant characteristics and inhabit well-defined ranges, being therefore completely different from the mixed hybrid populations occurring in some districts where both species can be found at intermediate altitudes.” Outside zone of contact, variability is low. Ghigi (1907) says hybrid is similar to *L. lineata*. In fact, McGowan (p. 532), who treats *lineata* as a race of *L. leucomelanos*, says that “races *oatesi*, *lineata*, and *crawfordi* [of *L. leucomelanos*], forms [that occur e of the Irrawaddy] in Burma, are more closely related to some races of *L. nycthemera* than to other races of [*L. leucomelanos* w of the Irrawaddy].” Ackermann 1898 (p. 25); Cronau 1902 (p. 24); Delacour 1949d; Ghigi 1907 (pp. 793, 795, 797), 1908, 1909; Hopkinson 1926 (p. 258); IZY 1961, 1962, 1979; McGowan 1994; Stanford and Ticehurst 1939; Taibel 1934; Thomas 1922; Johnsgard 1983b, 1986; Suchetet 1897a (p. 597), 1897b (p. 349). Internet: DIGI.
 - × *Lophura swinhoii* [Swinhoe’s Pheasant] CHR?? Suchetet 1897a (p. 597).
 - × *Phasianus colchicus* (prob. ♂) [Common Pheasant] CHR. DRS. Eight hybrids were bred at the Warsaw Zoo (Poland) in 1967. All but one survived. Brentana 1914; Cronau 1902 (p. 22); Ghigi 1903; Guyer 1909c (p. 194); Hachisuka (Marquess) 1928 (p. 76); IZY 1962, 1969; Ogilvie-Grant 1893 (p. 302); Rothschild 1904.
 - × *Phasianus versicolor* (♂) [Green Pheasant] CHR. DRS. Gray 1958.
 - × *Symaticus ellioti* [Elliot’s Pheasant] CHR? BRO: China. Rothschild 1904.
 - × *Symaticus reevesii* [Reeves’s Pheasant] CHR. DRS. Rothschild 1904.
 - × *Symaticus soemmerringii* [Copper Pheasant] CHR. DRS. Most (all?) hybrids are ♂. Copper Pheasant traits predominate. Bronzini 1946.
- Lophura lineata*** [Lineated Pheasant]
See also: *Lophura diardi*; *L. lathami*; *L. leucomelanos*.

- × *Lophura nycthemera* (↔) [Silver Pheasant] CHR. BRO: n Thailand. HPF(♂ & ♀). Bartlett 1898; Ghigi 1907 (pp. 793, 796), 1909, 1947b[†]; Guyer (p. 195); Hopkinson 1926 (p. 258); Taibel 1934; Taibell 1930b.
- × *Lophura swinhoii* (♀) [Swinhoe's Pheasant] CHR. DRS. Ghigi 1907.
- × *Phasianus colchicus* [Common Pheasant] CHR. DRS. London Zoo had a ♂ hybrid in 1904. Günther 1904b; ZSL 1904.
- × *Phasianus versicolor* (♂) [Green Pheasant] CHR. DRS. Günther 1904b; ZSL 1904.
- Lophura nycthemera** [Silver Pheasant]
See also: *Catreus wallichii*; *Chrysolophus pictus*; *Crossoptilon mantchuricum*; *Gallus gallus*; *G. sonneratii*; *Lophophorus impeyanus*; *Lophura diardi*; *L. edwardsi*; *L. ignita*; *L. imperialis*; *L. lathamii*; *L. leucomelanos*; *L. lineata*.
- × *Lophura swinhoii* (↔) [Swinhoe's Pheasant] CHR. HPF(♂ & ♀). Male hybrids more common and more fertile than ♀♀. DRS. Brentana, 1914; Ghigi 1907 (pp. 794, 797–798), 1936a; Gray 1958; Hachisuka (Marquess) 1928; Hertwig 1936; Hopkinson 1926; IZY 1965, 1967, 1970; Rothschild 1904; Serebrovsky 1929; Seth-Smith 1915; Suchetet 1897a (p. 597), 1897b (p. 349); Taibel 1934; Thomas and Huxley 1927.
- × *Perdix perdix* [Grey Partridge] CHR?? Old report. Cronau 1899 (p. 138).
- × *Phasianus colchicus* (↔) [Common Pheasant] CHR. HPF(♂♂). BRO: s China. Ackermann 1898; Brentana 1914; Cavazza 1931a; Cronau 1899 (p. 107), 1902 (pp. 22–23); Delacour 1949c, 1949d (p. 193); Fuller 1836; Ghigi 1947b; Gray 1958; Guyer 1909c (p. 195); Hachisuka (Marquess) 1928; Hertwig 1936; Hopkinson 1926, 1933a; IZY 1997, 1998; Poll 1908 (p. 129), 1910 (p. 35); Przibram 1910 (p. 86); Taibel 1936; Tegetmeier 1875; Zawadowsky and Zubina 1929[†].
- × *Phasianus torquatus* [Ring-necked Pheasant] CHR. Poll 1911c (Tafel 2[†]).
- × *Phasianus versicolor* [Green Pheasant] CHR. DRS. Hachisuka (Marquess) 1928.
- × *Syrmaticus ellioti* [Elliot's Pheasant] CHR. *The Field* 1904; Günther 1904b; Poll 1921; Serebrovsky 1929; ZSL 1904.
- × *Syrmaticus reevesii* (↔) [Reeves's Pheasant] CHR. HPF(♂♂). BRO: China. Multiple hybrids can be raised from a single clutch. Cavazza 1931a; Delacour 1949c, 1949d (p. 193); Ghigi 1936a; Gray 1958; Günther 1904a; Hachisuka (Marquess) 1928; Hopkinson 1926; IZY 1998; Pehrest 1955; Taibel 1934, 1936.
- × *Tetrao tetrix* [Black Grouse] CHR?? DRS. Modern listings of this cross can all be traced to Przibram, who cites no primary report. Przibram 1910 (p. 87).
- Lophura rufa** [Malaysian Fireback]
See: *Lophura ignita*.
- Lophura swinhoii** [Swinhoe's Pheasant]
See also: *Chrysolophus amherstiae*; *Lophura diardi*; *L. edwardsi*; *L. ignita*; *L. imperialis*; *L. leucomelanos*; *L. nycthemera*.
- × *Phasianus versicolor* [Green Pheasant] CHR?? DRS. Cronau 1902 (p. 29).
- × *Syrmaticus humiae* [Hume's Pheasant] CHR. DRS. Ghigi 1965; Johnsgard 1960a.
- × *Syrmaticus mikado* [Mikado Pheasant] CHR. BRO: Taiwan. Delacour 1937a.
- × *Syrmaticus reevesii* (♂) [Reeves's Pheasant] CHR. LFH? DRS. Beaver 1932; Hachisuka (Marquess) 1928; Hertwig 1936; Thomas and Huxley 1927; ZSL 1949.
- × *Tragopan satyra* (♂) [Cabot's Tragopan] CHR. DRS. Beaver 1952; Delacour 1949a; Laga 1949[†]; McGowan 1994 (p. 525).
- Meleagris gallopavo** [Turkey]
See also: *Agriocharis ocellata*; *Coturnix japonica*; *Gallus gallus*.
- × *Numida meleagris* (♀) [Helmeted Guineafowl] CHR. DRS (but feral contact occurs). Barraud describes a 3-year-old hybrid hatched in Morocco in 1951. Its sex could not be determined from plumage. Barraud 1958; Taibel 1962.
- × *Pavo cristatus* (♀) [Common Peafowl] CHR? DRS. Hopkinson 1934.
- × *Phasianus colchicus* (↔) [Common Pheasant] CANHR. Hybrids have been produced by artificial insemination.

Very few fertile eggs. Mortality at all stages of development high. LFH(–). Natural hybrids, too, have occasionally been reported.

Asmundson and Lorenz report that hybrids in pheasant eggs take about 2 days longer to hatch than those in turkey eggs (28 vs. 26 days), and pheasant eggs were also less often fertile (26% vs. 42%). Among those in turkey eggs, more than 90% of the hybrids are ♂, but only 55% of hatched birds from pheasant eggs are ♂. In both reciprocal crosses about one fertile egg in ten goes on to hatch. Mature hybrids are intermediate in weight and tail feather length, the head is similar to that of the pheasant. The neck and head are feathered, not bare as in the turkey. This cross was known at least as early as the 18th century. Antonius 1933; Asmundson and Lorenz 1955[†], 1957; Edwards 1761; Gray 1958; Hachisuka (Marquess) 1928[†]; Makos and Smyth 1970; Przibram 1910; Sarvella and Morris 1976; Sarvella et al. 1977; Wolfe et al. 1961.

- × ~~*Tetrao urogallus* (♂) [Western Capercaillie]~~
All modern listings of this cross appear to trace back to a single, very old report. Beckmann 1832.

Note: The Alagoas Curassow (*Mitu mitu*) is considered extinct in the wild.

Mitu mitu [Alagoas Curassow]

See also: *Crax alberti*.

- × *Mitu tuberosa* [Razor-billed Curassow] CHR. HPF: Grau et al. 2003.

Mitu salvini [Salvin's Curassow]

See also: *Mitu mitu*.

- × *Mitu tuberosa* [Razor-billed Curassow] PCZ (n Peru). No hybrids as yet reported. Del Hoyo 1994 (p. 357).

Mitu tomentosa [Crestless Curassow]

- × *Mitu tuberosa* [Razor-billed Curassow] PCZ (cen. Colombia). No hybrids as yet reported. Del Hoyo 1994 (p. 357).

- × *Ortalis poliocephala* [West Mexican Chachalaca] CHR. DRS.

Del Hoyo 1994 (p. 314[†]).

Mitu tuberosa (♀) [Razor-billed Curassow]

See also: *Crax alberti*; *Mitu mitu*; *M. salvini*; *M. tomentosa*.

- × *Pauxi unicornis* [Horned Curassow] NHR. BRO: e slope of Andes (Bolivia, Peru). A bird thought to be a pure Horned Curassow had *M. tuberosa*-like mtDNA. Pereira and Baker 2004.

Note: Three populations that have been treated both as races of *Numida meleagris*, and as separate species, *N. galeata* (West African Guineafowl), *N. meleagris* (Helmeted Guineafowl), *N. mitrata* (Tufted Guineafowl), hybridize where they meet. Captive hybrids are also reported. Ghigi 1932a, 1932b, 1941b; Sibley and Monroe 1990 (p. 23).

Numida meleagris [Helmeted Guineafowl]
See also: *Acryllium vulturinum*; *Gallus gallus*; *Meleagris gallopavo*; Appendix 2.

- × *Pavo cristatus* (↔ usu. ♂) [Common Peafowl] CHR. DRS. LFH. Hybrids are usually ♂, but are fully viable. A ♀ hybrid is described by Hanebrink. It lacked both the helmet of the guinea and the crest feathers of the peafowl. Marquess Hachisuka (p. 72) calls this cross the “most astonishing hybrid among game birds.” Anonymous 1916; Baur 1919; Brentana 1914[†]; Cavazza 1931a, 1931b; Delacour 1936c; Diaz 1910; Ghigi 1900, 1903[†]; Hachisuka (Marquess) 1928 (Plate 17[†]); Hanebrink 1973[†]; Hanebrink et al. 1973; Hopkinson 1926; *The Ibis* 1902; Naether 1966a[†]; Pays-Mellier and Trouessart 1907; Poll 1920a[†], 1920b[†], 1921; Serebrovskii 1935[†]; Taibel 1934, 1936; Trouessart 1920. Internet: GUIN[†].

- × *Penelope superciliaris* (♀) [Rusty-margined Guan] CHR. DRS. Esteban 1963.

- × *Phasianus colchicus* [Common Pheasant] CHR. DRS. Hachisuka (Marquess) 1928; Hopkinson 1926; Larmuth 1939; Ogilvie-Grant et al. 1912.

- × *Tragopan caboti* (♂)

[Cabot's Tragopan] CHR.

LFH(–). DRS. Hachisuka (Marquess) 1928; Thomas and Huxley 1927.

Ortalis canicollis [Chaco Chachalaca]

- × *Ortalis guttata* [Speckled Chachalaca]

CHR. BRO: S. America. HPF: See: *Penelope argyrotis* × *P. pileata*. Taibel 1974.

- × *Pipilo cumanensis* [Blue-throated Piping-Guan] CHR. BRO: e Bolivia. Del Hoyo 1994 (pp. 344, 353).
- Ortalis cinereiceps** [Grey-headed Chachalaca]
- × *Ortalis garrula* [Chestnut-winged Chachalaca] ONHR (nw Colombia). Due to hybridization, these birds are sometimes treated as conspecific. Del Hoyo 1994 (p. 312); Meyer de Schauensee 1966 (p. 67); Vaurie 1965c.
- Ortalis garrula** [Chestnut-winged Chachalaca]
See: *Ortalis cinereiceps*.
- Note:** Two populations (*guttata*, *subaffinis*), treated as races of *Ortalis guttata*, have a broad hybrid zone in n Bolivia. Meyer de Schauensee 1966; Vaurie 1965c.
- Ortalis guttata** [Speckled Chachalaca]
See also: *Gallus gallus*; *Ortalis canicollis*.
- × *Ortalis ruficauda* [Rufous-tipped Chachalaca] PCZ in Magdalena valley (nw Colombia). No hybrids as yet reported. Sibley and Monroe 1990.
- Ortalis leucogastra** [White-bellied Chachalaca]
See: *Ortalis motmot* × *O. vetula*.
- Ortalis motmot** [Little Chachalaca]
- × *Ortalis vetula* [Plain Chachalaca] ENHI (Cen. America). No hybrids have been explicitly reported, but a population (*leucogastra*) has been treated as a race of both these birds and as a separate species (White-bellied Chachalaca). This history of treatment suggests *leucogastra* as a PHP of this cross. Del Hoyo 1994 (p. 312); Sibley and Monroe 1990 (p. 6).
- × *Ortalis ruficauda* [Rufous-tipped Chachalaca] PCZ along Orinoco (Venezuela). No hybrids as yet reported. Hilty 2003 (pp. 258, 259).
- Note:** The intermediate geographic position of *Ortalis poliocephala* and its history of treatment as conspecific with *O. vetula*, with *O. wagleri*, and as a separate species, suggest it as a PHP of crossing between *O. vetula* and *O. wagleri*.
- Ortalis poliocephala** [West Mexican Chachalaca]
See also: *Mitu tomentosa*.
- × *Ortalis vetula* [Plain Chachalaca] PCZ (Mexico, Isthmus of Teuantepec and s Chiapas). No hybrids as yet reported. Peterson and Chalif 1973.
- × *Ortalis wagleri* [Rufous-bellied Chachalaca] NHR (Mexico). ACZ: cen. Jalisco (near Puerto Vallarta). HPF(vh). *O. wagleri* occurs at lower elevations than *O. poliocephala*. Samples from the contact zone are meager, but suggest that it may be moving in the direction of *O. wagleri*. Hybrids have been described as a subspecies (*lajuelae*). Due to hybridization, these birds have at times been treated as conspecific, although Vaurie (1965b) says they represent the extremes of color variation for the genus. Banks 1990; del Hoyo 1994 (pp. 312, 344); Moore and Medina 1957.
- Ortalis ruficauda** [Rufous-tipped Chachalaca]
See also: *Ortalis guttata*; *O. motmot*.
- × *Ortalis ruficrissa* [Rufous-vented Chachalaca] ENHR. The hybrid zone is in n Colombia (n of Cúcuta) and ne Venezuela (w Zulia). Due to hybridization these birds are now usually treated as conspecific. Hybrids were treated as a race (*baliolus*). Del Hoyo 1994 (pp. 312, 343); Hilty 2003 (p. 258); Hilty and Brown 1986 (p. 123); Meyer de Schauensee 1966 (p. 66); Sibley and Monroe 1990; Vaurie 1965c.
- Ortalis ruficrissa** [Rufous-vented Chachalaca]
See: *Ortalis ruficauda*.
- Ortalis vetula** [Plain Chachalaca]
See: *Gallus gallus*; *Ortalis motmot*; *O. poliocephala*.
- Ortalis wagleri** [Rufous-bellied Chachalaca]
See: *Ortalis poliocephala*.
- Pauxi unicornis** [Horned Curassow]
See: *Mitu tuberosa*.
- Pavo cristatus** [Common Peafowl]
See also: *Gallus gallus*; *Meleagris gallopavo*; *Numida meleagris*.
- × *Pavo muticus* (↔) [Green Peafowl] CHR. HPF(♂ & ♀). BRO: formerly ne India. Hybrid is known as Spaulding's Peafowl. Common in captivity. Blauuw 1920; Cuénot 1941; Delacour 1927, 1939, 1955; Finn 1926; Ghigi 1928; Hachisuka (Marquess) 1928 (pp. 69–72); Hopkinson 1926; IZY

- 1966, 1968, 1969, 1970, 1972; Legendre 1936; Weaver 1948.
- × *Phasianus colchicus* [Common Pheasant] CHR?? DRS. Cronau 1902 (p. 22); Suchetet 1897a (p. 102).
- Penelope sp.** See: *Crax fasciolata*, *Gallus gallus*.
- Penelope argyrotis** [Band-tailed Guan]
- × *Penelope pileata* [White-crested Guan] CHR. HPF (♂ & ♀). DRS. Taibel (1980) obtained a four-way hybrid: ((*P. pileata* × *P. argyrotis*) × *Penelope superciliaris*) × *Ortalis canicollis*. Taibel 1972b, 1973, 1980.
- × *Penelope purpurescens* [Crested Guan] CHR. BRO: ne Colombia (Santa Marta Mts.). IZY 1965 (p. 355).
- × *Pipile cumanensis* (♂) [Blue-throated Piping-Guan] CHR. A ♀ hybrid occurred at the Las Delicias Zoo (Maracay, Venezuela) in 1969. BRO: Colombia (Meta). IZY 1971.
- Penelope jacucaca** [White-browed Guan]
- × *Penelope pileata* [White-crested Guan] CHR. DRS. Suchetet 1897a; del Hoyo 1994 (p. 351).
- × *Penelope purpurescens* [Crested Guan] CHR. DRS. San Antonio Zoo (U.S.) had ten hybrids in 1970. IZY 1972.
- Penelope jaquacu** [Spix's Guan]
- × *Penelope pileata* [White-crested Guan] CHR. BRO: Amazonia? del Hoyo 1994.
- Penelope marail** [Marail Guan]
- × *Penelope pileata* (♀) [White-crested Guan] CHR. BRO: ne Brazil (lower Amazon). *Bulletin de la Société Nationale de France* 1908 (p. 356); del Hoyo 1994 (pp. 348, 349, 350); Hopkinson 1926.
- × *Penelope purpurescens* [Crested Guan] CHR. BRO: ne Venezuela (Delta Amacuro). Del Hoyo 1994 (pp. 348, 349).
- Penelope montagnii** [Andean Guan]
- × *Pipile cumanensis* [Blue-throated Piping-Guan] CHR. BRO: w S. America. IZY 1960.
- Penelope pileata** [White-crested Guan]
See also: *Crax alberti*; *C. rubra*; *Penelope argyrotis*; *P. jacucaca*; *P. jaquacu*; *P. marail*.
- × *Penelope purpurescens* [Crested Guan] CHR. BRO: (e Amazonia). HPF Del Hoyo 1994 (pp. 349, 350); Taibel 1964a.
- × *Penelope superciliaris* [Rusty-margined Guan] CHR. DRS. HPF (♂ & ♀). Grilletto 1966; Taibel 1964a.
- Penelope purpurescens** [Crested Guan]
See also: *Penelope argyrotis*; *P. jacucaca*; *P. marail*; *P. pileata*.
- × *Penelope superciliaris* [Rusty-margined Guan] CHR. DRS. HPF See *Penelope argyrotis* × *P. pileata*. Taibel 1964a.
- Penelope superciliaris** [Rusty-margined Guan]
See also: *Gallus gallus*; *Numida meleagris*; *Penelope purpurescens*.
- × *Pipile cujubi* [Stripe-crowned Piping-Guan] CHR. BRO: Brazil (s of Amazon). Del Hoyo 1994 (pp. 348, 353).
- Penelopina nigra** [Highland Guan]
See: *Crax rubra*.
- Perdix dauuricae** [Daurian Partridge]
- × *Perdix perdix* [Grey Partridge] NHR. BRO: w Mongolia, nw China, adjacent Russia. Harrison 1982 (p. 111).
- Perdix perdix** [Grey Partridge]
See also: *Alectoris graeca*; *A. rufa*; *Colinus sp.*; *Coturnix sp.*; *Gallus gallus*; *Lagopus lagopus*; *L. scoticus*; *Lophura nycthemera*; *Perdix dauuricae*.
- × *Phasianus colchicus* [Common Pheasant] CHR? Ghigi 1936a; Gray 1958.
- Phasianus colchicus** [Common Pheasant]
See also: *Bonasa umbellus*; *Catrus wallichii*; *Chrysolophus amherstiae*; *C. pictus*; *Coturnix japonica*; *Dendragapus obscurus*; *Gallus gallus*; *Lagopus lagopus*; *L. mutus*; *L. scoticus*; *Lophura lathami*; *L. leucomelanos*; *L. lineata*; *L. nycthemera*; *Meleagris gallopavo*; *Numida meleagris*; *Pavo cristatus*; *Perdix perdix*.
- × *Phasianus torquatus* [Ring-necked Pheasant] ENHR. BRO: Eurasia. HPF(vh). These birds are usually treated as conspecific. Sibley and Monroe 1990 (p. 20).
- × *Phasianus versicolor* [Green Pheasant] CAENHR. LFH. These birds have both been introduced to N. America where they hybridize extensively. The same is true in Hawaii. However, although *P. colchicus* has also been introduced to Japan, where *P. versicolor* is native, it has not become established, apparently because of genetic

- swamping from *P. versicolor* (it does survive, though, in a few areas). These birds are sometimes treated as conspecific. Bohl 1964; Brazil 1991; Goodwin 1982b; Hopkinson 1926; Lowe 1931a; McGowan 1994 (p. 543); Schwartz and Schwartz 1951; Sibley and Monroe 1990 (p. 20); Sibley 2000 (p. 141); Vaurie 1965a.
- × *Symmaticus ellioti* [Elliot's Pheasant] CHR?? Ogilvie-Grant et al. 1912.
 - × *Symmaticus reevesii* (↔ usu. ♂) [Reeves's Pheasant] CHR. BRO: China. Few eggs hatch. Most hybrids are ♂♂. HPF(♂♂). Males produce active spermatozoa that are often deformed. Hybrids from the reciprocal crosses differ substantially in appearance. Sandnes (1957) backcrossed a fertile F₁ ♂ (Reeves's ♂ × Common ♀) with both parental types. Most of the resulting hybrids died as embryos or chicks, but two, both backcrosses to *Phasianus*, reached maturity. Marquess Hachisuka says the hybrid has a white cheek patch (though neither parent does). He also mentions a three-way hybrid in the British Museum ((*P. colchicus* ♂ × *S. reevesii* ♀) × *L. nycthemera* ♀). ABA 1969 (vol. 37, no. 1130); Allen 1987[†]; Cavazza 1931a; Cronau 1899 (p. 105), 1902 (pp. 20–22); Danforth 1949; Danforth and Sandnes 1939[†]; Gray 1958; Guyer 1909c; Hachisuka (Marquess) 1928 (p. 76, Plate 20[†]); Hertwig 1936; IZY 1970; Knoder 1963; Phillips 1913[†], 1916[†], 1921; Poll 1908 (p. 129), 1910 (p. 35); Sandnes 1952, 1954, 1957; Smith and Thomas 1913; Taibel 1934, 1936; Thomas 1916[†]; Thomas and Huxley 1927.
 - × *Symmaticus soemmerringii* (♂) [Copper Pheasant] CANHR. LFH? BRO: Japan. A natural hybrid (USNM #110197) was taken in Japan, where *P. colchicus* is introduced. Cronau 1899 (pp. 107, 129), 1902 (pp. 20, 21, 71); Hachisuka (Marquess) 1928 (p. 77), 1953; Hopkinson 1933a; Poll 1911c (p. 434 and Tafel 2[†]), 1921; Rothschild 1904.
 - × *Tetrao tetrax* (↔) [Black Grouse] CAENHR (w Europe). Most hybrids are ♂. LFH? BRO: Eurasia. *T. tetrax* occurs mostly to the north of *C. phasianus*, in regions of overlap there is probably altitudinal segregation. Genital abnormalities common in hybrids. Marquess Hachisuka (pp. 65–66) describes a specimen. This cross was known at least as early as the 1830s. Ackermann 1898; Boback and Müller-Schwarze 1968[†]; Eyton 1835; Gray 1958; Hachisuka (Marquess) 1928; Johnsgard 1983b; Jourdain 1906a[†], 1906b, 1906c, 1906d, 1912, 1934; Lowe 1931b, 1934, 1935; Millais 1906; Ogilvie-Grant et al. 1912; Panov 1989; Panton 1914; Parrot 1905; Pycraft 1906; Reichholf 1982; Rothschild (Lord) 1931; Sabine 1834 (p. 52); Schaanning 1920–1923; Serebrovskii 1935[†]; Southwell 1906; Suchetet 1897a (pp. 87, 621, 941); von Besserer 1914[†].
 - × *Tetrao urogallus* [Western Capercaillie] ONHR. Most (all?) hybrids are ♂. BRO: Eurasia. *T. urogallus* occurs mostly to the n of *C. phasianus*. In regions of overlap there is altitudinal segregation. Ackermann 1898; Lumsden 1898; Boag et al. 1971; Bonser 1940; Clarke 1898a, 1898b; Gray 1958; Hachisuka (Marquess) 1928; Sim 1896; Suchetet 1897a (pp. 621, 943); Wynne-Edwards 1950.
 - × *Tragopan caboti* (♀) [Cabot's Tragopan] CHR. LFH. BRO: s China. Thomas and Huxley 1927.
 - × *Tympanuchus cupido* [Greater Prairie-Chicken] NHR (N. America.). BRO: Great Plains. Lincoln 1950[†]; Peterle 1951.
- Phasianus torquatus*** [Ring-necked Pheasant]
See: *Lophura nycthemera*; *Phasianus colchicus*.
- Phasianus versicolor*** [Green Pheasant]
See also: *Chrysolophus amherstiae*; *C. pictus*; *Gallus gallus*; *Lophura lathamii*; *L. leucomelanos*; *L. lineata*; *L. nycthemera*; *L. swinhoii*; *Phasianus colchicus*.
- × *Symmaticus reevesii* (↔) [Reeves's Pheasant] CHR. Few eggs hatch. Most hybrids are ♂. HPF(♂♂). DRS (but Reeves's Pheasant has been introduced to Japan). Males produce active, but often deformed, spermatozoa. Cronau 1899 (p. 106), 1902 (pp. 20, 27, 66);

Hachisuka (Marquess) 1928; Hertwig 1936; Poll 1910 (p. 35); Sandnes 1957; Smith and Thomas 1913; Thomas 1916[†]; Thomas and Huxley 1927.

- × *Syrmaticus soemmerringii* (prob. ♀) [Copper Pheasant] CAONHR. BRO: Japan. Earlier authors suggest that these hybrids are of low fertility, but McGowan says that they are fertile *inter se*.

Ackermann 1898 (p. 25); Brazil 1991 (p. 110); Hachisuka (Marquess) 1928 (p. 77); Hertwig 1936; Hopkinson 1933a; McGowan 1994 (p. 542); Poll 1921; Przibram 1910 (p. 85); Suchetet 1897a (pp. 83, 600, 610).

- Pipile kujubi** [Stripe-crowned Piping-Guan]
See also: *Penelope supercilii*rs.

- × *Pipile cumanensis* [Blue-throated Piping-Guan] ENHR. The hybrid zone is in e Bolivia. These birds are sometimes treated as conspecific. Del Hoyo and Motis (in Delacour and Amadon 2004).
- × *Pipile jacutinga* [Black-fronted Piping-Guan] ENHI. A population in s Brazil (*nattereri*) is geographically intermediate and has been treated as a race of both these birds and as a separate species (Natterer's Piping-Guan). It is thus a PHP of this cross. Sibley and Monroe 1990 (p. 8).

- Pipile cumanensis** [Blue-throated Piping-Guan]
See also: *Ortalis canicollis*; *Penelope argyrotis*; *P. montagnii*; *Pipile kujubi*.

- × *Pipile grayi* [Gray's Piping-Guan] ENHR (se Peru). Due to hybridization, these birds are now usually treated as conspecific. Del Hoyo 1994 (p. 314).

- × *Pipile jacutinga* [Black-fronted Piping-Guan] CHR. BRO: s Amazonia? IZY 1962.

- Pipile grayi** [Gray's Piping-Guan]
See: *Pipile cumanensis*.

- Pipile jacutinga** [Black-fronted Piping-Guan]
See: *Gallus gallus*; *Pipile kujubi*; *P. cumanensis*.

- Pipile nattereri** [Natterer's Piping-Guan]
See: *Pipile kujubi* × *P. jacutinga*.

- Polyplectron bicalcaratum** [Grey Peacock-Pheasant]

- × *Polyplectron germaini* [Germain's Peacock-Pheasant] CHR. BRO: se Asia? Delacour 1977.

- Pucrasia macrolopha** [Koklass Pheasant]
See also: *Catreus wallichii*; *Lophophorus impeyanus*.

- × *Tragopan temminckii* (♂) [Temminck's Tragopan] CHR. BRO: s China. This hybrid was obtained by Duvergnier in 1888. *Bulletin de la Société Nationale de France* 1888 (p. 715); Cronau 1899 (p. 139); Delacour 1949a.

- Syrmaticus ellioti** [Elliot's Pheasant]

See also: *Chrysolophus amherstiae*; *Lophura leucomelanos*; *L. nycthemera*; *Phasianus colchicus*.

- × *Syrmaticus humiae* [Hume's Pheasant] CHR. BRO: s China? Ghigi 1965; Johnsgard 1960a.

- × *Syrmaticus mikado* (♂ prob. ↔) [Mikado Pheasant] CHR. HPF(♂ & ♀). DRS. *Avicultural Magazine* 1918; Crepin 1920; Debreuil 1916; Delacour 1917, 1920, 1927; Finn 1929; Hopkinson 1926; Poll 1921; Serebrovsky 1929; Seth-Smith 1913, 1914a.

- × *Syrmaticus reevesii* (♀) [Reeves's Pheasant] CHR. PCZ: e China, lower Yangtze R. (between Nanjing and Jiujiang). Delacour 1917; *The Field* 1904; Günther 1904b; ZSL 1904.

- × *Syrmaticus soemmerringii* (♂) [Copper Pheasant] CHR. Most (all?) hybrids are ♂. DRS. Ghigi 1912, 1936a.

- Syrmaticus humiae** [Hume's Pheasant]
See: *Lophura ellioti*; *L. swinhoii*.

- Syrmaticus mikado** [Mikado Pheasant]
See also: *Catreus wallichii*; *Lophura diardi*; *L. swinhoii*; *Syrmaticus ellioti*.

- × *Syrmaticus reevesii* [Reeves's Pheasant] CHR. DRS. Delacour 1920.

- Syrmaticus reevesii** [Reeves's Pheasant]
See also: *Catreus wallichii*; *Chrysolophus amherstiae*; *C. pictus*; *Lophura leucomelanos*; *L. nycthemera*; *L. swinhoii*; *Phasianus colchicus*; *P. versicolor*; *Syrmaticus ellioti*; *S. mikado*.

- × *Syrmaticus soemmerringii* (↔) [Copper Pheasant] CHR. HPF(♂♂). DRS (but Reeves's Pheasant has been introduced to Japan). Cavazza 1931a; Cronau 1899 (p. 139); Delacour 1927; Ghigi 1934a, 1933/1934[†]; Gray 1958; Hachisuka (Marquess) 1928;

Hertwig 1936, Hopkinson 1926, 1933a; Legendre 1936; Poll 1908 (p. 129), 1910 (p. 35); Rothschild 1904; Serebrovskii 1935[†]; Serebrovsky 1929.

Syrmaticus soemmerringii [Copper Pheasant]

See: *Chrysolophus pictus*; *Gallus gallus*; *Lophura diardi*; *L. leucomelanos*; *Phasianus colchicus*; *P. versicolor*; *Syrmaticus elliotti*; *S. reevesii*.

Tetrao parvirostris [Black-billed Capercaillie]

- × ***Tetrao tetrix*** [Black Grouse] NHR. (Russia). BRO: e Siberia (from Lake Baikal to Pacific Ocean). Hopkinson 1926 (p. 255); Panov 1989.
- × ***Tetrao urogallus*** [Western Capercaillie] ENHR (Siberia). A broad hybrid zone extends for about 2,000 km from n Mongolia (~45°N) through Russia e of Lake Baikal (Yenesei basin, Baikal catchments and Transbaikalia) to the northern limit of the Dahurian Larch (*Larix gmelinii*) at ~70°N. In one area studied by Kirpichev, 12% of courting males were hybrid. Andreev 2002; de Juana 1994 (p. 405); Flint et al. 1984 (p. 84); Kirpichev 1958; Klaus et al. 1986; Short 1967 (p. 14); Sibley and Monroe 1990 (p. 22).

Tetrao tetrix [Black Grouse]

See also: *Bonasa bonasia*; *Gallus gallus*; *Lagopus* sp.; *Lagopus lagopus*; *L. mutus*; *L. scoticus*; *Lophura nycthemera*; *Phasianus colchicus*; *Tetrao parvirostris*.

- × ***Tetrao urogallus*** (↔) [Western Capercaillie] CAENHR. BRO: Scotland to Lake Baikal. The hybrid is known as the Rackelhahn and has been described as a species (*Tetrao medius* Leis, *Tetrao hybridus* Linnaeus). HPF (♂ & ♀). Most hybrids are ♂. Ackermann 1898; Anonymous 1993; Bergman 1940a[†], 1940b; Berlioz 1927; Buckley 1898, 1900; Collett 1886, 1906; Daguin 1909; de Juana 1994 (p. 405); Evans 1922; Fischer-Sigwart 1909; Ghidini 1918; Gladstone 1910; Gray 1958; Hachisuka (Marquess) 1928; Haldás 1968; Hanf 1882; Hassfurther 1936; Henke 1892; Höglund 1989; Hopkinson 1926; Jamrozny and Tomek 1992; Kirk 1913; Legendre 1936; Lorenz 1894; Mayr 1942;

Meyer 1887[†]; Moltoni 1948, 1949a[†], 1949b, 1956b; Panov 1989; Porkert 1990, 1995a, 1995b, 1999; Porkert et al. 1997, 1998; Pulliainen 1982; Rautian and Rautian 1985; Reichling 1922; Schaanning 1920–1923[†]; Schröder 1880; Seibt 1978; Szielasko 1925; Voous 1960; WLZ 1941; Wynne-Edwards 1950. Internet: DIGI.

Tetrao urogallus [Western Capercaillie]

See: *Gallus gallus*; *Lagopus lagopus*; *L. scoticus*; *Meleagris gallopavo*; *Phasianus colchicus*; *Tetrao parvirostris*; *T. tetrix*. Two populations (*uralensis*, *urogallus*), treated as races of *T. urogallus*, have a hybrid zone in Finland. Liukkonen-Anttila et al. 2004.

Tetraogallus caspius [Caspian Snowcock]

- × ***Tetraogallus caucasicus*** [Caucasian Snowcock] PCZ (Kura R., s Georgia). No hybrids as yet reported. Harrison 1982 (p. 110).

Tragopan blythi [Blyth's Tragopan]

- × ***Tragopan satyra*** (↔) [Satyr Tragopan] CHR. BRO: Bhutan, ne India. *Avicultural Magazine* 1936 (p. 124), 1937 (p. 114); Gray 1958; Weaver 1948; ZSL 1947, 1953.
- × ***Tragopan temminckii*** (♀) [Temminck's Tragopan] CANHR. BRO: s China, ne India. PCZ? Delacour 1948; Hopkinson 1926; Panov 1989.

Tragopan caboti [Cabot's Tragopan]

See also: *Chrysolophus amherstiae*; *Numida meleagris*; *Phasianus colchicus*.

- × ***Tragopan satyra*** (♂) [Satyr Tragopan] CHR? DRS. Page 1914b.

Tragopan melanocephalus

[Western Tragopan]

- × ***Tragopan temminckii*** (♂) [Temminck's Tragopan] CHR. DRS. *Avicultural Magazine* 1933 (p. 132); IZY 1979.

Tragopan satyra [Satyr Tragopan]

See also: *Lophura swinhoii*; *Tragopan blythi*; *T. caboti*.

- × ***Tragopan temminckii*** (↔) [Temminck's Tragopan] CHR. HPF (♂ & ♀). BRO: ne India. Bronzini 1946; *Avicultural Magazine* 1909 (p. 147); Delacour 1927, 1936d; Hopkinson 1926, 1933a; St. Quintin 1909.

Tragopan temminckii [Temminck's Tragopan]
See: *Catreus wallichii*; *Pucrasia macrolopha*;
Tragopan blythi; *Tragopan melanocephalus*;
Tragopan satyra.

Note: In a study of the following three birds (*Tympanuchus cupido*, *T. pallidicinctus*, and *T. phasianellus*) Ellsworth et al. (1994, p. 664) found that mtDNA haplotypes do not partition along the geographic boundaries where changes in morphology occur. Instead one haplotype was common to all three morphotypes, while another was held in common by *T. cupido* and *T. pallidicinctus* only in Kansas, the region where the two have recently been found to hybridize (Bain and Farley, 2002). Ellsworth and his colleagues said one hypothesis accounting for their findings is hybridization, but they argued instead that the data is better explained by recent speciation.

Tympanuchus cupido [Greater Prairie-Chicken]
See also: *Phasianus colchicus*.

- × ***Tympanuchus pallidicinctus*** (↔) [Lesser Prairie-Chicken] CAENHR (cen. U.S.). Bain and Farley found probable hybrids at nine different leks in w Kansas. Hybrid booms are intermediate, combining characteristics of both parental booms. These birds are sometimes treated as conspecific. Bain and Farley 2002; Crawford 1978; Johnsgard 1973 (p. 52).
- × ***Tympanuchus phasianellus*** (♀) [Sharp-tailed Grouse] CAENHR (U.S.). Most (all?) hybrids are ♂. HPF: BRO: Wisconsin, Michigan, n Minnesota, Nebraska, and the Dakotas. Johnsgard and Wood found that 1–3% of birds are hybrid in most areas of contact, but in some areas the percentage can rise much higher. Amadon and Ammann found that hybrids were common on Mantoulin I. in Lake Huron. The latter notes that some 80% of the birds on prairie chicken display grounds were not typical prairie chickens (i.e., they showed evidence of hybridization). Hybrids can be larger than parents of either type. Houston suggests that hybridization with the Sharp-tailed Grouse contributed to the decline and disappearance of

the Greater Prairie-Chicken in Canada during the first half of the 20th century. According to Evans, during display, hybrids hold their wings further out than do Greater Prairie-Chickens, but not so far as Sharp-tailed Grouse; they stamp their feet faster and longer than do prairie chickens, but run less than sharp-tails. Amadon 1950b; Ammann 1957; Bent 1932; Brewster 1877; de Juana 1994 (p. 409); Evans 1966; Geiger 1993; Grange 1948; Gray 1958; Gross 1930; Gurney 1884; Hachisuka (Marquess) 1928; Hamerstrom 1939; Houston 2002; Johnsgard and Wood 1968; Lincoln 1918; Mathisen and Mathisen 1959; Mayr 1963 (p. 117); McEwen et al. 1969; Paynter 1952; Panov 1989; Peterle 1951; Rowan 1926[†]; Schufelt 1893; Short 1967 (p. 22); Sibley and Monroe 1990 (p. 23); Sibley 2000 (p. 146); Sparling 1979, 1980, 1981a, 1981b; Suchetet 1897a (p. 598); Svedarsky and Kalahar 1980. Internet: DIGI.

Tympanuchus pallidicinctus [Lesser Prairie-Chicken] See: *Tympanuchus cupido*.

Tympanuchus phasianellus [Sharp-tailed Grouse] See: *Centrocercus urophasianus*; *Dendragapus obscurus*; *Lagopus leucurus*; *Tympanuchus cupido*.

New World Quails

Family Odontophoridae

Ammoperdix heyi [Sand Partridge]

- × ***Callipepla californica*** [California Quail]
CHR. DRS. Seth-Smith 1906c.

Callipepla californica [California Quail]

See also: *Ammoperdix heyi*.

- × ***Callipepla douglasii*** (♂) [Elegant Quail]
CHR. Hopkinson 1926 (p. 263);
Johnsgard 1971[†].

- × ***Callipepla gambelii*** [Gambel's Quail] ENHR (sw U.S.). Narrow hybrid zone in s California (Palm Desert). Phenotypic and genetic variation are clinal across the zone. Parental populations show no signs of hybridization outside the zone. Brown et al. 1998; Calkins et al. 1999; Gee 2004; Gee et al. 2003; Hachisuka (Marquess) 1928 (p. 84[†]);

Henshaw 1885; Miller and Stebbins 1964; Suchetet 1897a (p. 481).

- × *Callipepla squamata* (♂) [Scaled Quail] CANHR (nw U.S.). *C. squamata* was introduced to range of *C. californica* (cen. Washington). HPF (♂ & ♀). Shore-Baily obtained this cross in captivity, as well as F₂ hybrids. Johnsgard (1971) produced the reverse cross and reported hatchability of fertile eggs was 73%. Of those hatched (19 birds), 14 were reared (74%). *Bird Notes* 1916[†]; Hopkinson 1926; Johnsgard 1970, 1971[†], 1973[†]; Jewett et al. 1953 (p. 223); Page 1914b; Shore-Baily 1912, 1913, 1914a, 1917.
- × *Colinus virginianus* [Bobwhite] CANHR. BRO: w U.S. HPF (♂ & ♀). F₂ hybrids have been reared. Natural hybridization occurred between introduced birds in Utah. Aiken 1930; Compton 1932; Johnsgard 1970, 1971[†], 1973[†]; Peterle 1951.
- × *Oreortyx picta* [Mountain Quail] CANHR (N. America). BRO: California, Oregon, Washington. Hybrids are usually ♂. Johnsgard (1971) produced reported hatchability of fertile eggs was 11%. Of those hatched (three birds), one ♂ was reared. Peck describes a hybrid. The University of California Museum of Vertebrate Zoology has a natural hybrid. Bailey 1928; Hachisuka (Marquess) 1928 (p. 83[†]); Johnsgard 1970, 1971[†], 1973[†]; Peck 1911[†]; Peterle 1951[†].

Callipepla douglasii [Elegant Quail]

See also: *Callipepla californica*.

- × *Callipepla gambelii* [Gambel's Quail] NHR (Mexico). PCZ? Hybrid was described as *C. leucoproson*. Wolters 1975–1982 (p. 106).
- × *Callipepla squamata* (♂) [Scaled Quail] CHR. BRO: Mexico. Banks and Walker describe a hybrid. Banks and Walker 1964[†]; Johnsgard 1970, 1971[†], 1973[†].
- × *Colinus virginianus* (♂) [Bobwhite] CHR. PCZ in w Mexico. Johnsgard 1973.

Callipepla gambelii [Gambel's Quail]

See also: *Callipepla californica*; *C. douglasii*.

- × *Callipepla squamata* (↔) [Scaled Quail] CAENHR (sw U.S.). BRO: w Texas, s New

Mexico, se Arizona, adjacent Mexico.

HPF (♂ & ♀). Hubbard describes a probable backcross to Gambel's. Johnsgard reared a fertile ♀ hybrid (Scaled ♂ × Gambel's ♀). University of Arizona Museum, Tucson has hybrids. Bailey 1928; Brown 1989; Brown et al. 1998 (p. 5); Hachisuka (Marquess) 1928 (p. 84[†]); Hubbard 1966[†]; Johnsgard 1970, 1971[†], 1973[†]; McCabe 1954; Peterle 1951; Phillips et al. 1964; Plath 1953; Sibley 1994, 2000 (p. 139[†]); Walmo 1956. Internet: DIGI.

- × *Colinus virginianus* (♂) [Bobwhite] CHR (sw U.S.). BRO: w Texas, sw New Mexico? Johnsgard (1971) reports this cross and says hatchability of fertile eggs was 76%. Of those hatched (13 birds), two were reared. Johnsgard 1970, 1971, 1973[†].

Callipepla squamata [Scaled Quail]

See also: *Callipepla californica*; *C. douglasii*; *C. gambelii*.

- × *Colinus virginianus* (♂) [Bobwhite] CAENHR (U.S.). BRO: n Mexico, w cen Texas, w Oklahoma. Hybrids are easily obtained. Shupe's data shows hybrids occur commonly in regions of contact along e edge of Scaled Quail's range. Johnsgard (1971) reports hatchability of fertile eggs was 60%. Of those hatched (40 birds), 12 were reared (30%). Fertile eggs were obtained from the reverse cross, but none hatched. Johnsgard found that in backcrosses of ♀ hybrids to Bobwhite, hatchability of fertile eggs was 24% (Johnsgard 1973, p. 59). Ackermann 1898; Brown 1953; Coles 1985; Hatch 1975; Johnsgard 1970, 1971, 1973[†]; Lehmann 1984; McCabe 1954[†]; Schemnitz 1961; Shupe 1990; Suchetet 1897a (p. 470); Sutton 1963; Webb and Tyler 1988; Wint 1960.
 - × *Philortyx fasciatus* (♂) [Banded Quail] CHR. DRS. Johnsgard 1973 (pp. 57–58, 342, 369, 428[†]).
- Colinus* sp.**
- × *Coturnix* sp. See: *Coturnix* sp. × *Perdix perdix*.
 - × *Perdix perdix* [Grey Partridge] See: *Coturnix* sp. × *Perdix perdix*.

- Colinus cristatus* [Crested Quail]
 × *Colinus virginianus* [Bobwhite] CHR. BRO:
 s Cen. America. Cink 1976.
- Colinus nigrogularis* [Yucatan Quail]
 × *Colinus virginianus* [Bobwhite] CHR. BRO:
 s Cen. America. Cink 1976.
- Colinus virginianus* [Bobwhite] See: *Callipepla californica*; *C. douglasii*; *C. gambelii*; *C. squamata*; *Colinus cristatus*; *C. nigrogularis*.
- Cyrtonyx montezumae* [Montezuma Quail]
 × *Cyrtonyx salli* [Salle's Quail] NHR
 (cen. Mexico). These birds are now usually
 treated as conspecific. Pitelke 1948 (p. 118);
 Stromberg 2000.
- Odontophorus erythropus*
 [Rufous-fronted Wood-Quail]
 × *Odontophorus melanotis* [Black-eared
 Wood-Quail] PCZ (Colombia–Panama
 border). No hybrids as yet reported.
 Sibley and Monroe 1990 (p. 25).
- Oreortyx picta* [Mountain Quail]
 See: *Callipepla californica*.
- Philortyx fasciatus* [Banded Quail]
 See: *Callipepla squamata*.

Screamers

Family Anhimidae

- Chauna chavaria* [Black-necked Screamer]
 × *Chauna torquata* (↔) [Crested Screamer]
 CHR. DRS. A hybrid occurred at
 the San Diego Zoo (U.S.) in 1952.
 Lint 1959a; Stott 1952⁷.

Swans, Geese, and Ducks

Family Anatidae

- Note:** In part because they are more often kept in captivity than birds in most other families, the members of family Anatidae have long been recognized to hybridize extensively. See Figure 4.
- Note:** The Mandarin Duck is often said to be the only duck that cannot hybridize. But records of crosses involving it do exist, while there are other ducks for which there do not seem to be crosses on record (e.g., the Harlequin Duck, *Histrionicus histrionicus*; Chinese Merganser, *Mergus squamatus*). The

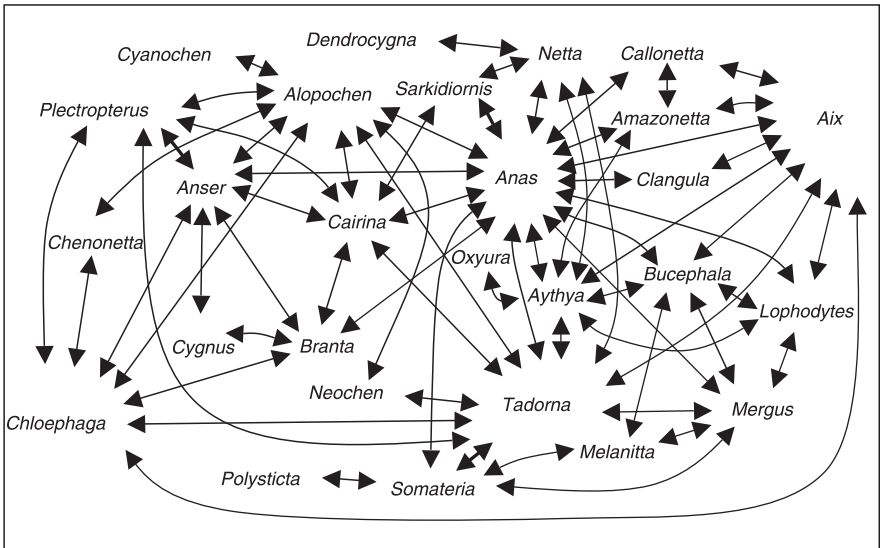


Figure 4. Hybridizing anseriform genera. Arrows indicate reported hybridization.

Mandarin is said not to hybridize because it differs in chromosome number from other ducks. However, such a difference, even when large does not necessarily preclude hybridization. For example the Indian Muntjac (*Muntiacus muntjak*) has a diploid chromosome count of $2n = 7$ (the lowest reported among mammals), but it hybridizes readily (Gray 1971; Zuckerman 1953) with the Chinese Muntjac (*M. reevesi*), which has a count of $2n = 46$. Thus, it would appear that a more conservative position, given that hybridization involving the Mandarin has been repeated reported, would be to assume that the Mandarin hybridizes, but only rarely. The fact that some researchers have not been able to obtain hybrids does not negate the fact that others report they did.

Aix galericulata [Mandarin Duck]

- × *Aix sponsa* (♀) [Wood Duck] CHR? DRS. Allen and Wilson 1965; Anonymous 1965; *Avicultural Magazine* 1904 (pp. 89–94); Delacour 1928; Delacour and Mayr 1945; Gillham and Gillham 1996 (p. 18); Hopkinson 1926 (p. 236); Horsbrugh 1910; Johnsgard 1960a, 1968b; Leverkühn 1890; Palmer 1962–1988 (vol. 3, p. 259); Prestwich 1960; Salvadori 1895 (p. 74); Seth-Smith 1922; Suchetet 1897a. Internet: DECN.
- × *Anas laysanensis* [Laysan Duck] CHR. Two hybrids reported by Johnsgard lacked eyes on hatching. One survived, but died in juvenile plumage. Johnsgard 1968b[†].
- × *Anas platyrhynchos* (♀) [Mallard] CHR?? BRO: Far East. Ackermann 1989; Gray 1958; Hopkinson 1926 (p. 236); Leverkühn 1890; Prestwich 1960; Salvadori 1895 (p. 77).
- × *Anas strepera* (♂) [Gadwall] CHR. Prestwich 1960; Sibley 1938 (p. 333). Internet: SPKG.
- × *Aythya americana* [American Redhead] CHR? DRS. Phillips 1923–1926; Prestwich 1960.
- × *Clangula hyemalis* [Long-tailed Duck] CHR? DRS. Specimen is in the American Museum of Natural History. Johnsgard 1960a (p. 31).

Aix sponsa [Wood Duck]

See also: *Aix galericulata*.

- × *Amazonetta brasiliensis* (♂) [Brazilian Teal] CHR. Phillips 1923–1926; Johnsgard 1960.
- × *Anas acuta* (♀) [Common Pintail] CHR. BRO: N. America. IZY 1973; Rothschild 1913; Sibley 1938.
- × *Anas americana* [American Wigeon] CHR. BRO: N. America. Gillham and Gillham 1996.
- × *Anas bahamensis* (↔) [Bahama Pintail] CHR. LFH. BRO: Caribbean. Gray 1958; Hopkinson 1935b, 1935c; Kuiper 1920[†]; Phillips 1923–1926; Rothschild 1913; Rothschild (Lord) 1929; Sibley 1938.
- × *Anas castanea* (prob. ♂) [Chestnut-breasted Teal] CHR. DRS. Two ♂ hybrids were donated to the Houston Zoo. Their heads were iridescent green as in *A. castanea* ♂♂, but crested as in *Aix sponsa*; chestnut flanks lacked spotting; beaks were dark blue-gray as in *A. castanea*. Todd 2004.
- × *Anas clypeata* (↔) [Northern Shoveler] CHR. BRO: N. America. Bolen 1979[†]; Gillham and Gillham 1996[†]; Hopkinson 1926; Leverkühn 1890; Phillips 1923–1926; Salvadori 1895 (p. 74); Sibley 1938.
- × *Anas crecca* (♂) [Common Teal] CHR. HPF(♂♂). BRO: N. America. Gillham and Gillham 1996 (p. 19); Sibley 1938.
- × *Anas cyanoptera* (prob. ♂) [Cinnamon Teal] CHR. BRO: w N. America. Gillham and Gillham 1996[†]; Phillips 1923–1926.
- × *Anas discors* [Blue-winged Teal] CHR. BRO: N. America. Gillham 1993; Gillham and Gillham 1996.
- × *Anas flavirostris* (♂) [Speckled Teal] CHR. DRS. Five hybrids occurred at the Munster Zoo in 1966. Beer 1968; Gray 1958; Hopkinson 1926 (247); IZY 1968; Johnstone 1955; Yealland (J.) 1953.
- × *Anas formosa* [Baikal Teal] CHR. DRS. Gillham and Gillham 2000.
- × *Anas georgica* (↔) [Yellow-billed Pintail] CHR. DRS. Gillham and Gillham 1996; Gray 1958; Hopkinson 1926 (p. 247); Kinnear 1929; Phillips 1923–1926; Sibley 1938.
- × *Anas hottentota* (♂) [Hottentot Teal] CHR. DRS. Delacour 1936e; Ezra 1935; Hopkinson 1939a.

- × *Anas luzonica* [Philippine Duck] CHR. DRS. Gillham and Gillham 1996[†].
- × *Anas penelope* (↔) [Eurasian Wigeon] CHR. DRS. LFH. Cavazza 1931b; Heinroth 1908; Poll 1910 (p. 48), 1911c (Tafel 3[†]); Phillips 1923–1926; Rothschild (Lord) 1929; Rothschild (Lord) and Kinnear 1929.
- × *Anas platyrhynchos* (↔) [Mallard] CAONHR. BRO: N. America. HPF? Blaszkiewitz 1982; Gillham and Gillham 1996[†]; Gray 1958; Hopkinson 1926; Panov 1989; Phillips 1923–1926; Roy 1995[†]; Trautman and Trautman 1968.
- × *Anas poecilorhyncha* (↔ prob. ♂) [Spot-billed Duck] CHR. DRS. Hopkinson 1935b, 1935c; Rothschild (Lord) 1929.
- × *Anas puna* [Puna Teal] CHR. DRS. Gillham and Gillham 2000.
- × *Anas querquedula* (↔) [Garganey] CHR. DRS. Leverkühn 1890; Phillips 1923–1926; Salvadori 1895 (p. 74); Sibley 1938.
- × *Anas sibilatrix* (↔ usu. ♂) [Chiloe Wigeon] CHR. DRS. Beer 1968; Gillham and Gillham 1996[†]; Gray 1958; Hertwig 1936; Hopkinson 1926; Johnstone 1955; Phillips 1923–1926.
- × *Anas strepera* (↔) [Gadwall] CHR. BRO: N. America. Gillham and Gillham 1996; Hopkinson 1926 (p. 236); Page 1914b; Prestwich 1960; Rothschild (Lord) 1929; Sibley 1938. Internet: SPKG.
- × *Anas superciliosa* (♀) [Pacific Black Duck] CHR? DRS. Ackermann 1898; Hopkinson 1926 (p. 236); Salvadori 1895 (p. 74); Sibley 1938.
- × *Anas undulata* (prob. ♂) [Yellow-billed Duck] CHR. DRS. Gray mentions a hybrid that hatched in 27 days (3 days early for a Wood Duck). Gray 1958; Hopkinson 1926 (p. 245); Phillips 1923–1926; Sibley 1938.
- × *Aythya affinis* (♂) [Lesser Scaup] CHR. BRO: N. America. Sibley 1938 (p. 334).
- × *Aythya americana* [American Redhead] NHR? Suchetet 1897a (p. 728); Phillips 1923–1926.
- × *Aythya baeri* [Baer's Pochard] CHR. DRS. Three hybrids were bred at the Prague Zoo (Czech Republic) in 1975. IZY 1977.
- × *Aythya collaris* [Ring-necked Duck] NHR (Ontario, Canada). BRO: n U.S., s Canada. Di Labio and Gosselin describe a hybrid in the Canadian Museum of Nature. Di Labio and Gosselin 1994[†].
- × *Aythya ferina* (↔ usu. ♂) [European Pochard] CHR. DRS. LFH. Cavazza 1931a; Gillham and Gillham 1996[†]; Gray 1958; Hertwig 1936; Hopkinson 1926; IZY 1962; Leverkühn 1890; Phillips 1923–1926, Poll 1910 (p. 42); Salvadori 1895 (p. 338).
- × *Aythya fuligula* (↔) [Tufted Duck] CHR. BRO: w N. America. De Selys-Longchamps 1845; Gillham 1993; Gillham and Gillham 1996[†]; Gray 1958; Hopkinson 1935b; Leverkühn 1890; Rothschild (Lord) 1929; Salvadori 1895.
- × *Aythya nyroca* (↔) [Ferruginous Pochard] CHR. DRS. Gillham and Gillham 1996; Gray 1958; Hopkinson 1926; IZY 1989; Leverkühn 1890; Phillips 1923–1926; Salvadori 1895 (p. 348).
- × *Aythya valisineria* [Canvasback] CHR. BRO: N. America. Gillham and Gillham 1996.
- × *Bucephala clangula* [Goldeneye] CANHR. BRO: n N. America, n Eurasia. Yarrell notes that Geoffroy Saint-Hilaire described a hybrid. IZY 1974; Rothschild 1913; Yarrell 1843, 1871 (vol. 4, p. 439).
- × *Callonetta leucophrys* [Ringed Teal] CHR. DRS. Gillham and Gillham 2000.
- × *Chenonetta jubata* [Maned Goose] CHR? DRS. Marchant and Higgins 1990.
- × *Lophodytes cucullatus* [Hooded Merganser] NHR. BRO: U.S.–Canada border. Bouvier 1974; Gillham and Gillham 1996 (p. 24); Russell 1978.
- × *Mergus serrator* [Red-breasted Merganser] CHR. BRO: Canada–U.S. border. Gillham and Gillham 1996.
- × *Netta peposacca* (↔) [Rosybill] CHR. DRS. LFH? Cavazza 1931a; Gillham and Gillham 1996[†]; Gray 1958; Hertwig 1936; Hopkinson 1935b, 1935c; Poll 1910 (p. 42), 1911c (Tafel 5[†]); Phillips 1923–1926; Rothschild (Lord) 1929; Sibley 1938.

- × *Netta rufina* (♂) [Red-crested Pochard] CHR. DRS. Beer 1968; Gillham and Gillham 1996[†]; IZY 1970, 1971; Poll 1911c (Tafel 5[†]).
- × *Tadorna tadorna* (♂) [Common Shelduck] CHR. DRS. Gillham and Gillham 1996 (p. 16); Hopkinson 1935b, 1935c; IZY 1977, 1989; Rothschild (Lord) 1929; Rothschild 1913.
- Alopochen aegyptiacus*** [Egyptian Goose]
- × *Anas platyrhynchos* [Mallard] CHR?? Modern listings of this cross appear to rely solely on a very brief description by de Selys-Longchamps and Salvadori's listing of a specimen in the collection in the British Museum. De Selys-Longchamps 1845; Gray 1958; Leverkühn 1890; Nagy 1950; Salvadori 1895 (p. 169); Sibley 1938.
- × *Anser albifrons* (♂) [White-fronted Goose] CHR. DRS. Sibley 1938.
- × *Anser anser* (♂) [Greylag Goose] CANHR. DRS (but *A. aegyptiacus* has been introduced into the range of *A. anser*). LVH? Antonius 1933; Hopkinson 1926. Internet: DECN.
- × *Anser caerulescens* (♀) [Snow Goose] CHR? DRS. Sibley 1938.
- × *Anser cygnoides* (↔ usu. ♂) [Swan Goose] CHR. DRS. Delacour 1954; Gillham and Gillham 1996; Gray 1958; Hopkinson 1926 (p. 239); Leverkühn 1890; Phillips 1923–1926; Yarrell 1871 (vol. 4, p. 302).
- × *Branta canadensis* (↔) [Canada Goose] CHR. DRS (but the Canada Goose has been introduced to Eurasia). Sibley 1938 (p. 330).
- × *Cairina moschata* (↔ usu. ♂) [Muscovy Duck] CANHR. LFH(-). BRO: Africa (where *C. moschata* is introduced). Most (all?) hybrids are ♂. De Selys-Longchamps 1845; Gray 1958; Hopkinson 1935b, 1935c; Lécaillon 1922a; Leverkühn 1890; Phillips 1923–1926; Poll 1911c (p. 459); Rothschild (Lord) 1929; Taibel 1934; Taibell 1930c. Internet: DECN.
- × *Chenonetta jubata* (♂) [Maned Goose] CANHR. DRS. Hopkinson 1926, 1935b; Marchant and Higgins 1990 (p. 1333). Internet: DECN, SPKG.
- × *Chloephaga melanoptera* (♂) [Andean Goose] CHR. LFH? Delacour 1954; Gray 1958; IZY 1994; Jones 1946. Internet: SPKG.
- × *Chloephaga picta* (♂) [Upland Goose] CANHR. LFH. Delacour 1920, 1927; Gray 1958; Hopkinson 1926, 1933a; Johnsgard 1960a; IZY 1972; Phillips 1923–1926. Internet: SPKG.
- × *Cyanochen cyanopterus* (♂) [Abyssinian Blue-winged Goose] CHR. HPF(♂ & ♀). Sibley reports that a hybrid backcrossed to a Blue-winged laid five fertile eggs, three of which hatched. Delacour 1954; Delacour and Mayr 1946 (p. 107); Gray 1958; Sibley 1942, 1946. Internet: DECN.
- × *Neochen jubata* (♂) [Orinoco Goose] CHR. HPF Delacour 1954; Finn 1928; Gray 1958; Hopkinson 1933a, 1933b, 1935c; Johnsgard 1960a; Page 1914b (p. 31); Phillips 1923–1926; Seth-Smith 1912. Internet: DECN.
- × *Plectropterus gambensis* (↔) [Spur-winged Goose] CANHR. BRO: Africa. Gillham and Gillham 1996; Hopkinson 1926 (p. 240); IZY 1970, 1971; Leverkühn 1890; Nagy 1950; Page 1914b (p. 43); Phillips 1923–1926. Internet: DECN.
- × *Tadorna cana* (♂) [African Shelduck] CANHR. BRO: s Africa. Gillham and Gillham 1996; Hopkinson 1935b; Johnsgard 1960. Internet: DECN.
- × *Tadorna ferruginea* (♂) [Ruddy Shelduck] CANHR. BRO: n Africa. Harrop describes the offspring of a mixed-pair nesting in Leicestershire (the Egyptian Goose is introduced, and now established in England). This pair nested together for four consecutive years without issue. The pairing was presumed infertile, but in the fifth year they produced a pair of offspring, which resembled Ruddy Shelduck (both as downy young and as adults). However, the heads of the mature hybrids were grayer than normal for Ruddy Shelduck and their plumage was duller. Also they had gray mottling on the flanks and buffish undertail coverts like *Alopochen*.

When they left their parents, the young birds joined a flock of Egyptian Geese. Antonius 1933; Cavazza 1931a; Harrop 1998; *IZY* 1976; Laidlay 1941; Leverkusn 1890; Phillips 1923–1926; Rothschild 1913; Rothschild (Lord) 1929; Sclater 1859; Sibley 1942; Tronielli 1976[†]; Williams 1897.

- × *Tadorna tadorna* (♂) [Common Shelduck] CANHR. BRO: n Africa. LFH. Antonius 1933; Delacour 1925, 1927; Heinroth 1911; Johnsgard 1960a; Gillham and Gillham 1996; Gray 1958; *IZY* 1969, 1974; Leopold and Martijn 1983; Poll 1911c (p. 454); Suchetet 1897a.
- × *Tadorna tadornoides* [Australian Shelduck] CHR. DRS. Nine hybrids were produced at the Copenhagen Zoo (Denmark) in 1966. DRS. *IZY* 1968.

Amazonetta brasiliensis [Brazilian Teal]

See also: *Aix sponsa*.

- × *Anas bahamensis* (↔) [Bahama Pintail] CANHR. DRS. LFH. *Avicultural Magazine* 1925 (p. 321); Cavazza 1931a; Delacour 1927; Delacour and Mayr 1945; Gray 1958; Hertwig 1936; Hopkinson 1926 (p. 249); Kinnear 1929; Phillips 1923–1926; Poll 1910 (p. 35).
- × *Anas capensis* [Chestnut-breasted Teal] CHR?? DRS. Internet: SPKG.
- × *Anas castanea* (♀) [Chestnut-breasted Teal] CHR. DRS. Hopkinson 1926 (p. 247); Gray 1958; *IZY* 1973; Leverkusn 1890; Phillips 1923–1926; Salvadori 1895 (p. 267); Suchetet 1897a.
- × *Anas erythrorhyncha* [Red-billed Duck] CHR. DRS. Gillham and Gillham 2000.
- × *Anas flavirostris* [Speckled Teal] CHR. BRO: S. America. Gillham and Gillham 1996 (p. 37).
- × *Aythya ferina* [European Pochard] CHR. DRS. Carboneras 1992a (p. 616).
- × *Callonetta leucophrys* (♂) [Ringed Teal] CHR. LFH. While the Ringed Teal has a green “wing-mirror” and the Brazilian Teal a bronze one, the hybrid has a brilliant purple one. Delacour and Mayr 1945; Gray 1958; Hertwig 1936; Johnsgard 1960a; Phillips 1923–1926; Schofield 1997; Sibley 1994.

Anas acuta [Common Pintail]

See also: *Aix sponsa*.

- × *Anas americana* (↔) [American wigeon] CANHR. BRO: N. America. Head pattern of hybrid is like that of Baikal Teal (*Anas formosa*), but neither parent’s is. Gantlett 1989[†]; *IZY* 1984–1985; Johnsgard 1960a; Phillips 1923–1926; Sibley 1938; Sibley 1994[†].
- × *Anas bahamensis* (♀) [Bahama Pintail] CHR. DRS. Gillham and Gillham 1996; *IZY* 1988; Sibley 1938.
- × *Anas capensis* [Cape Teal] CHR. DRS. Gillham and Gillham 1996[†].
- × *Anas castanea* (♂) [Chestnut-breasted Teal] CHR. DRS. Gray 1958; Marchant and Higgins 1990 (p. 1332).
- × *Anas clypeata* (♂) [Northern Shoveler] NHR. BRO: Holarctic. Ackermann 1898 (p. 17); de Selys-Longchamps 1856; Harrison 1953; Leverkusn 1890; Phillips 1923–1926; Suchetet 1897a (p. 139) Salvadori 1895 (p. 274); van Oort 1908.
- × *Anas crecca* (♀) [Common Teal] CANHR. BRO: Eurasia, N. America. HPF. Backcross hybrids (♀ F₁ × ♂ Teal) are very similar to *A. crecca*, which may cause underreporting of hybrids. Ackermann 1898; Arrigoni Degli Oddi 1898; Blaauw 1921; Dementjev 1939; Gantlett 1989[†]; Gray 1958; Harrison 1953[†], 1954[†]; Harrison and Harrison 1963b; 1969b[†], 1971a[†]; Howell 1959; Johnsgard 1965; Leverkusn 1890; Panov 1989; Phillips 1923–1926; Rothschild (Lord) 1929; Sage 1960[†]; Suchetet 1897a (p. 134). Internet: CNP.
- × *Anas discors* [Blue-winged Teal] CHR. BRO: N. America. Johnsgard 1960.
- × *Anas flavirostris* (↔) [Speckled Teal] CHR. DRS. Gray 1958; Sibley 1938.
- × *Anas formosa* [Baikal Teal] NHR. BRO: e Russia. Meinertzhagen 1929. Internet: FSIN.
- × *Anas georgica* (↔) [Yellow-billed Pintail] CHR. DRS. Gray 1958; Hopkinson 1926 (p. 248); Leverkusn 1890; Phillips 1923–1926; Sibley 1938; Suchetet 1897a.

- × *Anas melleri* (♀) [Meller's Duck] CHR. DRS. HPF Bonhote 1905, 1909a; Hopkinson 1926 (p. 248); Sibley 1938.
- × *Anas penelope* (↔) [Eurasian Wigeon] CAONHR (w Europe). Harrison discusses intersexuality in the hybrids. Ackermann 1898; Amedro 1979; dal Fiume 1893; Delacour and Mayr 1945; Gillham and Gillham 1996; Gray 1958; Harrison (J. M.) 1962, 1967; Harrison and Harrison 1966a; Hopkinson 1926 (p. 248); IZY 1975; Salvadori 1895 (p. 231); Suchetet 1897a.
- × *Anas platyrhynchos* (↔) [Mallard] CAENHR (Europe and N. America). HPF (♂ & ♀). Wings of the hybrid are like those of a Mallard, but the tail feathers are the long spikes of the Pintail; head almost as green as Mallard, bill grayish blue like Pintail; incomplete neck ring. Harrison and Harrison (1965a) also report a presumed natural three-way hybrid of Pintail with Mallard and Gadwall (*A. strepera*). *American Birds* (1989, p. 278[†]); Bartlett 1898; Bigelow 1907; Black 1934; Bonhote 1907a (p. 237), 1907b, 1909a, 1909b; Dementjev 1939; Duclos 1945[†]; Durand 1947; Felger 1903; Gillham and Gillham 1996[†]; Gray 1859; Gray 1958; Gunther 1941; Harrison 1978[†]; Harrison and Harrison 1965a, 1968b; Johnsgard 1968a[†]; Kortright 1943; Kuroda 1923[†]; Lécaillon 1922b, 1922c, 1923; Lönnberg 1932[†]; MacDonald and Newby 1971; Mactavish 1979[†]; Marti 1969; McIlhenny 1937; Newton 1860; Payn 1955; Phillips 1915[†]; Rothschild (Lord) 1928; Rucner 1963; Salvadori 1895 (p. 193); Sharpe and Johnsgard 1966; Shimizu 1993b; Sibley 2000; Suchetet 1897a (p. 117); Tokikuni 1989; Twiselton Fiennes 1830–1831; Wattel and Harrison 1968[†]; Yarrell 1871 (vol. 4, p. 383). Internet: BNOR (Jan., 2002), FSIN, MCSL, MYPA.
- × *Anas poecilorhyncha* (↔) [Spot-billed Duck] CHR. DRS. HPF Bonhote 1905, 1909a; Gray 1958.
- × *Anas querquedula* (♀) [Garganey] NHR. BRO: Eurasia. Ackermann 1898; Gray 1958; Hopkinson 1926 (p. 248); Panov 1989; Phillips 1923–1926; Salvadori 1895 (p. 274).
- × *Anas rubripes* (↔) [American Black Duck] NHR (e N. America). Alison and Prett 1976; Leverkus 1890; Phillips 1923–1926; Steklevnev 1993 (p. 59).
- × *Anas sibilatrix* (♀) [Chiloe Wigeon] CHR. DRS. Gillham and Gillham 1996; Hopkinson 1935b, 1935c; Rothschild (Lord) 1929; Sage 1969[†].
- × *Anas strepera* (♂) [Gadwall] CAONHR. BRO: N. America, Eurasia. HPF (♂ & ♀). McIlhenny says he often ringed hybrids. Harrison and Harrison report a natural three-way hybrid with *A. platyrhynchos*. Ackermann 1898; Brickell 1988 (p. 208); Cavazza 1931a; Delacour and Mayr 1945; Gillham and Gillham 1996[†]; Harrison and Harrison 1965a; Hertwig 1936; Kinnear 1929; Leverkus 1890; McIlhenny 1937; Phillips 1923–1926; Poll 1910 (p. 35); Sibley 1938; Sibley 1957; Steklevnev 1993 (p. 59); Suchetet 1897a (p. 140).
- × *Anas superciliosa* (↔) [Pacific Black Duck] NHR. HPF Bonhote 1905, 1909a; Hopkinson 1926 (p. 248); Sibley 1938.
- × *Anas undulata* (♀) [Yellow-billed Duck] NHR. BRO: sub-Saharan Africa. Shore-Baily 1920; Sibley 1938.
- × *Aythya americana* [American Redhead] CHR. BRO: N. America. Suchetet lists a natural hybrid. Sibley 1938; Suchetet 1897a (p. 728); Todd 2004.
- × *Aythya ferina* [European Pochard] NHR. BRO: Europe. Phillips 1923–1926; Gray 1958; Suchetet 1897a (p. 728).
- × *Aythya fuligula* [Tufted Duck] CHR. Hopkinson 1935c. Internet: CMUS.
- × *Aythya nyroca* (♀) [Ferruginous Pochard] CHR. BRO: e Europe, w Asia. Hopkinson 1935b, 1935c; Rothschild (Lord) 1929; Wormald 1914, 1915.
- × *Netta peposacea* (♂) [Rosybill] CHR. DRS. LFH? Cavazza 1931a; Gray 1958; Hertwig 1936; Phillips 1923–1926; Poll 1910 (p. 42), 1911c (Tafel 4[†]).
- × *Netta rufina* (♀) [Red-crested Pochard] CANHR. BRO: Europe, w Asia. HPF An

- apparent three-way hybrid is known with *Tadorna tadorna*. Gillham and Gillham 1996 (p. 49); Gray 1958; Harrop 1993[†]; Phillips 1923–1926; Poll 1911c (p. 461); Scott 1947; Sibley 1938.
- × *Somateria mollissima* [Common Eider] NHR. BRO: n N. America. Pitt (W. S.) 1944.
 - × *Tadorna variegata* [New Zealand Shelduck] CHR. BRO: New Zealand. Askaniya Nova Zoo (Ukraine) had a hybrid. Steklenev 1993 (p. 59).
- Anas americana** [American Wigeon]
See also: *Aix sponsa*; *Anas acuta*; *Anas platyrhynchos* × *A. poecilorhyncha*.
- × *Anas bahamensis* (↔) [Bahama Pintail] CHR. Hopkinson 1926; Phillips 1923–1926; Rothschild (Lord) 1929.
 - × *Anas crecca* (♀) [Common Teal] NHR (N. America). Johnsgard 1960a; Sibley 1938.
 - × *Anas discors* (♂) [Blue-winged Teal] NHR. HPE Sibley 1938.
 - × *Anas falcata* (♂) [Falcated Teal] CHR. DRS. Gillham and Gillham 1996[†]; Gray 1958; Poll 1921.
 - × *Anas formosa* (♀) [Baikal Teal] CHR. DRS. Sibley 1938.
 - × *Anas penelope* (↔) [Eurasian Wigeon] CAENHR (Europe, N. America, e Asia). HPF(vh). These highly mobile hybrids seem to occur throughout the Northern Hemisphere. Hamilton says that at one site in cen. California (Bolin's Lagoon) as many apparent hybrid ♂♂ occur as pure Eurasians. Some hybrids are obviously intermediate, but most appear nearer one parent. Aubry 1981; Bailey 1919; Carey 1993[†]; Delacour 1927; Ekins 1984; Fall 1995; Gillham and Gillham 1996[†]; Gray 1958; Hamilton 1996[†]; Harrop 1994a; Hopkinson 1926; Hubbard 1971; Jigue 1999; MacKay 1996; Merrifield 1993[†]; Patrick 1932; Phillips 1923–1926; Shimizu 1993a; Sibley 1938; Sibley 1994[†], 2000 (p. 85)[†]; Watson 1970. Internet: WBKE.
 - × *Anas platyrhynchos* [Mallard] ONHR. HPE. Most hybrids are ♂. Ackermann 1898; Bigelow 1907; Beyer 1900; Coues 1874 (p. 54); Edscorn 1974; Elliot 1892; Fedynich and Rhodes 1993; Gray 1958; Gunther 1941; Hopkinson 1926; Phillips 1923–1926; Sibley 1938; Suchetet 1897a (p. 117).
 - × *Anas rubripes* (♂) [American Black Duck] CHR. BRO: N. America. Sibley 1938.
 - × *Anas sibilatrix* (♀) [Chiloe Wigeon] CHR. DRS. Sibley 1938.
 - × ~~*Anas strepera* [Gadwall]~~ All modern listings of this cross appear to rely on very old and unreliable records.
 - × *Aythya americana* (↔) [American Redhead] CHR. BRO: N. America. Sibley 1938.
 - × *Aythya affinis* [Lesser Scaup] CHR. BRO: nw N. America. Some authors list this cross and cite Gray. Mating was observed by Wormald, but Gray says the Wigeon was too young to breed. A later report, however, appears to be valid. Gray 1958; IZY 1989; Wormald 1925.
 - × *Aythya fuligula* (♀) [Tufted Duck] CHR. BRO: N. America. Sibley 1938 (p. 333).
 - × *Aythya valisineria* [Canvasback] NHR (Florida). A fall migrant was diagnosed as a probable hybrid of this type. Edscorn 1974 (p. 42).
 - × *Cairina moschata* (♀) [Muscovy Duck] CHR. DRS. Sibley 1938.
 - × *Netta rufina* (♀) [Red-crested Pochard] CHR. DRS. Poll 1921.
- Anas aucklandica** [Flightless Teal]
× *Anas platyrhynchos* [Mallard] CHR. BRO: Auckland Islands. Johnsgard 1960.
- Anas bahamensis** [Bahama Pintail]
See also: *Aix sponsa*; *Amazonetta brasiliensis*; *Anas acuta*.
- × *Anas capensis* [Cape Teal] CHR. DRS. Gillham and Gillham 1996[†].
 - × *Anas castanea* (♀) [Chestnut-breasted Teal] CHR. DRS. Hopkinson 1935b, 1935c; Gray 1958; IZY 1970; Rothschild (Lord) 1929.
 - × *Anas cyanoptera* [Cinnamon Teal] CHR. BRO: S. America. Gillham and Gillham 1996[†].
 - × *Anas erythrorhyncha* [Red-billed Duck] CHR. DRS. *Avicultural Magazine* 1961 (p. 141).
 - × *Anas falcata* [Falcated Teal] CHR. DRS. Gillham and Gillham 2000.

- × *Anas flavirostris* (♀) [Speckled Teal] CHR. DRS. Hopkinson 1935b, 1935c; Patrick 1932.
- × *Anas georgica* (↔) [Yellow-billed Pintail] CANHR. BRO: Argentina. HPF(+). Lorenz used these hybrids to study inherited behavior patterns. Delacour 1927; Gray 1958; Dilger 1962b (p. 44); Hopkinson 1926; IZY 1988; Kinnear 1929; Lorenz 1956; Low 1929; Panov 1989; Phillips 1923–1926; Rothschild 1913; Rothschild (Lord) 1929; Scott 1947; Sibley 1957.
- × *Anas platyrhynchos* (↔ usu. ♂) [Mallard] CHR. HPF? Hopkinson 1935b, 1935c; Kinnear 1929; Leverkusühn 1890; Phillips 1923–1926; Sibley 1938; Suchetet 1897a.
- × *Anas sibilatrix* (↔) [Chiloe Wigeon] CHR. DRS. Hopkinson 1935b, 1935c; Poll 1921; Rothschild (Lord) 1929.
- Anas capensis*** [Cape Teal]
See also: *Amazonetta brasiliensis*; *Anas acuta*; *A. bahamensis*.
- × *Anas castanea* (♀) [Chestnut-breasted Teal] CHR. DRS. Fletcher discusses a stable mixed pair that produced several clutches of ducklings. Fletcher 1979; Gillham and Gillham 1996 (p. 37); Gray 1958; Marchant and Higgins 1990 (p. 1332).
- × *Anas erythrorhyncha* [Red-billed Duck] CANHR. BRO: e and s Africa. Five hybrids were bred in S. Africa (Durbanville) in 1967. *Avicultural Magazine* 1968 (p. 104); Brickell 1988 (p. 207); Gillham and Gillham 1996 (p. 39); IZY 1969; Pocock 1973.
- × *Anas flavirostris* [Speckled Pintail] CHR. DRS. IZY 1973; Marchant and Higgins 1990 (p. 1266).
- × *Anas georgica* (♀) [Yellow-billed Pintail] CHR. DRS. Gray 1958.
- × *Anas undulata* [Yellow-billed Duck] NHR. BRO: se Africa. Jensen and Dean 1973[†].
- × *Aythya fuligula* (♀) [Tufted Duck] NHR. Brickell 1988 (p. 208); Johnstone 1955; Gray 1958.
- Anas castanea*** [Chestnut-breasted Teal]
See also: *Aix sponsa*; *Amazonetta brasiliensis*; *Anas acuta*; *A. bahamensis*; *A. capensis*.
- × *Anas crecca* (♂) [Common Teal] CHR. DRS. Sibley 1938; Marchant and Higgins 1990 (p. 1333).
- × *Anas discors* [Blue-winged Teal] CHR. DRS. Marchant and Higgins 1990 (p. 1333); Rothschild (Lord) 1929.
- × *Anas erythrorhyncha* [Red-billed Duck] CHR. DRS. Gillham and Gillham 1996.
- × *Anas falcata* (↔) [Falcated Teal] CHR. DRS. Delacour 1928; Hopkinson 1933, 1935a; Laidlay 1930, 1931; Marchant and Higgins 1990 (p. 1333); Patrick 1932.
- × *Anas flavirostris* (↔) [Speckled Teal] CHR. DRS. HPF Delacour 1927; Gillham and Gillham 1996 (p. 37); Gray 1958; Hopkinson 1926; Marchant and Higgins 1990 (p. 1333); Phillips 1923–1926.
- × *Anas gibberifrons* [Sunda Teal] CHR. DRS. Hybridization is likely if these birds are penned together. Todd 2004. Internet: SPKG.
- × *Anas gracilis* [Grey Teal] NHR. BRO: s Australia, Tasmania. Delacour 1954; Hopkinson 1926 (p. 247); Johnsgard 1960a; Marchant and Higgins 1990 (p. 1333); Phillips 1923–1926. Internet: MCUE7.
- × *Anas luzonica* [Philippine Duck] CHR. DRS. IZY 1967.
- × *Anas penelope* (♂) [Eurasian Wigeon] CHR. DRS. Hopkinson 1926; Marchant and Higgins 1990 (p. 1332); Rothschild (Lord) 1929.
- × *Anas platyrhynchos* (♂) [Mallard] NHR. BRO: Australia. Marchant and Higgins 1990 (p. 1333); Norman 1987, 1990; Sibley 1938.
- × *Anas strepera* (♂) [Gadwall] CHR. DRS. Sibley 1938.
- × *Anas wyvilliana* [Hawaiian Duck] CHR. DRS. IZY 1974.
- × *Aythya baeri* [Baer's Pochard] CHR. DRS. IZY 1974.
- × *Clangula hyemalis* (♂) [Long-tailed Duck] CHR. DRS. Delacour notes that "a female *castanea* at Clères paired up with a Long-tailed drake (*Clangula*) and a young hybrid hatched but unfortunately did not survive: it looked much like a *Clangula* chick." Delacour 1954 (vol. 2, p. 81).

- × *Netta erythrophthalma* (♂) [Southern Pochard] CHR. DRS. Gray 1958; Marchant and Higgins 1990 (p. 1333).
- Anas chlorotis** [Brown Teal]
- × *Anas platyrhynchos* [Mallard] CHR? BRO: New Zealand. Phillips 1923–1926; Salvadori 1895 (p. 288).
- Anas clypeata** [Northern Shoveler]
See also: *Aix sponsa*; *Anas acuta*.
- × *Anas crecca* (♂) [Common Teal] CANHR. BRO: N. America, Eurasia. Gillham and Gillham 1996[†]; Harrison 1953[†]; Johnsgard 1960a; Payn 1943, 1949.
- × *Anas cyanoptera* (↔) [Cinnamon Teal] CANHR. HPF BRO: N. America. Scherer and Hilsberg (p. 371) point out the remarkable similarity between this hybrid and the Australian Shoveler (*Anas rhynchotis*). Deane 1905; Delacour 1954 (vol. 4); Gammonley 1996 (p. 4); Gillham and Gillham 1996[†]; Harrison 1978[†]; Harrison and Harrison 1965c, 1971b[†]; Johnsgard 1978; Scherer and Hilsberg 1982[†]; Sibley 1938; Suchetet 1897a (p. 708); Swarth 1915[†].
- × *Anas discors* (↔) [Blue-winged Teal] ENHR. HPF BRO: N. America. Hybrids also occur in n Europe. Bolen 1979; Childs 1952[†]; Cooper and Graham 1985; David 1988[†]; Deane 1905; Ekroos et al. 2002; Gosselin 1987[†]; Gray 1958; Hall and Harris 1968; Harrison and Harrison 1971b; Kemp 2000; Luneau 1994[†]; Palmer 1962–1988 (vol. 2); Phillips 1923–1926; Sibley 1938; Sibley 2000; Swarth 1915[†]; Suchetet 1897a (p. 708). Internet: BNOR (June, 2003)[†].
- × *Anas falcata* (♂) [Falcated Teal] CHR. BRO: e Asia. Hopkinson 1933a; Moody 1932.
- × *Anas formosa* [Baikal Teal] NHR. BRO: e Asia. Gillham and Gillham 1996[†]; Harrison and Harrison 1968b.
- × *Anas fulvigula* (♂) [Mottled Duck] CHR. DRS. Sibley 1938.
- × *Anas penelope* (♂) [Eurasian Wigeon] CANHR. BRO: n Eurasia. Slizynsky describes abnormal pairing in the spermatogonial chromosomes of the hybrid. Gillham and Gillham 1996[†]; Harrison 1959[†], 1964[†]; Slizynsky 1964.
- × *Anas platalea* [Argentine Red Shoveler] NHR. DRS. Male hybrids resemble male Australian Shovelers. Gillham and Gillham 1996 (p. 54); Harrison and Harrison 1959[†], 1963a[†], 1965c[†].
- × *Anas platyrhynchos* (♂ prob. ↔) [Mallard] CAONHR. BRO: Europe, N. America. Arrigoni Degli Oddi 1906a, 1910; Bayer 1998; Gray 1958; Harrison and Harrison 1968b; Hopkinson 1926; Johnsgard 1960a; Leverkühn 1890; Sibley 1938; Sibley 1957. Internet: BPGR[†], CMUS, EBN9.
- × *Anas querquedula* (↔) [Garganey] CANHR. HPF BRO: Eurasia. Childs 1952; Gillham and Gillham 1996 (p. 52); Gray 1958; Hopkinson 1926 (p. 249); Johnsgard 1960a; Leverkühn 1890; Wormald 1914.
- × *Anas strepera* [Gadwall] NHR. BRO: N. America, s Eurasia. Ackermann 1898; Gillham and Gillham 1996[†]; Gray 1958; Johnsgard 1960a; Leverkühn 1890; Phillips 1923–1926; Suchetet 1897a.
- × *Aythya nyroca* (♀) [Ferruginous Pochard] CHR. BRO: e Europe, w Russia. Brickell 1988 (p. 208); Sibley 1938.
- × *Cairina moschata* (♀) [Muscovy Duck] CANHR? BRO: s N. America. Ackermann 1898; Gray 1958; Leverkühn 1890; Phillips 1923–1926; Salvadori 1895 (p. 330); Suchetet 1897a (p. 696).
- × *Callonetta leucophrys* [Ringed Teal] CHR. DRS. Gillham and Gillham 2000.
- Note:** The Eurasian Teal is very similar to the Green-winged Teal of N. America. Hybrids involving either type are listed here under the name “Common Teal.” Hybrids between these types are common. Eigenhuis 1990; Palmer 1999; Sibley 2000[†]; Vinicombe 1994.
- Anas crecca** [Common Teal]
See also: *Aix sponsa*; *Anas acuta*; *A. americana*; *A. castanea*; *A. clypeata*.
- × *Anas cyanoptera* [Cinnamon Teal] NHR. BRO: N. America. Haramis 1974; Lockwood and Cooper 1999.
- × *Anas discors* [Blue-winged Teal] NHR. BRO: N. America. Carlson 1979[†]; Gillham and Gillham 1996; Strubbe 1967[†]; Scrosati 1990[†].

- × *Anas falcata* (♂) [Falcated Duck] CHR. BRO: e Asia. Gillham and Gillham 1996[†].
- × *Anas flavirostris* (♂) [Speckled Teal] CHR. HPF DRS. Delacour describes a hybrid larger than either parent. Delacour 1927; Gillham and Gillham 1996[†]; Gray 1958; Hopkinson 1926 (p. 247); IZY 1972.
- × *Anas formosa* (♂) [Baikal Teal] CANHR. BRO: w Siberia. HPF Glover 1938; Harrison and Harrison 1969b; Hopkinson 1935b, 1935c; Phillips 1923–1926; Rothschild (Lord) 1929; Sibley 1938; Sibley 1958.
- × *Anas hottentota* [Hottentot Teal] CHR. DRS. Gillham and Gillham 1996 (p. 81); Roy 1995[†].
- × *Anas penelope* (↔) [Eurasian Wigeon] CANHR. BRO: Europe. LFH? Dementjev 1939; Farid 1942[†]; Gillham and Gillham 1996[†]; Gray 1958; Harrison 1962[†]; Hererra and Hiraldo 1973; Leverkusühn 1890; Page 1914b (p. 44); Panov 1989; Salvadori 1895 (p. 231); Smith 1913; Suchetet 1897a (p. 112).
- × *Anas platyrhynchos* (↔) [Mallard] CANHR (N. America, Eurasia). BRO: Eurasia, N. America. HPF Most hybrids are ♂. Ackermann 1898; Anonymous 1994; Gillham and Gillham 1996; Gray 1958; Harvie-Brown 1892; Holgersen 1956[†]; Hopkinson 1926 (p. 247); Johnsgard 1965; Leverkusühn 1890; Lilford 1895; Panov 1989; Phillips 1923–1926; Raitasuo 1964; Robinson 1918[†]; Salvadori 1895 (p. 193); Sibley 1938 (p. 333); Sewertzow 1883; Stone 1903; Suchetet 1897a (p. 127); Suter 1953[†]; Trautman and Trautman 1968; Witherby 1913; Yarrell 1843.
- × *Anas querquedula* (♀) [Garganey] CANHR. BRO: Eurasia. Hopkinson 1926; Gray 1958; Johnsgard 1960a; Panov 1989; Phillips 1923–1926; Sibley 1938; Suchetet 1897a (p. 708); Wormald 1914.
- × *Anas strepera* [Gadwall] NHR. BRO: Eurasia. Panov 1989.
- × *Aythya collaris* (♂) [Ring-necked Duck] CHR. HPF BRO: N. America. A ♂ hybrid had fertile eggs with a Tufted Duck (*Aythya fuligula*). Sibley 1938 (p. 334).
- × *Aythya ferina* [European Pochard] NHR. BRO: Eurasia. Ackermann 1898; Gray 1958; Phillips 1923–1926; Suchetet 1897a.
- Anas cyanoptera*** [Cinnamon Teal]
See also: *Aix sponsa*; *Anas bahamensis*; *A. clypeata*; *A. crecca*.
- × *Anas discors* (↔) [Blue-winged Teal] CAENHR (N. America). HPF Kessler and Avise suggested that the extreme genetic similarity of these birds is consistent either with a very recent common origin or with extensive hybridization. Hybrids have smudgy facial crescent and red eye. Anderson and Miller 1953; Bent 1962; Bolen 1978, 1979[†]; Bolen et al. 1978[†]; Brackney 1967; Burcar 1992; Connelly 1977; Cooper and Graham 1985; Freese 1982; Godfrey and Fedynich 1987; Gray 1958; Harris and Wheeler 1965; Harrison and Harrison 1963a[†], 1971b[†]; Hopkinson 1926; Johnsgard 1978; Kessler and Avise 1984; Lahrman 1971[†]; Lokemoen and Sharp 1981; Palmer 1962–1988 (vol. 2); Phillips 1923–1926; Risen 1995; Sibley 1938 (p. 333); Sibley 2000 (p. 87[†]); Suchetet 1897a (p. 708); Svingen and Hertzell 2003; Svingen and Nelson 1991; Todd 2004; Wedgwood and Wedgwood 1975; Weseloh and Weseloh 1979; Wilson and van den Akker 1948. Internet: DIGI; INDI[†].
- × *Anas flavirostris* [Speckled Teal] NHR. BRO: S. America. Shore-Baily 1920.
- × *Anas formosa* [Baikal Teal] CHR. DRS. Johnsgard 1960a.
- × *Anas platalea* (♂) [Argentine Red Shoveler] NHR. BRO: s S. America. Gray 1958.
- × ~~*Anas platyrhynchos* [Mallard]~~ Modern listings of this cross all seem trace back to an unreliable report by Mailliard, who mentions one supposed hybrid connected with *A. cyanoptera* by no other trait than size. Mailliard 1902.
- × *Anas querquedula* (♀) [Garganey] CHR. DRS. Vagrant Garganeys occur in Cinnamon Teal's range (w U.S.). Gillham and Gillham 1996 (p. 52); Sibley 1938 (p. 333).

Anas diazi [Mexican Duck]

- × *Anas platyrhynchos* (♀) [Mallard] ENHR. BRO: sw U.S. HPF (♂ & ♀).
 These birds are often lumped. Hybridization has largely swamped northern populations of *A. diazi*. Anonymous 1978b; Callaghan and Green 1993; Finnley 1977, 1979; Greig 1980; Johnsgard 1961; Scott and Reynolds 1984; Short 1978; Sibley and Monroe 1990 (p. 35); Sibley 2000 (p. 82[†]). Internet: DIGI.

Anas discors [Blue-winged Teal]

- See also: *Aix sponsa*; *Anas acuta*; *A. americana*; *A. castanea*; *A. clypeata*; *A. crecca*; *A. cyanoptera*.
- × *Anas platyrhynchos* (♀) [Mallard] CHR. BRO: N. America. Sibley 1938.
- × *Anas querquedula* (♀) [Garganey] CHR. DRS. Gillham and Gillham 1996 (p. 51); Sibley 1938.

Anas erythrorhyncha [Red-billed Duck]

- See also: *Amazonetta brasiliensis*; *Anas bahamensis*; *A. capensis*; *A. castanea*.
- × *Anas flavirostris* [Speckled Pintail] CHR. DRS. Gillham and Gillham 1996[†]; IZY 1974; Marchant and Higgins 1990 (p. 1266).
- × *Anas smithii* [Cape Shoveler] NHR (s Africa). BRO: s Africa. Vanherck and Armstrong 1991.
- × *Anas undulata* (♂) [Yellow-billed Duck] CAONHR. BRO: s Africa. HPF Brickell 1988 (pp. 207, 208); Clark 1971; Cruickshank 1978; Gillham and Gillham 1996 (p. 48); Johnston 1971; Little 1958; Milstein 1979; Phillips 1923–1926; Pocock 1973; Shewell 1957.

Anas falcata [Falcated Teal]

- See also: *Anas americana*; *A. bahamensis*; *A. castanea*; *A. clypeata*; *A. crecca*.
- × *Anas laysanensis* [Laysan Duck] CHR. DRS. Gillham and Gillham 1996[†].
- × *Anas penelope* (↔) [Eurasian Wigeon] ONHR (e Siberia, Far East). HPF Most hybrids are ♂. Delacour 1927; Flint and Anzigitova 1993; Gillham and Gillham 1996[†]; Gray 1958; Hachisuka (Marquess) 1928 (p. 58); Harrison and Harrison 1968b; Hopkinson 1926; Kuroda 1923[†];

- Laidlay 1930; Panov 1989; Phillips 1923–1926 (vol. 2, p. 166). Internet: BCHI.
- × *Anas platyrhynchos* (♂) [Mallard] NHR. BRO: e Siberia and Far East. Kuroda 1960a[†]; Sibley 1938; Suter 1953[†].
- × *Anas querquedula* [Garganey] NHR. BRO: se Siberia and Far East. Gillham and Gillham 1996[†].
- × *Anas rhynchotis* [Australian Shoveler] CHR. DRS. Gillham and Gillham 2000.
- × *Anas sibilatrix* (♀) [Chiloe Wigeon] CHR. DRS. Gillham and Gillham 1996 (p. 78); Hopkinson 1926.
- × *Anas strepera* (↔) [Gadwall] CAONHR. BRO: s Siberia. Robinson describes a probable hybrid shot in Assam. Delacour 1927; Finn 1917; Gillham and Gillham 1996[†]; Gray 1958; Hopkinson 1926, 1933a; IZY 1968, 1976; Johnsgard 1960a; Laidlay 1930; Phillips 1923–1926 (vol. 2, p. 166); Robinson 1918[†]; Sibley 1938; Sibley 1957. Internet: WBKE.
- × *Tadorna ferruginea* (prob. ♂) [Ruddy Shelduck] CANHR. BRO: Manchuria, Russian Far East. Suchetet mentions a wild hybrid taken near Vladivostok. Ackermann 1898; Delacour 1927; Gray 1958; Hopkinson 1926, 1935b; Laidlay 1930; Leverkusühn 1890; Sibley 1938; Suchetet 1897a.
- × *Tadorna tadorna* [Common Shelduck] NHR. BRO: Mongolia and Lake Baikal region of Russia. Panov 1989.

Note: Two populations, *andinum* and *flavirostris*, are usually treated as races of *Anas flavirostris*. Sibley and Monroe (1990, p. 34), say “Ridgely (pers. comm.) views *andinum* as a probable species, but T. S. Schulenberg (pers. comm.) suggests that it is a race of *A. flavirostris* because differences in bill color and ecology seem to be bridged by some populations” (i.e., hybrid populations exist).

Anas flavirostris [Speckled Teal]

- See also: *Aix sponsa*; *Amazonetta brasiliensis*; *Anas acuta*; *A. bahamensis*; *A. capensis*; *A. castanea*; *A. crecca*; *A. cyanoptera*; *A. erythrorhyncha*.

- × *Anas formosa* [Baikal Teal] CHR. BRO: e Russia. Gillham and Gillham 1996 (p. 81); Roy 1995[†].
 - × *Anas georgica* [Yellow-billed Pintail] CHR. HPF BRO: S. America. Delacour 1927; Gray 1958; Hopkinson 1926, 1935c.
 - × *Anas laysanensis* [Laysan Duck] CHR. DRS. Gillham and Gillham 1996.
 - × *Anas platyrhynchos* (↔) [Mallard] CHR. BRO: S. America. Marchant and Higgins 1990 (p. 1333); Page 1914b; Phillips 1923–1926.
- Anas formosa*** [Baikal Teal]
See also: *Aix sponsa*; *Anas acuta*; *A. americana*; *A. clypeata*; *A. crecca*; *A. cyanoptera*; *A. flavirostris*.
- × *Anas penelope* (♀) [Eurasian Wigeon] NHR. BRO: e. Siberia. Gray 1958; Hopkinson 1926; Leverkühn 1890; Phillips 1923–1926; Salvadori 1895 (p. 231).
 - × *Anas sibilatrix* [Chiloe Wigeon] CHR. DRS. Gillham and Gillham 2000.
 - × *Anas versicolor* (♂) [Versicolor Teal] CHR. DRS. Hopkinson 1926; Phillips 1923–1926; Wormald 1914.
 - × *Netta rufina* [Red-crested Pochard] NHR? BRO: Russia (n of Lake Baikal). Rothschild (Lord) 1929.
- Anas fulvigula*** [Mottled Duck]
See also: *Anas clypeata*.
- × *Anas platyrhynchos* (↔ usu. ♀) [Mallard] ENHR. BRO: se N. America. HPF (♂ & ♀). Hybridization with the Mallard is deemed a threat to the Mottled Duck. Most reports are from Florida (U.S.). These birds are sometimes treated as conspecific. Gillham and Gillham 1996 (p. 40); Moorman and Gray 1994; Nelson 1980[†]; Phillips 1921[†]; Sibley 1938; Stevenson and Anderson 1994 (p. 111); Stutzenbaker 1988. Internet: SFRC, WFLR, WLDF
 - × *Anas rubripes* (↔) [American Black Duck] NHR (Florida, Louisiana). HPF BRO: e N. America. Scott 1947; Sibley 1938; Stevenson and Anderson 1994 (p. 111). Internet: PCCC.
 - × *Anas sibilatrix* [Chiloe Wigeon] CHR. London Zoo had hybrids. IZY 1989.
 - × *Anas superciliosa* [Pacific Black Duck] CHR. DRS. HPF Gray 1958.
 - × *Anas undulata* [Yellow-billed Duck] CHR. DRS. Sibley 1938.
- Anas georgica*** [Yellow-billed Pintail]
See also: *Aix sponsa*; *Anas acuta*; *A. bahamensis*; *A. capensis*; *A. flavirostris*.
- × *Anas penelope* (♀) [Eurasian Wigeon] CHR. DRS. Hopkinson 1935b; Gray 1958.
 - × *Anas platyrhynchos* (♂) [Mallard] NHR. BRO: s and w S. America. Hopkinson 1935b, 1935c; Gray 1958; Marchant and Higgins 1990; Sibley 1938.
 - × *Anas sibilatrix* [Chiloe Wigeon] CANHR. BRO: s S. America. HPF Cavazza 1931a, 1931b; Delacour 1925, 1927; Delacour and Mayr 1945; Hertwig 1936; Hopkinson 1926, 1935b; Gillham and Gillham 1996; Gray 1958; Leverkühn 1890; Page 1914b; Phillips 1923–1926; Poll 1911c (Tafel 3[†]).
 - × *Anas strepera* (♀?) [Gadwall] CHR. Gillham and Gillham 1996; Gray 1958; Hopkinson 1935b, 1935c; Rothschild (Lord) 1929; Rothschild 1913.
 - × *Anas superciliosa* (↔) [Pacific Black Duck] CHR. DRS. Gillham and Gillham 1996; Gray 1958; Hopkinson 1926; Kinnear 1929; Page 1914b.
 - × *Netta peposacca* [Rosybill] CHR. DRS. Gillham and Gillham 1996 (p. 50); Weller 1969.
 - × *Netta rufina* [Red-crested Pochard] CHR. DRS. Gillham and Gillham 1996 (p. 50); Gray 1958; Sage 1966.
- Anas gibberifrons*** [Sunda Teal]
See also: *Anas castanea*.
- × *Anas gracilis* [Grey Teal] NHR? BRO: Indonesia, New Guinea. These birds are sometimes treated as conspecific. Marchant and Higgins 1990 (p. 1280); Mees 1982; White and Bruce 1986.
 - × *Anas platyrhynchos* (♂) [Mallard] NHR? BRO: Indonesia. Gray 1958; Patterson 1906.
 - × *Anas poecilorhyncha* [Spot-billed Duck] CHR. DRS. Johnsgard 1960a.
- Anas gracilis*** [Grey Teal]
See also: *Anas castanea*; *A. gibberifrons*.

- × *Anas platyrhynchos* (♂) [Mallard] NHR. BRO: se Australia, New Zealand, Macquarie Island. Gray 1958; Norman 1987, 1990.
 - × *Anas rhynchotis* [Australian Shoveler] NHR. BRO: Australia, New Zealand. Gillham and Gillham 1996 (p. 39); Johnsgard 1960a; Marchant and Higgins 1990 (p. 1333); Phillips 1923–1926; Zietz 1912[†].
 - × *Anas superciliosa* [Pacific Black Duck] CANHR. BRO: Australia, New Zealand. Hopkinson 1926; Lavery 1966; Marchant and Higgins 1990 (p. 1333); Phillips 1923–1926; Zietz 1912[†].
 - × *Aythya australis* [Hardhead] NHR. BRO: Australia. Internet: TRN.
- Anas hottentota*** [Hottentot Teal]
See also: *Aix sponsa*; *Anas crecca*.
- × *Anas querquedula* [Garganey] CHR. DRS. Gillham and Gillham 1996[†].
- Anas laysanensis*** [Laysan Duck]
See also: *Aix galericulata*; *Anas falcata*; *A. flavirostris*.
- × *Anas platyrhynchos* (♂) [Mallard] ENHR? BRO: Laysan Island. Moulton and Marshall (p. 3) say “occasional infusion of Mallard genes [into *A. laysanensis*], especially in such a small population of such low genetic diversity, might account for the observed [mallard-like] phenotypic characters.” These birds are often lumped. Moulton and Marshall 1996.
 - × *Anas wyvilliana* [Hawaiian Duck] CHR. DRS. These birds are often treated as conspecific. IZY 1976.
- Anas luzonica*** [Philippine Duck]
See also: *Aix sponsa*; *Anas castanea*.
- × *Anas platyrhynchos* (♂) [Mallard] NHR. BRO: Philippines. Gillham and Gillham 1996; Gray 1958, IZY 1980.
 - × *Anas superciliosa* (♂) [Pacific Black Duck] CHR. BRO: Philippines. Delacour 1928, 1954; Gillham and Gillham 1996 (p. 49); Hopkinson 1933a.
- Anas melleri*** [Meller’s Duck]
See also: *Anas acuta*.
- × *Anas platyrhynchos* (↔ usu. ♂) [Mallard] CANHR. DRS. HPF. Kinnear says a ♀ hybrid produced three-way hybrids with an American Wigeon (*A. americana*). Hybridization with *A. platyrhynchos* is considered a threat to the endangered Meller’s. Bonhote 1905, 1907a, 1909a; Gillham and Gillham 1996 (p. 41); Gray 1958; Hopkinson 1926; Page 1914b; Phillips 1923–1926; Sibley 1938. Internet: DECN.
 - × *Anas poecilorhyncha* [Spot-billed Duck] CHR. DRS. HPF. Bonhote 1905, 1909a; Gray 1958.
 - × *Anas rubripes* [American Black Duck] CHR. DRS. HPF. Gray 1958.
 - × *Anas superciliosa* [Pacific Black Duck] CHR. DRS. HPF. Bonhote 1905, 1909a; Gray 1958; Hopkinson 1926.
 - × *Anas undulata* (♂) [Yellow-billed Duck] CHR. DRS. HPF. BRO: islands of Mozambique Channel? Finn 1915; Gray 1958; Hopkinson 1926; Page 1914b; Seth-Smith 1910.
 - × *Aythya ferina* [European Pochard] CHR. A ♀ hybrid is reported to have bred with a Gadwall (*Anas strepera*). Hopkinson 1935b.
 - × *Cairina moschata* [Muscovy Duck] ONHR. BRO: Africa. Hybridization with introduced *C. moschata* threatens the endangered Meller’s. Internet: DECN.
- Anas oustaleti*** [Oustalet’s Duck]
See: *Anas platyrhynchos* × *A. superciliosa*.
- Anas penelope*** [Eurasian Wigeon]
See also: *Aix sponsa*; *Anas acuta*; *A. americana*; *A. castanea*; *A. clypeata*; *A. crecca*; *A. falcata*; *A. formosa*; *A. georgica*.
- × *Anas platyrhynchos* (↔) [Mallard] CANHR. BRO: Eurasia. HPF. Delacour and Mayr 1945; Dementjev 1939; Gillham and Gillham 1996; Gray 1958; Hopkinson 1926; Kinnear 1929; Kuroda 1960a; Laidlaw 1914; Lundström 1937[†]; Page 1914b; Sibley 1938; Wattel and Harrison 1968. Internet: BNOR (Dec. 2002).
 - × *Anas querquedula* [Garganey] NHR. BRO: Eurasia. Gray 1958; Panov 1989; Sibley 1957; Suchetet 1897a (p. 707).
 - × *Anas sibilatrix* (↔) [Chiloe Wigeon] CHR. HPF. DRS (but a free-flying hybrid is reported from Denmark, presumably resulting from a mating of a Eurasian Wigeon with an

escaped Chiloe). The five hybrids reared by Shore-Baily were all male. Palmer says hybrids closely resemble *Anas americana*. Cavazza 1931a; de Vries and Zekhuis 1996; Delacour and Mayr 1945; Dementjev 1939; Dulignier 1932; Gillham and Gillham 1996[†]; Gray 1958; Harrop 1994b; Hertwig 1936; Hopkinson 1926; Laidlay 1930; Low 1940; Palmer 1962–1988; Phillips 1923–1926; Rothschild (Lord) 1929; Shore-Baily 1918a[†], 1920[†].

- × *Anas strepera* (↔) [Gadwall] CANHR. BRO: w Russia, Baltic Sea to Altai Mts. HPF. A male hybrid in the Icelandic museum has a neck band, a feature not seen in either parent. Cavazza 1931a, 1931b; Delacour and Mayr 1945; Gillham and Gillham 1996; Gray 1958; Hertwig 1936; Hopkinson 1926; Johnsgard 1960; Laidlay 1930; Low 1940; Phillips 1923–1926; Poll 1910, 1911a, 1911d, 1921; Rothschild (Lord) 1929; Sibley 1957.
- × *Aythya ferina* [European Pochard] CHR. BRO: Eurasia. Gillham and Gillham 2000.
- × *Aythya fuligula* (↔ usu. ♂) [Tufted Duck] CHR. LFH. Cavazza 1931a, 1931b; Gray 1958; Heinroth 1910, 1911; Hertwig 1936; Hopkinson 1935b, 1935c; Poll 1910 (p. 47); Rothschild (Lord) 1929; Rothschild 1913.
- × *Melanitta nigra* [Common Scoter] CHR? Old record. BRO: n Eurasia. Leverkühn 1890.
- × *Netta rufina* (♀?) [Red-crested Pochard] CHR. Hopkinson 1935b, 1935c; Kinnear 1929; Poll 1911c (p. 461).

Anas platalea [Argentine Red Shoveler]

See also: *Anas clypeata*; *A. cyanoptera*.

- × *Anas smithii* [Cape Shoveler] CHR. DRS. Moody 1940.

Note: Of the Mallard, Sibley (1938, p. 332) says it “has hybridized with so many other species that any list of Mallard hybrids cannot pretend to be by any means complete. In fact, in a mixed collection of waterfowl the Mallard is an unmitigated nuisance because of the amorosness of the males.”

Anas platyrhynchos [Mallard]

See also: *Aix galericulata*; *A. sponsa*; *Alopochen aegyptiacus*; *Anas acuta*; *A. americana*;

A. aucklandica; *A. bahamensis*; *A. castanea*; *A. chlorotis*; *A. clypeata*; *A. crecca*; *A. cyanoptera*; *A. diazi*; *A. discors*; *A. falcata*; *A. flavirostris*; *A. fulvigula*; *A. georgica*; *A. gibberifrons*; *A. gracilis*; *A. laysanensis*; *A. luzonica*; *A. melleri*; *A. penelope*.

- × *Anas poecilorhyncha* (↔) [Spot-billed Duck] CAENHR (Far East). HPF BRO: Palaeartic, se Asia, w. Pacific. HPF (♂ & ♀). In Japan, the hybrid is well-known under the name of Maru-gamo. A three-way hybrid with American Wigeon (*A. americana*) occurred at the Munster Zoo in 1966. Bonhote 1902, 1905, 1907a, 1909a, 1909b; *Cage Birds* 1905; Eck 1970; Gillham and Gillham 1996 (p. 42); Gray 1958; Heinroth 1905; Hopkinson 1926; IZY 1972; Kulikova et al. 2004; Leverkühn 1890; Melville 1999; Panov 1989; Phillips 1923–1926; Rothschild (Lord) 1929; Sibley 1938; Suchetet 1897a; Zhuravlev et al. 2002. Internet: FSIN.
- × *Anas querquedula* (♂) [Garganey] CHR. BRO: Eurasia. Gillham and Gillham 1996[†]; Leverkühn 1890; Phillips 1923–1926.
- × *Anas rubripes* (♂) [American Black Duck] CAENHR. BRO: ne N. America. HPF (♂ & ♀). Variable hybrids span the morphological range between the parental types. The Smithsonian has more than 100 specimens. High level of hybridization is considered a threat to *A. rubripes*. *A. platyrhynchos* is rapidly expanding into the range of *A. rubripes*. Hybrids are so common that they occasionally occur even in the U.K. According to Longcore et al. (2000), 13.2% of so-called Black Duck wings obtained from the 1977 U.S. Parts Collection Survey in Atlantic Flyway states were actually from hybrids. This estimate was probably an underestimate since back-cross individuals would in many cases be unidentifiable. Barnes and Nudds found that *A. rubripes* and hybrids have higher salt tolerance than *A. platyrhynchos*. Mank et al. compared modern and museum specimens and found that genetic differences between mallards and black ducks were markedly lower in modern specimens than in birds

- taken before 1940. Alison and Prevett 1976; Ankney and Dennis 1988; Ankney, Dennis, and Bailey 1987; Ankney et al. 1986; Ball 1934[†] (p. 23); Barnes 1989; Barnes and Nudds 1991; Bigelow 1907; Brodsky, Ankney, and Dennis 1988, 1989; Brodsky and Weatherhead 1984; Conroy et al. 1989, 2002; d'Eon, Seymour, and Boer 1994; d'Eon, Seymour et al. 1995; de Selys-Longchamps 1856; Eaton 1903; Fedynich and Rhodes 1995; Gillham and Gillham 1996 (p. 40); Grandy 1983; Hepp et al. 1988; Heusmann 1974, 1988; Johnsgard 1960b, 1967; King 1979; Kinnear 1929; Kirby et al. 2004; Kortright 1943[†]; Leverkusühn 1890; Longcore et al. 1987, 2000; Mank et al. 2004; Mason and Clark 1990; McCorquodale and Knapton 2003; McIlveen et al. 1999; Morgan et al. 1976, 1978, 1984a, 1984b; Morton 1998; Phillips 1915[†], 1921, 1923–1926; Randler 2002b; Ridgway 1909; Rusch et al. 1989; Ryan 1992; Seymour 1990; Sibley 2000 (p. 83[†]); Shutler et al. 1996; Stephens 1989; Suchetet 1897a (pp. 137, 682). Internet: WWTO.
- × *Anas sibilatrix* (↔ usu. ♂) [Chiloe Wigeon] CHR. LFH. BRO: S. America. Delacour 1920; Fjeldså and Krabbe 1990; Gray 1958; Hertwig 1936; Lorenz 1953; Phillips 1923–1926; Poll 1908 (p. 129), 1910 (p. 47), 1911c (p. 456 and Tafel 4[†]); Sibley 1938.
- × *Anas sparsa* (♀) [African Black Duck] CHR. BRO: s Africa. Brickell 1988.
- × *Anas specularis* [Spectacled Duck] CHR. DRS. Delacour 1954; Gillham and Gillham 1996 (p. 43).
- × *Anas strepera* (↔) [Gadwall] CAENHR. BRO: n Europe, n N. America. HPF(♂♂). McIlhenny says he has ringed many. Hybrid was treated as a species, *Anas breweri* (Brewer's Duck). Harrison and Harrison (1965a) report a presumed natural three-way hybrid with *A. acuta*. Rogeron (1903) reports three-way hybrids with *Aythya ferina*. Ackermann 1898; Arrigoni Degli Oddi 1897; Berry 1942; Brandolini 1946; Brickell 1988; de Selys-Longchamps 1856; del Junco 1968; Harrison and Harrison 1965a, 1965b; Hopkinson 1926; Kinnear 1926; Kurz 2000; Leverkusühn 1890; McIlhenny 1937; Merrifield 1998; Phillips 1923–1926; Pitt (W. S.) 1944; Randler 2003a; Rogeron 1903, 1905; Rucner 1961; Salvadori 1895 (p. 338); Sclater 1891; Sibley 1938; Steklenev 1993 (p. 59); Suchetet 1897a; van Oort 1918; Wormald 1914.
- × *Anas superciliosa* (↔) [Pacific Black Duck] CAENHR. BRO: Australia, New Zealand. HPF(♂&♀). Marchant and Higgins (p. 1333) say “many completely fertile hybrids are known from captivity and the wild.” They are larger, and more vigorous than either parent. Due to extensive backcrossing, many hybrids are difficult to distinguish from parental types. In New Zealand, hybrids are now more common than either parental type and concern has arisen over potential loss of pure Pacific Black Duck in that country. Hybrids are paler than Black Duck, with a less well-defined facial pattern, grayish bill, and greenish brown legs. In Micronesia, a population of hybrids that has been treated as a species, *Anas oustaleti* (Oustalet's Duck), is the product of this cross. Amadon 1966; Bonhote 1905, 1909a; Braithwaite and Miller 1975; Cavazza 1931a; Delacour 1954; Gillespie 1985; Gillham and Gillham 1996 (p. 42); Haddon 1987; Haddon 1984, 1998; Heinroth 1905; Hitchmough et al. 1990; Johnsgard (in Peters 1979, vol. 1, p. 470); Kear and Murton 1976; Kříženecký 1926; Manson-Bahr 1953[†]; Marchant and Higgins 1990; Norman 1987; Paton et al. 1992; Phillips 1915[†], 1921, 1923–1926; Randler 2002b; Rhymer et al. 1994, 2004; Sage 1958[†]; Shirihai 2002 (p. 272); Sibley and Monroe 1990 (p. 36); Sibley 2000 (p. 83[†]); Suchetet 1897a; Taibel 1934; Weller 1980 (p. 19); Williams 1970; Williams and Roderick 1974; Yamashina 1948. Internet: DIGI.
- × *Anas undulata* (↔) [Yellow-billed Duck] CAENHR (s Africa, after introduction of Mallard). HPF Hybridization with the Mallard threatens the Yellow-billed Duck

- with extinction. Gillham and Gillham 1996 (p. 41); Hopkinson 1926; Leverkusühn 1890; Milstein and Osterhoff 1975[†]; Oettle 1991; Phillips 1923–1926; Rowan 1963. Internet: CAPN, WWTO.
- × *Anas versicolor* [Versicolor Teal] NHR. BRO: S. America (where the Mallard is introduced). Gillham and Gillham 1996 (p. 45); Kortright 1943.
 - × *Anas wyvilliana* [Hawaiian Duck] ENHR (Hawaiian Is.). HPF(♂ & ♀). Hybridization threatens the Hawaiian Duck. Browne et al. 1993; Engilis et al. 2002 (p. 4); Rhymer 2001. Internet: BHAW, WWTO.
 - × *Anser anser* (♀) [Greylag Goose] CHR. LFH. Most (all?) hybrids are ♂. Ackermann 1898; Cavazza 1931a, 1931b; Ghigi 1936a; Gorce 1937; Kuiper 1920; Poulsen 1949[†], 1950[†]; Ringleben 1961; Taibel 1934; Taibell 1930c[†].
 - × *Anser cygnoides* (♀) [Swan Goose] CHR. BRO: Mongolia, ne China. Yamashina describes a case of differential survival in hybrids of this type. Of 38 eggs laid, 24 were fertile but did not develop, 12 died within 2 days, one survived a week, and one hybrid hatched. The surviving hybrid had a deformed beak. Incubation time was intermediate (28 days). Yamashina 1953[†].
 - × *Aythya americana* (↔) [American Redhead] CHR. BRO: N. America. Talent et al. (1981) report the parasitism of Mallard nests by Redheads. This behavior may favor natural hybridization if young Redheads imprint on fostering Mallards. Sibley 1938.
 - × *Aythya australis* (↔) [Hardhead] NHR. BRO: Australia. Marchant and Higgins 1990 (p. 1333).
 - × *Aythya collaris* (♀) [Ring-necked Duck] CHR. BRO: N. America. De Selys-Longchamps 1856; Leverkusühn 1890; Phillips 1923–1926.
 - × *Aythya ferina* (↔ usu. ♂) [European Pochard] CANHR. BRO: Eurasia. LFH. Costa Perez and Rodrigues Parada 1981; Gray 1958; Leverkusühn 1890; Phillips 1923–1926; Salvadori 1895 (p. 338); Sibley 1938; Suchetet 1897a (p. 165); Wormald 1914, 1915.
 - × *Aythya fuligula* (↔) [Tufted Duck] CANHR. BRO: n Eurasia. Clegg 1971; Gillham 1987; Gillham and Gillham 1996 (p. 46); Payn 1955; Pitt (W. S.) 1944[†]; Rucner 1963; Sibley 1938.
 - × *Aythya nyroca* [Ferruginous Pochard] CHR?? BRO: Eurasia. Old reports. De Selys-Longchamps 1856; Leverkusühn 1890.
 - × *Aythya valisineria* [Canvasback] CANHR?? BRO: n N. America. Old records. Baird 1847; Brewer 1874; Phillips 1923–1926 (p. 144).
 - × *Branta canadensis* (♂) [Canada Goose] NHR. BRO: N. America, Europe. Sibley 1938. Internet: DECN.
 - × *Branta leucopsis* (♂) [Barnacle Goose] NHR. BRO: n Europe. Internet: DECN.
 - × *Bucephala clangula* [Goldeneye] ENHR. BRO: n N. America, n Eurasia. Korbut (2001) observed 90 hybrids in Moscow in 1989–1992.
 - × *Cairina moschata* (↔) [Muscovy Duck] CANHR. LFH(–). In ♂ hybrids the red bill excrescence characteristic of the Muscovy is often present, but reduced in size. ♀ *Mallard* × ♂ *Muscovy*: Hybrids are commonly raised for meat (usually produced by artificial insemination). Very low fertility in hybrids. F₁ ♀♀ are hypogonadic (internal genitalia are often lacking or rudimentary). Incubation period of hybrids intermediate (30–31 days) to those of the parents' (Mallard, 28 days; Muscovy, 35 days). ♂ *Mallard* × ♀ *Muscovy*: This is a common commercial cross (produced by artificial insemination). According to Stohl and Gerencsér, about 80% of hybrids resulting from natural matings are ♂. Low sperm counts, and many sperm abnormalities. F₁ ♀♀ lay small eggs which apparently cannot be fertilized. Rigdon showed estradiol and progesterone do not improve the fertility of hybrids. Gomot (1967) transplanted a Mallard testis into a sterile ♂. It developed marked ♂ characteristics. Spermatogenesis in the transplanted testis was normal. These hybrids have been produced in Taiwan for centuries. One was described in England as early as 1832 by

- Yarrell. Abrayan and Chilingar'yan 1973; Batellier et al. 2004; Bebak 1959; Bushnell 1941; Chappellier 1912; Cheng et al. 2003; Coimbra-Filho 1965b; Crew and Koller 1936[†]; Csuka and Przytulski 1982; Delacour and Mayr 1945; Deray 1974, 1979; Faber 1957; Faure et al. 2003; Gomot 1967, 1970, 1975; Gomot and Ardiet 1966; Gomot and Bonin 1965; Gomot et al. 1966; Gray 1859; Gray 1958; Horn et al. 1953; Hu 1997; Kneller 1942; Lawrence 1925; Lee and Kang 1990; Leverkusn 1890; Lutz-Ostertag and David 1961, 1962; Marchand 1979; Marchand et al. 1977; McGibbon 1944, 1945; Mott et al. 1968; Poll 1906, 1908 (p. 159), 1910 (p. 42), 1911b, 1911c (Tafel 3[†]), 1921; Poivey et al. 2001; Prager and Wilson 1973; Przytulski and Csuka 1980, 1983; Ricard et al. 1988; Rigdon 1968; Rouvier et al. 1987; Rouvier et al. 1988; Salvadori 1895 (pp. 53, 193); Sercy et al. 1996; Sibley 1938; Sokolovskaja 1935a, 1935b, 1936; Staško and Pöbis 1979; Steklenev and Kozikova 1989; Steklenev and Marinchuk 1977; Steklenev and Rozhkov 1990; Stohl 1989; Stohl and Gerencsér 1961; Suchetet 1897a (p. 146); Tai and Rouvier 1998; Yamashina 1941a, 1941b[†], 1942a, 1943b[†], 1943c, 1950[†]; Yarrell 1832.
- × *Cairina scutulata* (♂) [White-winged Wood Duck] CHR. BRO: se Asia. LFH. Delacour 1927; Hopkinson 1926; Phillips 1923–1926.
- × *Mergus merganser* (♀) [Goosander] NHR? BRO: Eurasia, N. America. Schlüter describes this hybrid. Ball 1934 (pp. 5–6); de Selys-Longchamps 1856; Gillham and Gillham 2000; Schlüter 1891; Sibley 1938; van Kempen 1898, 1899.
- × *Mergus serrator* [Red-breasted Merganser] NHR? Old report. Fritsch 1905.
- × *Netta peposacca* (↔) [Rosybill] CANHR. BRO: s S. America. HPF Delacour 1928; Gillham and Gillham 1996 (p. 46); Gray 1958; Hopkinson 1926, 1933a; Page 1914b; Patrick 1932; Phillips 1923–1926; Meyer 1994[†]; Rothschild (Lord) 1926; Rothschild 1913; Sibley 1938; Wormald 1914, 1915.
- × *Netta rufina* (↔ usu. ♀) [Red-crested Pochard] CAONHR (Eurasia). HPF(♂♂). F₁ hybrid has purple head with a slight crest. Costa Perez and Rodrigues Parada 1981; Gillham 1987[†]; Gillham and Gillham 1996 (p. 45); Harrison (P.) 1967[†]; Hauri 1989, 1995; Heinroth 1906; Hertwig 1936; IZY 1962, 1965, 1966; Johnstone 1955; Meyer 1994; Patrick 1932; Poll 1921; Randler 2002a; Schofield 1997; Wattel and Harrison 1968[†]; Yealand 1954.
- × *Polysticta stelleri* [Steller's Eider] NHL. BRO: n Europe. This hybrid has a ring number, but there seems to be no published report. Internet: FOTO5.
- × *Sarkidiornis melanotos* (♂) [Comb Duck] NHR (Oman). BRO: s Asia. A vagrant Comb Duck produced a single hybrid with a Mallard. McLeish 1993.
- × *Somateria mollissima* [Common Eider] NHR. BRO: n Eurasia and N. America. Hybrids do not dive like eiders. They are surface feeders like the Mallard. Clarke 1912a, 1912b[†]; Gillham and Gillham 1996 (p. 47); Robinson 1940; Rothschild 1913; Rothschild (Lord) 1928.
- × *Tadorna ferruginea* (↔) [Ruddy Shelduck] CHR. BRO: cen. Asia. HPF Brickell 1988 (p. 209); Leverkusn 1890; Phillips 1923–1926; Sibley 1938. Internet: DECN.
- × *Tadorna tadorna* (♂) [Common Shelduck] CHR. BRO: Eurasia. HPF(♂♂). Blaauw 1907; de Selys-Longchamps 1845; Gillham and Gillham 1996 (p. 17); Gray 1958; Johnstone 1955; Kinnear 1929; Leverkusn 1890; Nagy 1950; Page 1914b (p. 32); Poll 1911c (p. 455); Salvadori 1895 (p. 173); Suchetet 1897a (p. 152).
- × *Tadorna tadornoides* [Australian Shelduck] NHR (Australia)? BRO: Australia. Marchant and Higgins 1990 (p. 1333).
- × *Tadorna variegata* [New Zealand Shelduck] CHR. BRO: New Zealand. Marchant and Higgins 1990 (p. 1333).
- Anas poecilorhyncha* [Spot-billed Duck]
See also: *Aix sponsa*; *Anas acuta*; *A. gibberifrons*; *A. melleri*; *A. platyrhynchos*.

- × *Anas rubripes* [American Black Duck] CHR. DRS. HPE Gray 1958.
- × *Anas superciliosa* [Pacific Black Duck] CHR. DRS. HPE Bonhote 1905, 1907a (p. 246), 1909a; Gray 1958; Heinroth 1905, 1906.
- × *Anas undulata* (↔ usu. ♂) [Yellow-billed Duck] CHR. DRS. HPE Delacour 1927; Gray 1958; Hopkinson 1926, 1935b; Phillips 1923–1926.
- × *Netta rufina* (♀) [Rosybill] CHR. BRO: n China. HPE(♂♂). Gillham and Gillham 1996 (p. 49); Gray 1958; Heinroth 1906; Hertwig 1936; Kuiper 1920; Poll 1908 (p. 129), 1910 (p. 42).
- Anas puna*** [Puna Teal]
See also: *Aix sponsa*.
- × *Anas versicolor* [Versicolor Teal] CHR. BRO: nw Argentina, n Chile. These birds are sometimes lumped. IZY 1984–1985.
- Anas querquedula*** [Garganey]
See also: *Aix sponsa*; *Anas acuta*; *A. clypeata*; *A. crecca*; *A. cyanoptera*; *A. discors*; *A. falcata*; *A. hottentota*; *A. penelope*; *A. platyrhynchos*.
- × *Anas strepera* [Gadwall] CHR. BRO: Eurasia. Gillham and Gillham 2000.
- × *Aythya ferina* (↔) [European Pochard] NHR?? BRO: Eurasia. Old reports. Leverkühn 1890; Suchetet 1897a (p. 165).
- × *Aythya fuligula* (↔) [Tufted Duck] CANHR. BRO: n Eurasia. Gillham and Gillham 1996[†]; Hopkinson 1926 (p. 252); Leverkühn 1890; Naumann et al. 1897–1905.
- × ~~*Bucephala clangula* [Goldeneye]~~ Many modern authors list this cross. However, if any primary report of it exists, it predates 1850. All listings appear to cite earlier listings. Ackermann 1898 (p. 18); Bronn et al. 1841–1849.
- Anas rhynchotis*** [Australian Shoveler]
See also: *Anas clypeata* × *A. cyanoptera*; *Anas falcata*; *A. gracilis*.
- × *Anas superciliosa* [Pacific Black Duck] NHR. BRO: Australia and New Zealand. Gillham and Gillham 1996 (p. 49); Phillips 1923–1926; Zietz 1912[†].
- × *Aythya novaeseelandiae* [New Zealand Scaup] CHR. BRO: New Zealand. Two hybrids occurred at the Otorohanga Kiwi House and Native Bird Park (New Zealand) in 1985. IZY 1987.
- Anas rubripes*** [American Black Duck]
See also: *Anas acuta*; *A. americana*; *A. fulvigula*; *A. melleri*; *A. platyrhynchos*; *A. poecilorhyncha*.
- × *Anas strepera* [Gadwall] CHR. BRO: n N. America. Johnsgard 1960.
- × *Anas superciliosa* [Pacific Black Duck] CHR. DRS. HPE Gray 1958.
- × *Anas undulata* (♂) [Yellow-billed Duck] CHR. DRS. Gray 1958; Hopkinson 1926 (p. 245); Page 1914b (p. 31); Phillips 1923–1926; Salvadori 1895 (p. 213); Seth-Smith 1910; Sibley 1938.
- × *Aythya ferina* (♂) [European Pochard] CHR. DRS. Leverkühn 1890; Phillips 1923–1926; Salvadori 1895 (p. 338).
- × *Cairina moschata* [Muscovy Duck] CHR. DRS. An old report says these hybrids are extremely large (described as “*Anas maxima*”). Elliot 1892.
- Anas sibilatrix*** [Chiloe Wigeon]
See also: *Aix sponsa*; *Anas acuta*; *A. americana*; *A. bahamensis*; *A. falcata*; *A. formosa*; *A. fulvigula*; *A. georgica*; *A. penelope*; *A. platyrhynchos*.
- × *Anas strepera* [Gadwall] CHR. DRS. Sigean African Preserve (France) had four hybrids, two of each sex, in 1987. Gillham and Gillham 1996; IZY 1989; Tipling 1989.
- × *Aythya ferina* [European Pochard] CHR. DRS. Severin 1981.
- × *Aythya fuligula* [Tufted Duck] CHR. Two hybrids occurred at the London Zoo in 1987. DRS. IZY 1989.
- × *Netta rufina* (♀) [Red-crested Pochard] CHR. LFH. IZY 1973; Przibram 1910.
- × *Nettapus auritus* [African Pygmy-goose] CHR. LFH? Cavazza 1931a, 1931b, 1931c.
- Anas smithii*** [Cape Shoveler]
See: *Anas erythrorhyncha*; *A. platalea*.
- Anas sparsa*** [African Black Duck]
See also: *Anas platyrhynchos*.
- × *Anas undulata* [Yellow-billed Duck] CANHR. BRO: se Africa. Brickell 1988 (p. 207).
- × *Aythya ferina* (♂) [European Pochard] CHR. DRS. Brickell 1988 (p. 208).

- × *Netta rufina* (♀) [Red-crested Pochard] CHR. DRS. Cavazza 1931a.
- Anas specularioides*** [Crested Duck] Two populations (*alticola*, *specularioides*), treated as races of this bird, have been treated as separate species (Andean and Patagonian crested ducks). They hybridize in Chile at ~35°S. Shirihai 2002.
- Anas specularis*** [Spectacled Duck]
See also: *Anas platyrhynchos*.
- × ~~*Bucephala islandica*~~ [Barrow's Goldeneye]
Some cite Scherer and Hilsberg for this cross, but they don't list it. Scherer and Hilsberg 1982.
- Anas strepera*** [Gadwall]
See also: *Aix galericulata*; *A. sponsa*; *Anas acuta*; *A. americana*; *A. castanea*; *A. clypeata*; *A. crecca*; *A. falcata*; *A. georgica*; *A. penelope*; *A. platyrhynchos*; *A. querquedula*; *A. rubripes*; *A. sibilatrix*.
- × *Anas superciliosa* (♀) [Pacific Black Duck] CHR. DRS. Johnsgard 1960a; Sibley 1938.
- × *Anas undulata* (♀) [Yellow-billed Duck] CHR. DRS. Sibley 1938.
- × *Lophodytes cucullatus* [Hooded Merganser] NHR? BRO: N. America. Sibley 1994.
- × *Tadorna tadorna* [Common Shelduck] CHR. BRO: Eurasia. Gillham and Gillham 1996[†].
- Anas superciliosa*** [Pacific Black Duck]
See also: *Aix sponsa*; *Anas acuta*; *A. fulvigula*; *A. georgica*; *A. gracilis*; *A. luzonica*; *A. melleri*; *A. platyrhynchos*; *A. poecilorhyncha*; *A. rhynchotis*; *A. rubripes*; *A. strepera*.
- × *Anas undulata* [Yellow-billed Duck] CHR? Gray cites a personal communication from Jean Delacour and says these birds readily produce fertile hybrids. However, primary reports of this cross all appear to be very old. Gray 1958; Leverkühn 1890, Phillips 1923–1926.
- × *Cairina moschata* (♀?) [Muscovy Duck] CHR. DRS. LFH. Phillips 1923–1926.
- × *Hymenolaimus malacorhynchus* [Blue Duck] CHR?? BRO: New Zealand. Gray 1958; Kingsley 1893; Phillips 1923–1926; Suchetet 1897a (p. 710).
- × *Netta peposacca* (♀?) [Rosybill] CHR. DRS. Hopkinson 1926; Page 1914b; Poll 1921.
- × *Netta rufina* (↔) [Red-crested Pochard] CHR. BRO: New Zealand. Cavazza 1931a; Delacour 1928; Gray 1958; Hopkinson 1933a; Phillips 1923–1926 (p. 317); Poll 1910 (p. 42).
- Anas undulata*** [Yellow-billed Duck]
See also: *Aix sponsa*; *Anas acuta*; *A. capensis*; *A. erythrorhyncha*; *A. fulvigula*; *A. melleri*; *A. platyrhynchos*; *A. poecilorhyncha*; *A. rubripes*; *A. sparsa*; *A. strepera*; *A. superciliosa*.
- × *Aythya marila* (♀?) [Common Scaup] CHR. DRS. Johnstone 1955.
- × *Netta erythrophthalma* (♀) [Southern Pochard] CANHR. BRO: sub-Saharan Africa. Brickell 1988; Clark 1973; Gillham and Gillham 1996 (p. 48); Milstein 1979; Milstein and Osterhoff 1975.
- × *Netta peposacca* [Rosybill] CHR. DRS. Gray 1958.
- × *Netta rufina* [Red-crested Pochard] CHR. DRS. Gillham and Gillham 1996[†]; Gray 1958; Rogerson 1903, 1905.
- Anas versicolor*** [Versicolor Teal] See: *Anas formosa*; *A. platyrhynchos*; *A. puna*.
- Anas wyvilliana*** [Hawaiian Duck] See: *Anas castanea*; *A. laysanensis*; *A. platyrhynchos*.
- Anser albifrons*** [White-fronted Goose]
See also: *Alopochen aegyptiacus*.
- × *Anser anser* (↔) [Greylag Goose] CANHR. HPF (♂ & ♀). BRO: n Russia (sw of Gulf of Ob). A hybrid (♂) produced offspring with a Swan Goose (*A. cygnoides*). Another hybrid successfully crossed with Lesser White-fronted Goose (*A. erythropus*). This hybrid accounted for 4% of all goose hybrids counted in Britain in 1991. Steklevnev lists a three-way hybrid (*Anser cygnoides* ♂ × *Anser anser* ♀) ♂ × (*Anser albifrons* ♂ × *Anser anser* ♀) ♀. Behm and Lönnerberg 1911[†]; Berry 1945, 1946; Delany 1993; IZY 1968, 1969, 1979; Laidlay 1941; Scott 1947, Sibley 1938; Steklevnev 1993; Suchetet 1897a. Internet: DECN.
- × *Anser brachyrhynchus* [Pink-footed Goose] A White-fronted ♀ produced fertile eggs with a Pink-footed ♂, but none hatched. Berry 1946; Gray 1958.

- × *Anser caerulescens* (♀) [Snow Goose]
ONHR. BRO: subarctic N. America.
HPF(♂ & ♀). Backcrossing has occurred to
White-fronted ♀. Three-way hybrids are
known with *A. anser* and *Branta canadensis*.
Gray 1958; Lahrman 1970; Lönnberg 1939[†],
1942a[†]; Sibley 1938; Sibley 2000 (p. 77[†]);
Salomonsen 1946[†].
- × *Anser canagica* (♂) [Emperor Goose]
CHR. BRO: w Alaska. Johnsgard 1960;
Sibley 1938.
- × *Anser cygnoides* (↔) [Swan Goose]
CHR. DRS. HPF(♂♂). Three-way
hybrids are known with *Anser anser*.
De Selys-Longchamps 1856; Gray 1958;
Heinroth 1915; Leverkusühn 1890;
Sibley 1938; Steklenev 1993.
- × *Anser erythropus* (↔) [Lesser White-fronted
Goose] CAONHR. BRO: n Eurasia. These
birds occur in mixed flocks. *A. erythropus* is
considered globally threatened. The
Zoological Museum of Amsterdam has a
hybrid. Andersson et al. 2004; Delany 1993;
IZY 1982; Nagy 1950[†]; Ruokonen et al.
2000; Shackelton 1956; van Impe 1982;
Voous and Wattel 1967. Internet: ZMA.
- × *Anser fabalis* [Bean Goose] CANHR. BRO:
Greenland and n Eurasia. Behm and
Lönnberg 1911; Dementjev 1939; de Selys-
Longchamps 1856; Gray 1958; Hopkinson
1926; Leverkusühn 1890; Lilford (Lord) 1894;
Nagy 1950[†]; Panov 1989.
- × *Anser indicus* (♂) [Bar-headed Goose] CHR.
DRS. HPF. Hopkinson 1939a; Lönnberg
1937a[†], 1937b, 1942a; *IZY* 1977.
- × *Branta bernicla* [Brent Goose]
NHR? BRO: circumarctic. Arrigoni
Degli Oddi 1892; Leverkusühn 1890;
Nagy 1950; Suchetet 1897a.
- × *Branta canadensis* (♂) [Canada Goose]
CAONHR. BRO: n N. America, n Eurasia.
HPF Craven and Westmeier describe this
hybrid. It accounted for 4% of all goose
hybrids reported in Britain in 1991. Kuroda
(1953) describes a probable natural hybrid
taken in Japan (ne Hondo in Feb.). Baird
1873; Craven and Westmeier 1979; Delany
1993; Gray 1958; Kovacs 2002; Kuroda
1953, 1958; Lönnberg 1942a; Poll 1911d,
1921; Poulsen 1949a, 1950; Sibley
2000 (p. 77[†]); Suchetet 1897a
(p. 738). Internet: DECN.
- × *Branta leucopsis* (↔) [Barnacle Goose]
NHR. BRO: n Atlantic. Ackermann 1898;
Hopkinson 1926; Leverkusühn 1890; Ente
et al. 1964; Mauer 1980; Nagy 1950[†]; Page
1914b; Sibley 1938.
- × *Branta ruficollis* [Red-breasted Goose] CHR.
BRO: arctic coast of n Russia (65°E–105°E).
Johnsgard 1960.
- × *Chloephaga poliocephala* [Ashy-headed
Goose] CHR. DRS. Moody 1942.
- Anser anser*** [Greylag Goose]
See also: *Alopochen aegyptiacus*; *Anas
platyrhynchos*; *Anser albifrons*.
- × *Anser brachyrhynchus* [Pink-footed Goose]
NHR. BRO: Iceland. Ackermann 1898;
Gray 1958; Suchetet 1897a.
- × *Anser caerulescens* (↔) [Snow Goose]
CHR. HPF(♂ & ♀). DRS. Common in
captivity. The Smithsonian has a specimen.
Davies et al. found that the date of breeding
onset is intermediate in hybrids. Three-way
hybrids are known with *A. cygnoides*. Berry
1945, 1946; Davies et al. 1969; Delany
1993; Gray 1958; Hopkinson 1926;
IZY 1966, 1968, 1974, 1975, 1976;
1984–1985, 1988, 1989; Lönnberg 1939;
Moody 1942; Scott 1947; Sibley 1938;
Steklenev 1993.
- × *Anser cygnoides* (↔) [Swan Goose]
CAONHR. HPF(♂ & ♀). BRO: Manchuria
and Russian Far East. Backcrosses occur to
both parents, but hatchability in backcrosses
is only 50–60%. Delany says a hybrid pro-
duced five natural three-way hybrids with a
Canada Goose. Ackermann 1898; Antonius
1933; Berry 1942; de Selys-Longchamps
1845, 1856; Delany 1993 (p. 597); Ewart
1899; Fletcher 1956; Ghigi 1922; Goodacre
1879; Gray 1958; Heinroth 1905;
Hopkinson 1926 (p. 238); *IZY* 1970, 1997;
Jerome 1953[†]; Leverkusühn 1890; Lühmann
1936, 1950, 1953[†], 1954; Meyer 1995;
Przibram 1910; Randler 2004a; Riemann
1877; Steklenev 1993; Suchetet 1897b;

- Taibel 1934; Teodoreanu 1934[†]; Vecchi 1930. Internet: DECN.
- × *Anser fabalis* (♂) [Bean Goose] CHR. HPF. BRO: Eurasia. Ackermann 1898; Christoleit 1911; de Selys-Longchamps 1856; Hopkinson 1926; IZY 1969; Jerome 1953[†]; Lauer 1911; Leverkusühn 1890; Macpherson 1893; Nagy 1950; Steklenev 1993; Suchetet 1897a.
 - × *Anser indicus* (♀) [Bar-headed Goose] CANHR. BRO: cen. Asia. HPF(♂&♀). Blair et al. 2000 (p. 34); Bruns 1985; Delany 1993; Gray 1958; IZY 1998; Petzsch 1951. Internet: DECN.
 - × *Anser rossii* (♂) [Ross's Goose] CHR. HPF? DRS. Sibley 1938.
 - × *Branta bernicla* (↔) [Brent Goose] CHR. HPF(♂♂). DRS. Delacour and Mayr 1946 (p. 106); Leverkusühn 1890; Sibley 1938.
 - × *Branta canadensis* (↔) [Canada Goose] CAENHR (N. America, Europe). HPF(♂). These birds have each been introduced into the other's range. Their hybrids account for 11% of all natural waterfowl hybrids reported from w cen. Europe (Randler 1998) and about 77% of all goose hybrids counted in Britain in 1991. More than 1,500 hybrids reported in Germany since the 1970s. Very common also in captivity. Egg fertility is high, but many hybrids die in shell. Ackermann 1898; Antonius 1933; Bailey 1929[†]; Blain 1944[†]; Blair et al. 2000 (p. 31); Bruner 1994; Cooper 1900; de Selys-Longchamps 1845, 1856; Delany 1993; Dolling and Naethe 1988; Fabricus 1983; Ghigi 1936a, 1942; Gray 1958; Hampe 1991; Harrison and Harrison 1966b, 1969a. Heinroth 1905, 1906; Hertwig 1936; Hopkinson 1926; IZY 1967, 1970, 1971, 1972, 1973, 1975, 1980, 1984–1985, 1986, 1994; Jansson 1984; Jordheim 1992; Leverkusühn 1890; Lönnberg 1937a[†]; Oxford 1990; Page 1914b; Persson 1995; Poll 1910, 1921; Panov 1989; Przibram 1910; Randler 1998; Scott 1947; Sibley 1938; Smith 1986; Sonderholm 2005; Steklenev 1993; Taibel 1934; van der Lee 1965; von Cramm 1912; von Waldersee 1986; Wilson 1992. Internet: DECN.
 - × *Branta leucopsis* (↔ usu. ♂) [Barnacle Goose] CANHR. DRS (naturally occurring birds may represent escapes or occasional breeding contact in nw Russia?). HPF(♂♂). Ackermann 1898; Arrigoni Degli Oddi 1892; Berry 1942[†], 1945[†]; Bruns 1985; de Selys-Longchamps 1845; Delany 1993; Gray 1958; Leverkusühn 1890; Przibram 1910; Scott 1947. Internet: DECN.
 - × *Cairina moschata* [Muscovy Duck] CHR?? DRS. De Selys-Longchamps 1845; Leverkusühn 1890; Salvadori 1895 (p. 53).
 - × *Cygnus atratus* (♂) [Black Swan] CHR. DRS. Page 1914b (p. 44); Rothschild 1913; Seth-Smith 1909.
 - × *Cygnus columbianus* (♂) [Tundra Swan] CHR. DRS. Sibley 1938.
 - × *Cygnus cygnus* [Whooper Swan] CHR? BRO: Eurasia. Ackermann 1898; de Selys-Longchamps 1845, 1856; Hopkinson 1926; Leverkusühn 1890; Przibram 1910; Yamashina 1952.
 - × *Cygnus olor* (♂) [Mute Swan] CANHR. BRO: n Kazakhstan, sw Russia, n Europe. Delany lists two natural hybrids. Anonymous 1942; *Bird Notes* 1918 (p. 277); *Bulletin de la Société Nationale de France* 1868 (p. 781); Delacour 1954; Delany 1993; de Selys-Longchamps 1845; Gray 1958; Gurney 1911[†], 1915; Hachisuka (Marquess) 1942[†]; Hopkinson 1926 (p. 235); *The Ibis* 1869 (p. 126); Jefferson 1954[†]; Leverkusühn 1890; Mannering 1918; Szielasko 1925; Voss 1928[†]; Yamashina 1952.
 - × ~~*Tadorna tadorna* [Common Shelduck]~~ Modern listings of this cross trace back to very old and dubious reports. Leverkusühn 1890.
- Anser brachyrhynchus*** [Pink-footed Goose]
See also: *Anser albifrons*; *A. anser*.
- × *Anser caerulescens* (♀) [Snow Goose] CHR. DRS. HPF. Delacour 1954; Gray 1958.
 - × *Anser canagica* [Emperor Goose] CHR. DRS. Delacour 1954.

× *Anser fabalis* (♀) [Bean Goose] CHR. DRS. Nagy 1950; Pitt (F) 1944; Scott 1947.

× *Branta canadensis* (♂?) [Canada Goose] NHR (Europe). BRO: islands of n Atlantic? Leck 1967; Sibley 1935, 1938 (p. 330).

Note: *A. caerulescens* is itself composed of several markedly different types. White and dark color extremes were formerly treated as separate species (Blue Goose and Snow Goose), as were the small and large birds (Lesser Snow Goose, Greater Snow Goose). However, they have usually been lumped since it was realized that all interbreed and produce a range of intermediate types. Sibley 1949; Sutton 1931a.

Anser caerulescens [Snow Goose]

See also: *Alopochen aegyptiacus*; *Anser albifrons*; *A. anser*; *A. brachyrhynchus*.

× *Anser canagica* (↔) [Emperor Goose] CHR. HPF(+). BRO: nw Alaska. Delacour 1933a, 1954; Gray 1958; Hopkinson 1934, 1935b; IZY 1970, 1973; 1976; Page 1914b.

× *Anser cygnoides* (♂, prob. ↔) [Swan Goose] NHR. HPF Bedford (Duchess of) 1909; Gray 1958; Hachisuka (Marquess) 1928; Hopkinson 1926; Page 1914b; Sibley 1938.

× *Anser erythropus* [Lesser White-fronted Goose] NHR. BRO: ne Russia (Chukotski Peninsula)? Gray 1958; Shackleton 1956.

× *Anser fabalis* [Bean Goose] CHR. The Moscow Zoo had two hybrids in 1977. Antonius 1933; Hopkinson 1926; IZY 1979.

× *Anser indicus* [Bar-headed Goose] CHR. DRS. Steklenev says of six fertile eggs, four died as embryos (3–5 days), one almost hatched, one reached juvenile age. IZY 1970, 1973, 1976, 1979; Steklenev 1993; Tornielli 1984.

× *Anser rossii* (↔ usu. ♂) [Ross's Goose] ENHR. HPF BRO: n N. America and islands of n Atlantic. HPF Birds with dark neck and white belly are hybrid. Alisaukas 1999; Avise et al. 1992; Collins 1986[†]; Cooch and Beardmore 1959; Cooke et al. 1995 (p. 45); Delnicki 1974; Hatch and Shortt 1976; Kaufman et al. 1979; LeGrand 1987; Mattsson 1988; MacInnes et al. 1989; McLandress and McLandress 1979; Owen 1980; Prevett and Johnson 1977; Petersen

1984; Proctor 1991; Roberson 1993[†]; Ryder and Alisaukas 1994; Sibley 2000 (p. 79[†]); Svingen 1991; Trauger et al. 1971; Weckstein, Afton et al. 2002. Internet: DIGI.

× *Branta bernicla* [Brent Goose] NHR (e U.S.)?? BRO: n N. America, n Russia (Chukotski Penin.). Modern listings of this cross all trace back to a brief report by Brimley of a putative hybrid shot in in 1926. Brimley 1927.

× *Branta canadensis* (↔) [Canada Goose] CAONHR. Common in captivity. BRO: nw Atlantic. HPF(♂&♀). Males are more fertile than ♀♀. The Smithsonian has specimens. Bailey 1949[†]; Davis 1945; Delany 1993; Ezra 1942; Gray 1958; IZY 1961, 1970, 1975, 1976; 1980; Kuiper 1920; Laidlay 1930; Leverkus 1890; Luepke 1984; McGlauchlin 1971; Nelson 1952[†]; Panov 1989; Prestwich 1949b; Prevett and MacInnes 1973; Sibley 1938; Starkey 1972; Steklenev 1993.

× *Branta leucopsis* (↔) [Barnacle Goose] CANHR. DRS (wild hybrids in w Europe must be escapees). Delany 1993; Ezra 1940a; Gray 1958; IZY 1982; Leuret 1983; Moody 1942.

× *Cairina moschata* (♀) [Muscovy Duck] CHR. DRS. Sibley 1938 (p. 331).

× *Cygnus olor* (♀) [Mute Swan] CHR. DRS. Sibley 1938 (p. 331).

Anser canagica [Emperor Goose]

See also: *Anser albifrons*; *A. brachyrhynchus*; *A. caerulescens*.

× *Anser indicus* (♀) [Bar-headed Goose] CHR. DRS. HPF(♂♂). Most hybrids are ♂. Egg fertility and hatchability are high. Three-way hybrids are known with *Anser anser* ♀♀. IZY 1984–1985, 1987; Steklenev 1993.

× *Anser rossii* (♂ prob. ↔) [Ross's Goose] CHR. HPF(♂&♀). DRS. Shoffner et al. compare the karyotypes of these birds. Delacour 1932, 1933a, 1954; Ezra 1942; Gray 1958; Hopkinson 1934; L'Oiseau 1931; Shoffner et al. 1979; Sibley 1938.

× *Branta bernicla* (♀) [Brent Goose] CHR. BRO: nw Alaska. Sibley 1938.

× *Branta leucopsis* (♂) [Barnacle Goose] CHR. DRS. Nine hybrids were produced at St. Petersburg Zoo (Russia) in 1985.

- Avicultural Magazine* 1975 (p. 216);
IZY 1967, 1977, 1987.
- × *Chloephaga picta* (prob. ♀) [Upland Goose]
CHR. DRS. Internet: SPKG.
- Anser cygnoides** [Swan Goose]
See also: *Alopochen aegyptiacus*;
Anas platyrhynchos; *Anser albifrons*;
A. anser; *A. caerulescens*.
- × *Anser fabalis* [Bean Goose] NHR. BRO:
Russian Far East. Hachisuka (Marquess)
1928; Kuroda 1924[†].
 - × *Anser indicus* (prob. ♀) [Bar-headed Goose]
CHR. BRO: Russia (s of Lake Baikal?)
Hachisuka (Marquess) 1928; Hopkinson
1926; *IZY* 1969, 1982.
 - × *Branta bernicla* [Brent Goose] NHR??
Johnsgard lists this hybrid, but cites no
primary report. Johnsgard 1960a.
 - × *Branta canadensis* (↔) [Canada Goose]
NHR. LFH. DRS (but the Canada Goose has
been introduced to Eurasia). Ackermann
1898; Bryant 1915[†]; *Cage Birds* 1904; de
Selys-Longchamps 1845, 1856; Fletcher
1956; Gray 1958; Hachisuka (Marquess)
1928; Hopkinson 1926, 1934; *IZY* 1972,
1973; Kuiper 1920[†]; Leverkühn 1890; Low
1929; Page 1914b; Przibram 1910; Reeve
1913; Sibley 1938 (p. 330); Suchetet 1897a.
 - × *Branta leucopsis* (♂) [Barnacle Goose] NHR?
Hopkinson 1933a.
 - × *Branta sandvicensis* [Nene] CHR. Gray says
natural hybrids occur, but her claim seems
to be based on a misreading of Hachisuka.
Bishop Museum (Honolulu) has specimens.
Gray 1958 (p. 51); Hachisuka (Marquess)
1928 (pp. 59–60 and Plate 12[†]); *Bulletin de
la Société Nationale de France* 1863 (p. 639).
 - × *Cairina moschata* (♀) [Muscovy Duck] CHR.
DRS. LFH. Gorce 1937[†]; Leverkühn 1890.
 - × *Cygnus olor* (prob. ♀) [Mute Swan] CHR.
BRO: Siberia. Voss 1921, 1928.
 - × *Plectropterus gambensis* (♂) [Spur-winged
Goose] CHR. DRS. Hopkinson 1935b.
 - × ~~*Tadorna tadorna* [Common Shelduck]~~
Listings of this cross trace back to very old and
dubious reports (as seems to be the case for
all other crosses between *Anser* and *Tadorna*
listed in the literature). Ackermann 1898.
- Anser erythropus** [Lesser White-fronted
Goose]
See also: *Anser albifrons*; *A. caerulescens*.
- × *Anser indicus* [Bar-headed Goose]
CHR. DRS. *IZY* 1974.
 - × *Branta bernicla* [Brent Goose] CHR. DRS.
Horsbrugh 1910; *IZY* 1971.
 - × *Branta leucopsis* [Barnacle Goose] CANHR.
BRO: n Russia. A natural hybrid is pictured
on an Internet site (PBAS). Arrigoni Degli
Oddi 1892; *Avicultural Magazine*
1976 (p. 220); de Selys-Longchamps 1845,
1856; Hopkinson 1926, 1933a; Page 1914b;
Przibram 1910.
 - × *Branta ruficollis* (♂) [Red-breasted Goose]
NHR. BRO: n Russia (Taimyr Penin.) Gray
1958; Nagy 1950.
- Anser fabalis** [Bean Goose]
See also: *Anser albifrons*; *A. anser*;
A. brachyrhynchus; *A. caerulescens*; *A. cygnoides*.
- × *Branta canadensis* [Canada Goose] NHR.
BRO: Bering Strait. Oreshnikova 1985;
Panov 1989.
 - × *Branta leucopsis* [Barnacle Goose] NHR.
BRO: ne Europe, Spitzbergen I.,
e Greenland. Csörgy 1926.
- Anser indicus** [Bar-headed Goose]
See also: *Anser albifrons*; *A. anser*;
A. caerulescens; *A. canagica*; *A. cygnoides*;
A. erythropus.
- × *Branta bernicla* [Brent Goose] CANHR.
BRO: Europe. Presumed natural hybrids are
known from Norway. Johnsgard 1960a;
Vesterinen 1998.
 - × *Branta canadensis* [Canada Goose] CANHR.
DRS (but *B. canadensis* has been introduced
to Eurasia). Delany 1993; *IZY* 1973.
Internet: DECN.
 - × *Branta leucopsis* (prob. ↔) [Barnacle Goose]
CHR. DRS. Hopkinson 1926, 1935c; Gray
1958; Horsbrugh 1910; *IZY* 1977, 1994;
Page 1914b; Scott 1947; Williams 1897.
 - × *Tadorna tadorna* [Common Shelduck] CHR??
BRO: cen. Asia. Long ago Vale mentioned a
hybrid at the Kensington Museum. Crosses
between *Anser* and *Tadorna* mentioned in the
literature, all seem to trace back to very old
and questionable reports. Vale 1900.

× ~~*Tadorna tadornoides*~~ [Australian Shelduck]
Hopkinson (1926) cites Page (1914b) for this cross, but Page doesn't list it.

× ~~*Tadorna variegata*~~ [New Zealand Shelduck]
Gray (1958) cites Hopkinson (1926) for this cross but he doesn't list it.

Anser rossii [Ross's Goose]

See also: *Anser anser*; *A. caerulescens*;
A. canagica.

× *Branta canadensis* (♂) [Canada Goose] CHR.
BRO: n N. America. The cross involved Cackling Goose, which is usually lumped under *B. canadensis*. Sibley 1938 (p. 331).

× *Branta leucopsis* ENHR (w N. America).
McLandress and McLandress 1979; Prevett and Johnson 1977; Trauger et al. 1971.

× *Branta ruficollis* [Red-breasted Goose] NHR.
Gray 1958; Scott 1947.

× *Cyanochen cyanopterus* [Abyssinian Blue-winged Goose] CHR. DRS.
Trauger et al. 1971.

Note: Sibley (2000) says that the six N.

American members of *Aythya* all hybridize and that many hybrids are probably overlooked. Only ♂ hybrids are easily identified. See Randler (2001a).

Aythya affinis [Lesser Scaup]

See also: *Aix sponsa*; *Anas americana*; *Aythya ferina* × *A. fuligula*.

× *Aythya americana* [American Redhead] NHR?
BRO: nw N. America. Gray 1859; Hopkinson 1926 (p. 252); Page 1914b (p. 32); Palmer 1962–1988 (vol. 3, p. 191); Salvadori 1895 (p. 338); Suchetet 1897a (p. 161).

× *Aythya collaris* (♂) [Ring-necked Duck] CANHR. BRO: nw N. America. Hybrids have *A. collaris*'s banded beak with *A. affinis*'s head, neck, back, and eye coloration; feet, tail, and breast color like *A. collaris*. Anderson and Timken 1969²; McIlhenny 1937; Mendall 1958; Panov 1989; Sibley 1938 (p. 334); Sibley 2000.

× *Aythya ferina* (♂) [European Pochard] NHR. DRS (vagrant contact). Gray 1958; Hopkinson 1935b; Rothschild (Lord) 1929; Sage 1962b.

× *Aythya fuligula* (♀) [Tufted Duck] NHR.
The Tufted Duck is Eurasian, but occurs

along both coasts of N. America where it is frequently seen in association with Lesser Scaups. G eroudet 1966; Gillham and Gillham 1996 (p. 69); Sibley 1938 (p. 334); Sibley 2000 (p. 91¹).

× *Aythya marila* (↔) [Common Scaup] CAONHR (w Europe, N. America). BRO: n N. America. Hybrids are hard to identify except when in full ♂ plumage. Bradshaw 2005; Eigenhuis 1985; Wilson and Ankney 1988; Delacour 1927, 1954 (vol. 3); Gillham and Gillham 1996 (p. 72); Johnsgard 1960a; Hopkinson 1926 (p. 252); Phillips 1923–1926; Sibley 1938 (p. 334); Sibley 2000; Wormald 1925 (p. 150).

× *Aythya valisineria* [Canvasback] NHR.
Gray 1859; Salvadori 1895 (p. 362); Suchetet 1897a (p. 161).

Aythya americana [American Redhead]

See also: *Aix galericulata*; *A. sponsa*; *Anas acuta*; *Anas americana*; *A. platyrhynchos*; *Aythya affinis*.

× *Aythya baeri* [Baer's Pochard] CHR. DRS.
Patrick 1932.

× *Aythya collaris* (↔) [Ring-necked Duck] CANHR. BRO: N. America. Both ♂ and ♀ hybrids are known. Gillham et al. 1965⁵; Leverk uhn 1890; Morris 1998; Palmer 1962–1988 (vol. 3, p. 191); Panov 1989; Page 1914b (p. 32); Phillips 1923–1926; Newton 1860; Salvadori 1895 (p. 371); Sibley 1938 (p. 334); Sibley 2000; Suchetet 1897a; Weller 1957¹; Woodin and Michot 2002.

× *Aythya ferina* [European Pochard] CHR. DRS. Six hybrids were produced at the Moscow Zoo in 1969, two others in Winnipeg in 1966. *IZY* 1968, 1971.

× *Aythya fuligula* (prob. ♂) [Tufted Duck] CHR. DRS (Tufted Duck occurs as vagrant in Redhead's range). Delacour 1927; *IZY* 1968.

× *Aythya marila* (↔) [Common Scaup] CAONHR. BRO: c Alaska, nw Canada. Delacour 1927; Johnsgard 1960a; Leverk uhn 1890; Phillips 1923–1926; Salvadori 1895 (p. 348); Sibley 1938 (p. 334); Sibley 2000; Woodin and Michot 2002.

- × *Aythya valisineria* (↔) [Canvasback] CAENHR. BRO: nw N. America. HPF Hybrid ♂♂ very similar to *A. ferina*. McIlhenny says his specimen's head was less round than Redheads, but less sloping than Canvasbacks. Shape, color, and pattern of the beak were like Redhead, as were the coloration neck, breast, tail, and legs. Color of back plumage was like *A. valisineria*, and that of the wings, intermediate. Hybrid ♀♀ are difficult to detect. The Redhead frequently parasitizes Canvasback nests. Anonymous 1989; Bouffard 1983; Bristow 1992; Delacour 1928; Gillham and Gillham 1996[†]; Gillham et al. 1965; Haramis 1982[†]; Jorgensen 1997; Mattson and Evans 1974; McIlhenny 1937; Panov 1989; Sibley 1938 (p. 334); Sibley 2000; Sugden 1980; Timken 1967; Weller 1957[†], 1967; Woodin and Michot 2002. Internet: OFOP.
- × *Lophodytes cucullatus* [Hooded Merganser] CHR. BRO: sw Canada. Leverkühn 1890; Phillips 1923–1926; Salvadori 1895 (p. 381).
- × *Netta peposacca* (♀) [Rosybill] CHR. DRS. Several specimens are listed in the Smithsonian database. Delacour 1927; Gray 1958.
- × *Netta rufina* (♀) [Red-crested Pochard] CHR. BRO: n Kazakhstan, se Russia. Gillham and Gillham 1996 (p. 56); Gray 1958; Sibley 1938.
- Aythya australis* [Hardhead]
See: *Anas gracilis*; *A. platyrhynchos*.
- Aythya baeri* [Baer's Pochard]
See also: *Aix sponsa*; *Anas castanea*; *Aythya americana*.
- × *Aythya ferina* [European Pochard] NHR? BRO: se Siberia (PCZ?). Internet: WBKE.
- × *Aythya novaeseelandiae* [New Zealand Scaup] CHR. DRS. The Smithsonian has a hybrid (USNM #596212).
- × *Aythya nyroca* [Ferruginous Pochard] CHR. DRS. Six hybrids were bred at Clères (France) in 1967. Gillham and Gillham 1996 (p. 68); IZY 1969.
- Aythya collaris* [Ring-necked Duck]
See also: *Aix sponsa*; *Anas crecca*; *A. platyrhynchos*; *Aythya affinis*; *A. americana*.
- × *Aythya ferina* [European Pochard] NHR. (Oland, Sweden). DRS (vagrant contact). Gantlett 1985[†]; Gillham and Gillham 1996 (p. 59); Rigback 1986[†].
- × *Aythya fuligula* (♀) [Tufted Duck] CAONHR (N. America, Europe). Most hybrids are reported from w Europe, where the N. American Ring-necked Duck is an occasional, but regular, visitor. However, the Tufted Duck also visits both coasts of N. America. Hybrid differs from ♂ *A. collaris* in near lack of white band at bill base and presence of a slight tuft, not always visible. Clifton 1995; Colin 1982a; Dubois 1979; Elsermans 1991; Gasson and Lawrence 1993[†]; Gillham and Gillham 1996 (p. 67); Harris et al. 1989[†]; Keizer 1994; Lawrence and Gasson 1992[†]; Madge and Burn 1988; Mayre 1979; Panov 1989; Sibley 1938; Sibley 2000; Vinicombe 1982[†].
- × *Aythya marila* [Common Scaup] NHR (N. America, Europe). See *Aythya collaris* × *A. fuligula*. De Rouck et al. 1982; Gillham and Gillham 1996; Madge and Burn 1988; Sibley 2000.
- × *Aythya novaeseelandiae* [New Zealand Scaup] CHR. DRS. Heinzel et al. 1995.
- × *Aythya nyroca* [Ferruginous Pochard] CHR. DRS. Gillham and Gillham 2000.
- × *Aythya valisineria* [Canvasback] CANHR (N. America). Elliot 1892; Gillham and Gillham 1996 (p. 59); Newton 1860; Sibley 2000; Suchetet 1897a.
- × *Netta rufina* (♀) [Red-crested Pochard] CHR. BRO: w Europe. Sibley 1938.
- Aythya ferina* [European Pochard]
See also: *Aix sponsa*; *Amazonetta brasiliensis*; *Anas acuta*; *A. crecca*; *A. melleri*; *A. platyrhynchos*; *A. penelope*; *A. querquedula*; *A. rubripes*; *A. sibilatrix*; *A. sparsa*; *Aythya affinis*; *A. americana*; *A. baeri*; *A. collaris*.
- × *Aythya fuligula* (↔) [Tufted Duck] CAENHR. BRO: e Europe, w Russia. HPF(♂♂). Backcross hybrids (♂ F₁ × ♀ Pochard) morphologically very similar to *A. ferina*. They account for 40% of all waterfowl hybrids reported from w cen. Europe (Randler 1998). Palmer questions

- reports of this hybrid in Britain since it resembles the Lesser Scaup (*Aythya affinis*). Indeed, Scherer and Hilsberg (p. 369) show this resemblance is surprisingly close. Ackermann 1898; Anderson 1967; Bezzel 1960, 1961; de Knijff 1983[†]; Demongin 1996; Eigenhuis 1985[†]; Gantlett 1985[†]; Géroudet 1966; Gillham and Gillham 1996[†]; Gillham 1987[†], 1988[†], 1993; Gillham et al. 1965[†]; Gray 1958; Groebbels 1935; Harris et al. 1989[†]; Harrison and Harrison 1970[†]; Harrison 1978[†]; Hein 1989[†]; Hoenninger 1988[†]; Hopkinson 1926; Jonsson 1993 (p. 110); Kemp 1991[†]; Kinnear 1929; Leverkus 1890; Madge and Burn 1988[†]; Osbourne 1972[†], 1985[†], 1988; Palmer 1962–1988 (vol. 3, p. 221); Panton 1914; Perrins 1961; Phillips 1923–1926; Randler 1998, 1999, 2000b, 2001a; Reeber 2002; Sage 1961[†], 1963c; Salvadori 1895 (p. 340); Saunders 1886, 1889; Scherer and Hilsberg 1982[†]; Schütt 1994[†]; Stahl 1981; Stübing 1993; Suchetet 1897a (p. 162); Telfer 1991; van den Berg 1991[†]; Voous 1955; Weiss 1992[†]; Wüst 1935, 1937[†]; Yarrell 1843. Internet: MERS.
- × *Aythya marila* [Common Scaup] NHR (Europe). BRO: Iceland, PCZ in Scandinavia and ne Russia. Hopkinson (1926, p. 251) says this hybrid was treated as species (*Fuligula marloides*). Gillham 1993[†]; Gillham and Gillham 1996[†]; Gray 1958; Kinnear 1929; Phillips 1923–1926; Reeber 2002; Rothschild (Lord) and Kinnear 1929; Salvadori 1895 (p. 340); Suchetet 1897a; Yarrell 1843[†].
 - × *Aythya novaeseelandiae* (♀) [New Zealand Scaup] CHR. DRS. Gillham and Gillham 1996 (p. 61); Gray 1958; Sage 1964.
 - × *Aythya nyroca* (♀) [Ferruginous Pochard] CAENHR. BRO: e Europe, w Asia. HPF. These hybrids are common. Breeding contact occurs further east, but they comprise 16% of waterfowl hybrids reported in w cen. Europe (Randler 1998). Randler (2001b) reported 148 natural hybrids (1/3 ♀). This hybrid was treated as a species (*Fuligula homeyeri*, *Fuligula ferrinoides*). Arrigoni Degli Oddi 1893a, 1906b, 1906c; Bell 1963; Bezzel 1960, 1963; Bocca et al. 1984; Bolton et al. 2000; Bruch 1981; Demongin 1996; Denton 1986; Ebels 1992[†]; Gillham et al. 1965[†]; Gillham and Gillham 1996[†]; Géroudet 1966; Gray 1958; Harris et al. 1989[†]; Hein 1989[†]; Hopkinson 1926; IZY 1998; Legendre 1936; Leverkus 1890; Madge and Burn 1988; Montagu 1909; Newton 1860; Randler 1998, 2000a, 2001b; Randler and Blessing 1995; Reeber 2002; Page 1914b; Panov 1989; Phillips 1923–1926; Samwald et al. 1994; Schütt 1994; Tostain and Balanca 1986. Internet: MERS, TERR.
 - × *Aythya valisineria* [Canvasback] NHR (U.K.). The Canvasback is American, and its range does not usually overlap that of the European Pochard. However, vagrants to the British Isles do hybridize occasionally with the Pochard. Hybrids have small white marks on the bill. Vinicombe 2003.
 - × *Bucephala clangula* [Goldeneye] NHR? Old records. BRO: circumarctic. Hopkinson 1926; Leverkus 1890; Salvadori 1895 (p. 338).
 - × *Netta erythrophthalma* [Southern Pochard] CHR. DRS. Gillham and Gillham 1996[†].
 - × *Netta peposacea* (♀) [Rosybill] CHR. DRS. Gillham and Gillham 1996[†]; Hopkinson 1935b, 1935c; IZY 1974; Kinnear 1929; Lönnberg 1940[†]; Rothschild (Lord) 1929; Rothschild 1913.
 - × *Netta rufina* (↔ usu. ♀) [Red-crested Pochard] CANHR. HPF. BRO: Eurasia. Three percent of all waterfowl hybrids in w cen. Europe are of this type. Amat 1985; Cavazza 1931a; Gillham and Gillham 1996 (p. 56); Gray 1958; Hein 1989[†]; Hertwig 1936; IZY 1988; Jauch 1952[†]; Kurz 1984; Phillips 1923–1926; Poll 1910 (p. 35), 1911c (p. 458 and Tafel 5[†]); Randler 1998; Wattel and Harrison 1968[†].
 - × *Tadorna tadorna* (♀) [Common Shelduck] CHR. BRO: Eurasia. Hybrids are more like pochard than shelduck in plumage and habits. Gillham and Gillham 1996 (p. 17); Heinroth 1906; *The Field* (London), Dec. 30, 1911; Tuck 1914.

Aythya fuligula [Tufted Duck]

See also: *Aix sponsa*; *Anas acuta*; *A. americana*; *A. capensis*; *Anas crecca* × *Aythya collaris*; *A. penelope*; *A. platyrhynchos*; *A. querquedula*; *A. sibilatrix*; *Aythya affinis*; *A. americana*; *A. collaris*; *A. ferina*.

- × ***Aythya marila*** (↔) [Common Scaup] CAONHR (N. America, n. Eurasia). Ackermann 1898; Bates 1976; Bengston 1968; Bruun 1967; Bullock 1976; Gillham and Gillham 1996[†]; Gillham et al. 1965; Gray 1958; Hopkinson 1926; Leverkühn 1890; Phillips 1923–1926; Reeber 2002; Sage 1963b; Sibley 1994, 2000; Suchetet 1897a; Voous 1955[†]; Waugh 1976[†]. Internet: DIGI.
- × ***Aythya novaeseelandiae*** [New Zealand Scaup] CHR. DRS. Gillham and Gillham 1996 (p. 69); Sage 1964.
- × ***Aythya nyroca*** (↔) [Ferruginous Pochard] CAENHR. BRO: Eurasia. HPF (♂ & ♀). These hybrids are fairly common. Randler (2001b) reported sightings of a total of 47 natural hybrids (all ♂, probably because ♀♀ are hard to identify). They account for 5% of all waterfowl hybrids reported from w cen. Europe (Randler 1998). Ackermann 1898; Bartlett 1898; G eroudet 1966; Gillham et al. 1965[†]; Gillham and Gillham 1996 (p. 69); Gray 1958; Hopkinson 1926 (p. 253); Kinnear 1929; Leverk hn 1890; Panov 1989; Phillips 1923–1926; Przibram 1910 (p. 81); Randler 1998, 2001b; Sage 1962a[†]; Salvadori 1895 (p. 348); Sch tt 1994; Schwarz 1961; Suchetet 1897a (p. 161); van Oort 1908[†]; W st 1937.
- × ***Aythya valisineria*** [Canvasback] NHR. DRS (occasional vagrant contact). Gillham and Gillham 2000; Heinzel et al. 1995.
- × ***Bucephala albeola*** (↔ prob. ♂) [Bufflehead] CHR. DRS. Sibley 1938.
- × ***Bucephala clangula*** (♂) [Goldeneye] CHR. BRO: N. America. Astley 1921.
- × ***Netta erythrophthalma*** [Southern Pochard] CHR. BRO: e and s Africa. Gillham and Gillham 1996 (p. 57).
- × ***Netta peposacca*** (♂) [Rosybill] CHR. DRS. Gillham 1987[†]; Gillham and Gillham 1996[†];

Hopkinson 1926; Page 1914b; Phillips 1923–1926; Rothschild (Lord) 1929; Rothschild 1913; Seth-Smith 1907b.

- × ***Netta rufina*** [Red-crested Pochard] CAONHR (Switzerland). BRO: PCZ in w Asia? Two percent of all waterfowl hybrids reported from w cen. Europe are of this type. Gray 1958; Hauri 1989; Randler 1998.

Aythya innotata [Madagascar Pochard]

- × ***Aythya nyroca*** (♀) [Ferruginous Pochard] CHR. DRS. Brickell 1988; Delacour 1954; Gillham and Gillham 1996 (p. 68); L'Oiseau 1931.

Aythya marila [Common Scaup]

See also: *Anas undulata*;

Aythya affinis; *A. americana*;

A. collaris; *A. ferina*; *A. fuligula*.

- × ***Aythya nyroca*** [Ferruginous Pochard] CANHR. DRS. HPF Hopkinson (1926) mentions a natural three-way hybrid with *Netta rufina*. A specimen is in the British Museum. Hopkinson 1926 (p. 252); Leverk hn 1890; Panov 1989; Phillips 1923–1926; Salvadori 1895 (p. 357).
 - × ***Aythya valisineria*** (♀) [Canvasback] CANHR. BRO: N. America. Hopkinson 1933a; Moody 1932; Sibley 1938 (p. 334); Sibley 2000.
 - × ***Bucephala clangula*** [Goldeneye] NHR (n N. America and n Eurasia). Ackermann 1898 (p. 18); Hopkinson 1926 (p. 252); Leverk hn 1890; Salvadori 1895 (p. 357); Suchetet 1897a.
 - × ***Netta peposacca*** [Rosybill] CHR. DRS. Johnsgard 1960a.
 - × ***Oxyura jamaicensis*** (♀) [Ruddy Duck] CHR? BRO: w U.S., w Canada. Sibley 1938 (p. 334).
- Aythya novaeseelandiae*** [New Zealand Scaup]
- See also: *Anas rhynchotis*; *Aythya baeri*; *A. collaris*; *A. ferina*; *A. fuligula*.
- × ***Aythya nyroca*** [Ferruginous Pochard] CHR. DRS. Marchant and Higgins 1990.
- Aythya nyroca*** [Ferruginous Pochard]
- See also: *Aix sponsa*; *Anas acuta*; *A. clypeata*; *A. platyrhynchos*; *Aythya baeri*; *A. collaris*; *A. ferina*; *A. fuligula*; *A. innotata*; *A. marila*; *A. novaeseelandiae*.

- × *Aythya valisineria* [Canvasback] NHR. DRS (vagrant contact?) Gillham and Gillham 1996; Heinzel et al. 1995.
- × *Bucephala clangula* (♂) [Goldeneye] CHR. BRO: Eurasia. Sibley 1938 (p. 334).
- × *Marmaronetta angustirostris* (♂) [Marbled Teal] CHR. DRS. Gillham and Gillham 1996 (p. 55); Hopkinson 1926; IZY 1961; Page 1914b; Rothschild (Lord) 1929; Sage 1963a[†]; Seth-Smith 1911.
- × *Netta erythrophthalma* (♂) [Southern Pochard] CHR. DRS. The Berlin Zoo had three hybrids in 1965. Gillham and Gillham 1996; Hopkinson 1939a; IZY 1967.
- × *Netta peposacea* (♀?) [Rosybill] CHR. DRS. Hopkinson 1926 (p. 251).
- × *Netta rufina* (↔) [Red-crested Pochard] CANHR. BRO: Eurasia. Gillham and Gillham 1996, 2000; Gurney 1901; Johnsgard 1960a; Phillips 1923–1926 (p. 113); Randler 2003b; Rothschild (Lord) 1929; Scherer and Hilsberg 1982; Sigg 2004.

Aythya valisineria [Canvasback]

See also: *Aix sponsa*; *Anas americana*;

A. platyrhynchos; *Aythya affinis*; *A. americana*; *A. collaris*; *A. ferina*; *A. fuligula*; *A. marila*; *A. nyroca*.

- × *Netta erythrophthalma* [Southern Pochard] CHR. DRS. Gillham and Gillham 1996.
- × *Netta peposacea* (♀) [Rosybill] CHR. DRS. *Avicultural Magazine* 1931 (p. 209); Gillham and Gillham 1996.
- × *Netta rufina* [Red-crested Pochard] CHR. DRS. Gillham and Gillham 1996.

Note: *Branta bernicla* includes three populations with circumpolar distribution which have often been treated as separate species: *nigricans* (Canada to n Siberia); *bernicla* (Siberia to ne Atlantic); *hrota* (Atlantic to Canada). Where *bernicla* and *hrota* meet, there is a large hybrid population in Canada (Melville and Prince Patrick Is.). The other two contact zones are less well-studied, but regular sightings of intermediates in Europe indicate ongoing hybridization. Abraham et al. 1983; Bakker and Ebels 2002; Batty et al. 2003; Berrevoets and Erkman 1993;

Bloomfield and McCallum 2001; Brix and Wassink 2005; Cramp and Simmons 1980; Delacour and Zimmer 1952; Godfrey 1966; Jansen and Ebels 2004; Manning et al. 1956; Meise 1975; Panov 1989; Sibley and Monroe 1990 (p. 31); Sibley 2000 (p. 76); van den Berg 1992; Wynn 2003. Internet: DIGI.

Branta bernicla [Brent Goose]

See also: *Anser albifrons*; *A. anser*; *A. caerulescens*; *A. canagica*; *A. cygnoides*; *A. erythropus*; *A. indicus*.

- × *Branta canadensis* (♀) [Canada Goose] CANHR. BRO: arctic N. America. HPF. A probable hybrid in a flock of brant (New York in Jan.) was just like a brant in size, structure, and behavior, but much browner, with black extending only half way down neck (as in Canada) and no white collar. White uppertail coverts were intermediate in length. Pale hint of Canada's cheek patches. *Avicultural Magazine* 1976 (p. 216); Johnsgard 1960a; Leverkusühn 1890; Ransom 1927. Internet: OCOB[†].
- × *Branta leucopsis* (♂) [Barnacle Goose] CANHR. BRO: Greenland, Svalbard I., Novaya Zemlya. HPF Arrigoni Degli Oddi 1892; de Selys-Longchamps 1856; Johnsgard 1960a; Leverkusühn 1890; Panov 1989; Scherer and Hilsberg 1982.
- × *Branta ruficollis* [Red-breasted Goose] PCZ on Russian arctic coast (65°E–105°E). No hybrids as yet reported. Harrison 1982 (Map 71).
- × *Cygnus olor* [Mute Swan] CHR. DRS. Johnsgard 1960a.

Note: *Branta canadensis*, as here defined, comprises a variety of birds that have been treated as separate species (Cackling, Richardson's, Aleutian, Common, Dusky). Many natural hybrids occur. Sibley and Monroe (1990, p. 30) say *B. canadensis* "probably consists of several species."

Note: Mortemore (1967) describes a hybrid of *B. canadensis* and some other goose.

Branta canadensis [Canada Goose]

See also: *Alopochen aegyptiacus*; *Anas platyrhynchos*; *Anser albifrons*; *A. anser*;

- A. brachyrhynchus*; *A. caerulescens*;
A. cygnoides; *A. fabalis*; *A. indicus*; *A. rossii*;
Branta bernicla.
- × *Branta leucopsis* (↔) [Barnacle Goose]
 CAENHR (N. America, Europe). BRO: n
 Atlantic. In 1991, 4% of goose hybrids in
 Britain were of this type. Canada Goose-like
 birds with white foreheads, may be
 backcrosses to *B. canadensis*. Hybrids are
 common in captivity. Rostock Zoo
 (Germany) had six in 1981. Blair et al. 2000
 (p. 37); Delany 1993; IZY 1965, 1967,
 1973, 1982, 1983, 1984–1985, 1989; Sibley
 2000 (p. 74[†]); Schafer and Schafer 1989,
 1990; Szantyr 1985. Internet: DECN, MERS.
- × *Branta ruficollis* (♂) [Red-breasted Goose]
 CHR. DRS. HPF(♂♂). Johnsgard 1960a;
 Sibley 1938 (p. 331).
- × *Cairina moschata* (♀) [Muscovy Duck]
 CHR. DRS. Sibley 1938; Sibley 1994.
- × *Cygnus atratus* (usu. ♂) [Black Swan] CHR.
 DRS. Phillips describes the hybrid.
 Anonymous 1918; Gillespie 1918, 1949;
 Hachisuka (Marquess) 1928; Hopkinson
 1926, 1933a (p. 100); Laidlay 1941;
 Marchant and Higgins 1990 (p. 1333);
 Phillips 1928[†]; Sibley 1938 (p. 330).
- × *Cygnus buccinator* (♂) [Trumpeter Swan]
 CHR. BRO: se Alaska. Sibley 1938 (p. 329).
- × *Cygnus columbianus* (♂) [Tundra Swan] CHR.
 BRO: n N. America. Sibley 1938 (p. 330).
- × *Cygnus cygnus* [Whooper Swan] CHR. BRO:
 n Eurasia. Johnsgard 1960a.
- × *Cygnus olor* (prob. ♂) [Mute Swan]
 CANHR. DRS (but each has been introduced
 into the range of the other). LFH? Delany
 lists a natural hybrid. Delacour 1954; Delany
 1992; Szielasko 1925.
- Branta leucopsis*** [Barnacle Goose]
 See also: *Anas platyrhynchos*; *Anser albifrons*;
A. anser; *A. caerulescens*; *A. canagica*; *A. cyg-*
nooides; *A. erythropus*; *A. fabalis*; *A. indicus*;
A. rossii; *Branta bernicla*; *B. canadensis*.
- × *Branta ruficollis* [Red-breasted Goose] NHR
 (Netherlands). BRO: coast of Kara Sea
 (n Russia). These geese are seen regularly in
 association in the Netherlands and in the
 Baltic (Öland, Gotland) on spring and
 autumn migration. Jukema and Rijpma
 1981; Jukema et al. 1980; Mauer 1980;
 van der Lee and Ouweneel 1976[†].
- × *Chloephaga picta* [Upland Goose] CHR.
 DRS. Internet: SPKG.
- × *Chloephaga poliocephala* [Ashy-headed
 Goose] CHR. DRS. Internet: SPKG.
- × ~~*Tadorna ferruginea*~~ [Ruddy Shelduck] Some
 cite Gray (1958) for this cross. Pairing in
 captivity was observed, but no hybrids were
 reported.
- Branta ruficollis*** [Red-breasted Goose]
 See: *Anser albifrons*; *A. erythropus*; *A. rossii*;
Branta bernicla; *B. canadensis*; *B. leucopsis*.
- Branta sandvicensis*** [Nene]
 See: *Anser cygnoides*.
- Bucephala* sp.**
- × *Mergus* sp. NHR (Sylt, North Sea)? Bruns
 1981[†].
- Bucephala albeola*** [Bufflehead]
 See also: *Aythya fuligula*.
- × *Bucephala clangula* [Goldeneye] NHR?
 BRO: Canada. A wing retained by a hunter
 is thought to have been from a hybrid of
 this type (or, perhaps, *Bucephala albeola* ×
B. islandica). A ♂ Bufflehead straying to
 Japan paired with a ♀ Common Goldeneye.
 Gillham and Gillham 1996;
 Palmer 1973 (vol. 3, p. 429).
- × *Bucephala islandica* [Barrow's Goldeneye]
 See *Bucephala albeola* × *B. clangula*. BRO:
 w Canada.
- × *Lophodytes cucullatus* [Hooded Merganser]
 NHR. BRO: s Canada (Ontario to Brit.
 Columbia). Gillham and Gillham 1996;
 Marcisz 1981; Sibley 2000 (p. 101).
- Bucephala clangula*** [Goldeneye]
 See also: *Aix sponsa*; *Anas platyrhynchos*;
A. querquedula; *Aythya ferina*; *A. fuligula*;
A. marila; *A. nyroca*; *Bucephala albeola*.
- × *Bucephala islandica* (♂) [Barrow's
 Goldeneye] CAONHR. Most reported
 hybrids are ♂. Hybrids are known from all
 three areas of contact (Iceland, e and w
 N. America). A ♂ hybrid described by
 Gochfeld and Tudor had an oval facial spot
 and lacked the black shoulder mark of a
 Barrow's. Jackson notes that a ♂ hybrid had

- iridescence on the head unlike that of either parent and that hybrids are probably more common than available specimens suggest; juvenile and ♀ hybrids are probably unidentifiable in the field. Bannon 1978 (p. 46); Bengston 1972; Burk 1984[†]; Eadie and Anstey 1999; Eadie et al. 2000; Fjeldsá 1973a; Gochfeld and Tudor 1976[†]; Jackson 1959; Martin and di Labio 1991[†], 1994a[†], 1994b; Nelson 1993; Schultz 1958; Sibley 1994, 2000 (p. 100[†]); Snyder 1953.
- × *Lophodytes cucullatus* (♂) [Hooded Merganser] ONHR. BRO: n N. America. Numerous records. In the case of some specimens, the goldeneye parent may actually have been a Barrow's Goldeneye (*B. islandica*). Ball compares in detail a ♂ hybrid specimen (Peabody Museum #4745), taken in Connecticut (U.S.) with both parental types, and with another specimen collected in Maine. Scallation of the left leg was like that of *L. cucullatus*, that on the right, like that of *B. clangula*. Both of these rather dissimilar-looking birds nest in tree cavities. Aragon says the sire of a hybrid hatched at Albuquerque Biological Park was a wild merganser. This hybrid has been treated as a species (*Anas meroides*, *Mergus anataris*, *Clangula angustirostris*). Aragon 2004; Ball 1934[†]; Bohlen and Oehmke 1989; Bouvier 1974; Cabot 1854; Erickson 1952; Gillham and Gillham 1996[†]; Gray 1958; Jorgensen 1997; Kortright 1943[†]; Leverkusühn 1890; Martin 1991[†]; Millard 1995; Newton 1860; Phillips 1923–1926; Scheider 1966; Short 1969a; Sibley 1938; Sibley 1993, 2000 (p. 101); Suchetet 1897a (p. 169). Internet: DIGI, INDI[†].
- × *Melanitta fusca* [White-winged Scoter] NHR? Old reports. BRO: Eurasia, ne N. America. Leverkusühn describes a hybrid. Gudmundsson 1932; Leverkusühn 1890; Salvadori 1895 (p. 408).
- × *Mergus albellus* (♀) [Smew] CAENHR. BRO: Eurasia. Ball describes a specimen. Harrison reported a hybrid hermaphrodite. Anonymous 1996; Arrigoni Degli Oddi 1923[†]; *Avicultural Magazine* 1924; Ball 1934 (pp. 4–5); Blasius 1887[†]; Eimbeck 1831; Fjeldsá 1973b; Foulkes 1998; Gillham and Gillham 1996 (p. 74); Gray 1958; Harrison 1978[†]; Harrison 1943[†], 1944a, 1944b, 1946; Kjårbölling 1853; Kovacovsky and Rychlik 1999; Leverkusühn 1890; Lundin 1954[†]; Mayaud 1946; Millais 1913; Ortvad 2000; Phillips 1923–1926; Panov 1989; Ripley 1944; Suchetet 1897a (p. 165); Szielasko 1925; Yarrell 1843 (4th ed. vol. 4, p. 439).
- × *Mergus merganser* (♂) [Goosander] CANHR. BRO: Eurasia. Ball 1934[†]; de Selys-Longchamps 1856; Erickson 1952; Gray 1958; Leverkusühn 1890; Sibley 1938 (p. 334); Suchetet 1897a (p. 170).
- × *Mergus serrator* [Red-breasted Merganser] NHR. BRO: n Eurasia, n N. America. Panov 1989.
- Bucephala islandica*** [Barrow's Goldeneye]
See also: *Anas specularis*; *Bucephala albeola*; *B. clangula*.
- × *Lophodytes cucullatus* [Hooded Merganser]
See: *Bucephala clangula* × *L. cucullatus*.
BRO: w Canada.
- Cairina moschata*** [Muscovy Duck]
See also: *Alopochen aegyptiacus*; *Anas americana*; *A. clypeata*; *A. melleri*; *A. platyrhynchos*; *A. rubripes*; *A. superciliosa*; *Anser anser*; *A. caerulescens*; *A. cygnoides*; *Branta canadensis*.
- × *Cairina scutulata* [White-winged Wood Duck] CHR. DRS. Internet: OBAY.
- × *Plectropterus gambensis* (usu. ♂) [Spur-winged Goose] CHR. Differential survival. About half of eggs are fertile. Many hybrids do not complete development. Some hybrids survive to adulthood and live for years. Cavazza 1931a, 1931b; Heinroth 1905, 1906, 1907; Phillips 1923–1926; Poll 1906 (p. 6), 1908 (p. 132); Poll and Tiefensee 1907; Przi Bram 1910 (p. 82).
- × *Sarkidiornis melanotos* [Comb Duck] CHR. DRS. Phillips 1923–1926.
- × *Tadorna tadorna* (↔) [Common Shelduck] CANHR. BRO: Eurasia. Ackermann 1898 (p. 17); de Selys-Longchamps 1845; Gray 1958; Leverkusühn 1890; Salvadori 1895 (p. 53); Szielasko 1925.

Cairina scutulata [White-winged Wood Duck]

See: *Anas platyrhynchos*; *Cairina moschata*.

Callonetta leucophrys [Ringed Teal] See: *Aix sponsa*; *Amazonetta brasiliensis*; *Anas clypeata*.***Chenonetta jubata*** [Maned Goose]

See also: *Aix sponsa*; *Alopochen aegyptiacus*.

× ***Chloephaga picta*** (♀) [Upland Goose] CHR. DRS. HPF. Hopkinson 1935c; Marchant and Higgins 1990 (p. 1332). Internet: SPKG.***Chloephaga melanoptera*** [Andean Goose]

See also: *Alopochen aegyptiacus*.

× ***Chloephaga picta*** [Upland Goose] NHR. BRO: S. America. Delacour 1954; Gray 1958. Internet: SPKG.× ***Tadorna cana*** [South African Shelduck] CHR. DRS. IZY 1974.***Chloephaga picta*** [Upland Goose]

See also: *Alopochen aegyptiacus*; *Anser canagica*; *Branta leucopsis*; *Chenonetta jubata*; *Chloephaga melanoptera*.

× ***Chloephaga rubidiceps*** [Ruddy-headed Goose] CHR. HPF(♂ & ♀). Hybrids are easily obtained. BRO: s S. America. Astley 1916, 1917; Delacour 1927; Hopkinson 1926 (p. 240); IZY 1973; Page 1914b. Internet: SPKG.× ***Plectropterus gambensis*** [Spur-winged Goose] NHR. DRS. Hopkinson 1933a.× ***Tadorna cana*** [South African Shelduck] CHR. DRS. Scherer and Hilsberg 1982.× ***Tadorna variegata*** [New Zealand Shelduck] CHR. DRS. Marchant and Higgins 1990 (p. 1332).***Chloephaga poliocephala*** [Ashy-headed Goose]

See also: *Anser albifrons*; *Branta leucopsis*.

× ***Tadorna tadornoides*** [Australian Shelduck] CHR. DRS. Poll 1921.× ***Tadorna variegata*** (♀) [New Zealand Shelduck] CHR. DRS. HPF? Heinroth 1910; Phillips 1923–1926; Poll 1911c (p. 461), 1921.***Chloephaga rubidiceps*** [Ruddy-headed Goose]

See: *Chloephaga picta*.

Clangula hyemalis [Long-tailed Duck]

See: *Aix galericulata*; *Anas castanea*.

Cyanochen cyanopterus [Abyssinian Blue-winged Goose] See: *Alopochen aegyptiacus*; *Anser rossii*.***Cygnus atratus*** [Black Swan]

See also: *Anser anser*; *Branta canadensis*.

× ***Cygnus columbianus*** (♂) [Tundra Swan] CHR. DRS. Sibley says hybrids certainly hatched, but were not reared. Sibley 1938 (p. 330).× ***Cygnus cygnus*** [Whooper Swan] CHR. DRS. Marchant and Higgins 1990 (p. 1333).× ***Cygnus olor*** (♀) [Mute Swan] CHR. LFH? DRS (but small feral populations of *C. olor* do exist in Australia and New Zealand, inside the range of *C. atratus*). Ackermann 1898; Delacour 1954; de Selys-Longchamps 1856; Finn 1928; Glencon 1847; Hartmann 1867; Hopkinson 1926, 1933a (p. 100); Leverkühn 1890; Lönnberg 1942b[†]; Marchant and Higgins 1990 (p. 1333); Noll 1868; Poll 1921; Przibram 1910; Schmidt 1868; Sich 1927b; Szielasko 1925.***Cygnus bewickii*** [Bewick's Swan]× ***Cygnus columbianus*** [Tundra Swan] CAENHR. BRO: ne Siberia. HPF(♂ & ♀). Sibley and Monroe say these similar birds are sometimes treated as separate species “despite free interbreeding in contact situations.” Evans and Sladen 1980 (pp. 700–701); IZY 1982, 1986, 1988; Kemp 1999; Mikami 1989; Murase 1992, 1994; Sladen and Kistchinski 1976; Panov 1989; Sibley and Monroe 1990 (p. 29); Sibley 1942; Stallcup and Winter 1975, 1976; Winter and Manolis 1978.× ***Cygnus cygnus*** [Whooper Swan] CHR. BRO: n Eurasia. IZY 1973.× ***Cygnus olor*** [Mute Swan] CHR. DRS. Antonius 1933.***Cygnus buccinator*** [Trumpeter Swan]

See also: *Branta canadensis*.

× ***Cygnus columbianus*** (♀) [Tundra Swan] CHR. BRO: Alaska. HPF. Mitchell 1994 (p. 3); Sibley 1938 (p. 329).× ***Cygnus cygnus*** (♀ prob. ↔) [Whooper Swan] CHR. DRS (vagrant contact ne Russia, nw N. America). Hopkinson 1926; IZY 1968; Page 1914b; Sibley 1938 (p. 330).× ***Cygnus olor*** (↔) [Mute Swan] CHR. DRS. Harting 1895; Hopkinson 1933a (p. 100); Sibley 1938 (p. 329). Internet: DECN.

Cygnus columbianus [Tundra Swan]

See also: *Anser anser*; *Branta canadensis*;
Cygnus atratus; *C. bewickii*; *C. buccinator*.

- × **Cygnus cygnus** (↔) [Whooper Swan] CANHR. HPF BRO: ne Asia, nw N. America. Bedford (Duchess of) 1911; Garrett and Wilson 2003 (p. 9); Hopkinson 1926, 1933a (p. 100); Mlodinow and Tweit 2001a (p. 94), 2001b (p. 220); Page 1914b; Sibley 1938 (p. 330).
- × **Cygnus olor** (♀) [Mute Swan] CHR. DRS. HPF (♂♂). Sibley 1938 (p. 329).

Cygnus cygnus [Whooper Swan]

See also: *Anser anser*; *Branta canadensis*;
Cygnus atratus; *C. bewickii*; *C. buccinator*;
C. columbianus.

- × **Cygnus olor** (↔) [Mute Swan] CAONHR. BRO: ne Europe (Poland, Sweden). HPF Ackermann 1898; Baldyga et al. 2003; Blair et al. 2000 (pp. 24, 25); Gray 1958; Ingremeau and Ingremeau 1992; IZY 1962, 1997; Leverkusühn 1890; Mathiasson 1992; Wieloch et al. 2005; Sikora 1995. Internet: DECEN.

Cygnus melanocorypha [Black-necked Swan]

- × **Cygnus olor** [Mute Swan] CHR. DRS. Two hybrids occurred at the Turino Zoo (Italy) in 1970. IZY 1972.

Cygnus olor [Mute Swan] See: *Anser anser*;
A. caerulescens; *A. cygnoides*; *Branta bernicla*;
B. canadensis; *Cygnus atratus*; *C. bewickii*;
C. buccinator; *C. columbianus*; *C. cygnus*;
C. melanocorypha.

Dendrocygna arborea [West Indian Whistling-Duck]

- × **Dendrocygna autumnalis** [Black-bellied Whistling-Duck] CHR. HPF (♂♂). BRO: Lesser Antilles. Bolen 1973 (p. 37).
- × **Dendrocygna bicolor** [Fulvous Whistling-Duck] CHR. BRO: Caribbean? IZY 1987.
- × **Dendrocygna eytoni** [Plumed Whistling-Duck] CHR. DRS. Marchant and Higgins 1990 (p. 1333).

Dendrocygna arcuata [Wandering Whistling-Duck]

- × **Dendrocygna bicolor** [Fulvous Whistling-Duck] CHR. DRS. Delacour 1954; Marchant and Higgins 1990 (p. 1333).

- × **Dendrocygna eytoni** [Plumed Whistling-Duck] CHR. DRS. Gillham and Gillham 1996†.

Dendrocygna autumnalis [Black-bellied Whistling-Duck]

See also: *Dendrocygna arborea*.

- × **Dendrocygna bicolor** (♂) [Fulvous Whistling-Duck] CHR. BRO: S. America, both coasts of Cen. America, and adjacent U.S. Gray 1958.
- × **Dendrocygna eytoni** [Plumed Whistling-Duck] NHR. DRS. Marchant and Higgins 1990 (p. 1333).
- × **Dendrocygna viduata** (♀) [White-faced Whistling-Duck] CANHR. BRO: Cen. and S. America. Coimbra-Filho 1965a†; Gray 1958; Todd 2004.

Dendrocygna bicolor [Fulvous Whistling-Duck]

See also: *Dendrocygna arborea*; *D. arcuata*;
D. autumnalis.

- × **Dendrocygna eytoni** (♂) [Plumed Whistling-Duck] CHR. DRS. Three hybrids occurred at the Milwaukee Zoo in 1985. Delacour 1954; IZY 1987; Jones 1940.
- × **Dendrocygna javanica** (♀) [Javan Whistling-Duck] CHR. BRO: ne India. Delacour 1954; Sibley 1938 (p. 334).
- × **Dendrocygna viduata** (♀) [White-faced Whistling-Duck] CANHR. BRO: Open fresh-water wetlands of Africa, S. America. These hybrids resemble Fulvous Whistling-Duck in plumage, but the head pattern is close to that of White-faced/Black-bellied hybrids. Gillham and Gillham give a detailed description. Brickell 1988 (pp. 207, 209); Clark 1974; Delacour 1954; Gillham 1987; Gillham and Gillham 1996 (p. 14); *The Ostrich* 1973 (p. 265).

Dendrocygna eytoni [Plumed Whistling-Duck]

See: *Dendrocygna arborea*; *D. arcuata*;
D. autumnalis; *D. bicolor*.

Dendrocygna javanica [Javan Whistling-Duck]

See: *Dendrocygna bicolor*.

Note: *D. viduata* is unusual in that its range is split between S. America and Africa.

Dendrocygna viduata [White-faced Whistling-Duck]

See also: *Dendrocygna autumnalis*; *D. bicolor*.

- × *Netta peposacea* [Rosybill] NHR. BRO: Open fresh-water wetlands of s S. America. Delacour 1927.
- Hymenolaimus malacorhynchus** [Blue Duck]
See: *Anas superciliosa*.
- Lophodytes cucullatus** [Hooded Merganser]
See also: *Aix sponsa*; *Anas strepera*; *Aythya americana*; *Bucephala albeola*; *B. clangula*; *B. islandica*.
- × *Mergus albellus* [Smew] CANHR. DRS. A wild hybrid was probably an escapee. Gillham and Gillham 1996[†]. Internet: TERR.
- × *Mergus merganser* (♀) [Goosander] CHR. BRO: n N. America. Johnstone 1955.
- × *Mergus serrator* [Red-breasted Merganser] NHR. BRO: n U.S., s Canada. A hybrid observed by Erikson in St. Paul, Minnesota looked like a Red-breasted ♂, but it had a white patch like that of the Hooded behind each eye. Blaser 1978; Erickson 1952; Panov 1989.
- Marmaronetta angustirostris** [Marbled Teal]
See: *Aythya nyroca*.
- Melanitta fusca** [White-winged Scoter]
See also: *Bucephala clangula*.
- × *Melanitta perspicillata* [Surf Scoter] NHR. BRO: nw N. America. Baird et al. describe a probable hybrid from Alaska. Baird et al. 1884 (vol. 2, p. 100).
- × *Somateria mollissima* (♀) [Eider] In Iceland a mixed pair was observed with three eggs in the nest, but it was not reported whether actual hybrids resulted. Gudmundsson 1932.
- Melanitta nigra** [Common Scoter]
See: *Anas penelope*.
- Melanitta perspicillata** [Surf Scoter]
See: *Melanitta fusca*.
- Mergus sp.**
See also: *Bucephala* sp.
- × *Somateria mollissima* [Common Eider] NHR. BRO: nw Russia. Tenovuo and Tenovuo 1983.
- Mergus albellus** [Smew] See: *Bucephala clangula*; *Lophodytes cucullatus*.
- Mergus merganser** [Goosander]
See also: *Anas platyrhynchos*; *Bucephala clangula*; *Lophodytes cucullatus*.
- × *Mergus serrator* (♂) [Red-breasted Merganser] CANHR (Switzerland, Thurensee). BRO: Iceland, Scandinavia, n Russia, n N. America. *Avicultural Magazine* 1955 (p. 29); Blaser 1978; Edwards 1986; Johnsgard 1965 (p. 308).
- × *Somateria mollissima* [Common Eider] CHR. BRO: n N. America, n Eurasia. Gillham and Gillham 2000, 2003; Randler 2001a.
- × *Tadorna tadorna* (♀) [Common Shelduck] CHR. BRO: e Kazakhstan, nw China. Hybrids are more like the drake Goosander than the Shelduck, but have head feathers a bit longer as in the latter. Speculum resembles that of Mallard. Behavior is similar to the Shelduck. Hybrids do not dive. Gillham and Gillham 1996 (p. 18); Gray 1958; Lind and Poulsen 1963.
- Mergus serrator** [Red-breasted Merganser]
See also: *Aix sponsa*; *Anas platyrhynchos*; *Bucephala clangula*; *Lophodytes cucullatus*; *Mergus merganser*.
- Neochen jubata** [Orinoco Goose]
See also: *Allopoen aegyptiacus*.
- × *Tadorna ferruginea* [Ruddy Shelduck] CHR. DRS. Scherer and Hilsberg 1982.
- × *Tadorna tadorna* [Common Shelduck] CHR. DRS. HPF. Delacour 1954.
- Netta erythrophthalma** [Southern Pochard]
See also: *Anas castanea*; *A. undulata*; *Aythya ferina*; *A. fuligula*; *A. nyroca*; *A. valisineria*.
- × *Netta rufina* [Red-crested Pochard] CHR. DRS. Gillham and Gillham 1996[†].
- Netta peposacea** [Rosybill]
See also: *Aix sponsa*; *Anas acuta*; *A. georgica*; *A. platyrhynchos*; *A. superciliosa*; *A. undulata*; *Aythya americana*; *A. ferina*; *A. fuligula*; *A. marila*; *A. nyroca*; *A. valisineria*; *Dendrocygna viduata*.
- × *Netta rufina* (↔) [Red-crested Pochard] CHR. DRS. HPF(♂♂). Two types of three-way hybrids reported (♂ F₁ × *Anas platyrhynchos*; ♂ F₁ × *Aix sponsa*). Cavazza 1931a; Delacour 1927; Finn 1906; Gillham and Gillham 1996[†]; Gray 1958; Hertwig 1936; Hopkinson 1926; IZY 1971, 1980, 1981; Kinnear 1929; Laidlay 1930, 1931; Neunzig 1924; Poll 1908 (p. 129), 1910 (p. 50).

× *Sarkidiornis melanotos* (♀) [Comb Duck]
CHR. DRS. Hopkinson 1935b, 1935c;
Rothschild (Lord) 1929, Rothschild 1913.

× *Tadorna ferruginea* [Ruddy Shelduck] CHR.
DRS. A hybrid occurred at the Moscow
Zoo in 1974. IZY 1976.

Netta rufina [Red-crested Pochard]

See also: *Aix sponsa*; *Anas acuta*;
A. americana; *A. formosa*; *A. georgica*;
A. penelope; *A. platyrhynchos*; *A. poecilorhyncha*;
A. sibilatrix; *A. sparsa*; *A. superciliosa*;
A. undulata; *Aythya americana*; *A. collaris*;
A. ferina; *A. fuligula*; *Aythya marila* ×
A. nyroca; *A. nyroca*; *A. valisineria*; *Netta*
erythrophthalma; *Netta peposacea*.

× *Tadorna tadorna* [Common Shelduck]
CHR. BRO: s Russia, n of Caucasus Mts.
Schmitz 1987.

Nettapus auritus [African Pygmy-goose]
See: *Anas sibilatrix*.

Oxyura ferruginea [Andean Duck]

× *Oxyura jamaicensis* [Ruddy Duck] ENHI.
An intermediate population (*andina*), exists
in the e Andes of cen. and n Colombia.
Siegfried called it a semispecies and treated
it as a race of *O. jamaicensis*, but Fjeldså
(1986) considers it to be of hybrid origin.
These birds are sometimes lumped. Fjeldså
1986; Fjeldså and Krabbe 1990; Mayr and
Short 1970; Sibley and Monroe 1990
(p. 28); Siegfried 1976.

Oxyura jamaicensis [Ruddy Duck]

See also: *Aythya marila*; *Oxyura ferruginea*.

× *Oxyura leucocephala* (♀) [White-headed
Duck] CAENHR (Spain). HPF (♂ & ♀). *O.*
jamaicensis was introduced to Europe, where
there is much concern that hybridization
poses a threat to *O. leucocephala*. Ruddy
Duck ♂♂ and hybrid ♂♂ are socially
dominant over White-headed ♂♂. Efforts
are being made to eradicate the Ruddy Duck
in Europe. Peet reported a hybrid, also, from
Turkey. In recent decades the global popula-
tion of the White-headed Duck has markedly
declined, but it breeds mainly on the steppes
of cen. Asia. Therefore, hybridization, which
is largely limited to sw Europe, cannot be
more than a local threat. A far greater

menace is loss of habitat due to human
activities. Anonymous 1994; Callaghan et al.
1998; Corbett 1994; de Vida 1993; Gantlett
1993³; Garcia-Herrera 1994; Gillham and
Gillham 1996 (p. 76); Harper 1997; Holmes
1994; Hughes 1996a, 1996b, 2000;
Johnsgard and Carbonell 1996; King 1999;
Larsson 2002; Lovett 2001; Munoz 2001;
Ornithos 1995; Peet 1998; Persson and
Urdiales 1997; Sanchez et al. 2000; Schäffer
2004; Torres Esquivias and Moreno 2000;
Torres 2001; Urdiales and Pereira 1993.
Internet: RDB WWTO.

Oxyura leucocephala [White-headed Duck]
See: *Oxyura jamaicensis*.

Plectropterus gambensis [Spur-winged Goose]
See also: *Alopochen aegyptiacus*; *Anser*
cygnoides; *Cairina moschata*; *Chloephaga picta*.

× *Tadorna cana* (♀) [South African Shelduck]
CHR. BRO: s Africa. Brickell lists this cross,
but gives no details. Brickell 1988 (p. 209).

× *Tadorna ferruginea* (↔) [Ruddy Shelduck]
CHR. DRS. A hybrid occurred at Sea World
(San Diego) in 1979. IZY 1981.

× *Tadorna tadorna* (♀) [Common Shelduck]
CHR. DRS. Ackermann 1898; Brickell 1988
(p. 209); Gray 1958.

Polysticta stelleri [Steller's Eider]

See also: *Anas platyrhynchos*.

× *Somateria mollissima* [Common Eider] NHR
(Vadso, Norway). The Common Eider is
twice the size of Steller's. BRO: arctic coasts
of Alaska and e Russia. *Birding World* 1995;
Forsman 1995a[†]; Gillham and Gillham 1996
(p. 79); Gudmundsson 1932.

Sarkidiornis melanotos [Comb Duck]

See: *Anas platyrhynchos*; *Cairina moschata*;
Netta peposacea.

Note: Three populations (*borealis*, *dresseri*,
sedentaria), treated as races of *Somateria*
mollissima, hybridize extensively in ne
N. America. Mendall 1980.

Somateria mollissima [Common Eider]

See also: *Anas acuta*; *A. platyrhynchos*;
Melanitta fusca; *Mergus* sp.; *Mergus*
merganser; *Polysticta stelleri*.

× *Somateria spectabilis* (♂) [King Eider]
CAENHR. BRO: circumpolar. Mixed pairs

- have been known in nw Iceland since the 18th century. Two ♂ hybrids are in the Reyjavik Nat. Hist. Museum. Most reported hybrids are ♂ but van den Berg describes a possible ♀ hybrid. In ♂ hybrids, the bill processes are a bit higher, more prominent, and darker yellow than in *S. mollissima*; the cheeks are gray anteriorly, but pale to white at the bill base, the crown and nape are pale gray, most of the back and the scapulars are gray to gray-brown. Hybrids are sometimes mistaken for Stellar's Eider (*Polysticta stelleri*). De Selys-Longchamps 1856; Devink et al. 2003; Greig 1989; Gudmundsson 1932; Johnsgard 1964; Krabbe 1925[†], 1926[†]; Leverkühn 1890; Palmer 1973[†], 1976 (vol. 3, p. 108), 1977 (p. 112)[†]; Panov 1989; Pettingill 1959, 1962[†]; Phillips 1923–1926; Portenko 1952; Schiøler 1925–1931 (vol. 2)[†]; van den Berg 2002. Internet: CMUS.
- × *Somateria v-nigra* [Pacific Eider] ENHR (n Pacific). These birds are often lumped. Internet: DIGI.
- × *Tadorna tadorna* [Common Shelduck] NHR. BRO: nw Europe. Gillham and Gillham 1996 (p. 17); IZY 1967, 1971; Lack 1974[†].
- Somateria spectabilis*** [King Eider] See: *Somateria mollissima*.
- Somateria v-nigra*** [Pacific Eider]
See: *Somateria mollissima*.
- Tachyeres brachypterus*** [Falkland Steamerduck]
- × *Tachyeres pteneres* [Flightless Steamerduck] CHR. DRS. IZY 1975.
- Tadorna cana*** [South African Shelduck]
See also: *Alopochen aegyptiacus*; *Chloephaga picta*; *C. melanoptera*; *Plectropterus gambensis*.
- × *Tadorna ferruginea* (↔ usu. ♂) [Ruddy Shelduck] CANHR. DRS. HPF (♂ Ruddy × ♀ South African). Sigean African Preserve (France) had seven hybrids in 1985. Cavazza 1931a; Gillham and Gillham 1996 (p. 15); Gray 1958; Hopkinson 1926 (p. 241); IZY 1975, 1987, 1991; Page 1914b (p. 32); Phillips 1923–1926; Salvadori 1895; Sclater 1859; Scott 1947. Internet: DECN.
- × *Tadorna tadorna* (♂) [Common Shelduck] CHR. DRS. Brickell 1988; IZY 1976, 1977; Newton 1860; Salvadori 1895; Sclater 1859[†]. Internet: DECN.
- × *Tadorna tadornoides* [Australian Shelduck] CHR. DRS. Carboneras 1992b.
- × *Tadorna variegata* (♂) [New Zealand Shelduck] CHR. DRS. Gray 1958; IZY 1959.
- Tadorna ferruginea*** [Ruddy Shelduck]
See also: *Alopochen aegyptiacus*; *Anas falcata*; *A. platyrhynchos*; *Branta leucopsis*; *Neochen jubata*; *Netta peposacea*; *Plectropterus gambiensis*; *Tadorna cana*.
- × *Tadorna radjah* (♂ prob. ↔) [Rajah Shelduck] CHR. DRS. HPF Delacour 1933a, 1935, 1937b, 1939; Gray 1958; *L'Oiseau* 1931; Marchant and Higgins 1990 (p. 1333); Payn 1955; Sibley 1942.
- × *Tadorna tadorna* (↔) [Common Shelduck] CANHR. BRO: Eurasia. HPF(♂♂). Delacour 1932; Gillham and Gillham 2000; Gray 1958; Hopkinson 1926 (p. 241); IZY 1970, 1972, 1973, 1992; Leverkühn 1890; Payn 1955; Rothschild (Lord) 1929; Rothschild 1913; Scott 1947; Wormald 1915.
- × *Tadorna tadornoides* (↔) [Australian Shelduck] CHR. DRS. HPF Gray 1958; Horsbrugh 1910; Page 1914b (p. 32); Rothschild (Lord) 1929; Rothschild 1913.
- × *Tadorna variegata* (↔) [New Zealand Shelduck] CHR. DRS. HPF Moscow Zoo had 17 hybrids in 1979 and 1980 and a three-way hybrid with *T. tadornoides* backcrossed again to *T. tadornoides* had eight offspring. Delacour 1954; Horsbrugh 1910; IZY 1980, 1981, 1982, 1983, 1984–1985, 1989; Page 1914b (p. 32); Phillips 1923–1926; Sibley 1935.
- Tadorna radjah*** [Rajah Shelduck]
See also: *Tadorna ferruginea*.
- × *Tadorna tadorna* (↔) [Common Shelduck] CHR. DRS. Delacour 1932; Marchant and Higgins 1990 (p. 1333).
- Tadorna tadorna*** [Common Shelduck]
See also: *Aix sponsa*; *Alopochen aegyptiacus*; *Anas acuta* × *Netta rufina*; *Anas falcata*; *A. strepera*; *Anser anser*; *A. cygnoides*; *A. indicus*; *Aythya ferina*; *Cairina moschata*; *Mergus merganser*; *Neochen jubata*; *Netta*

rufina; *Plectropterus gambensis*; *Somateria mollissima*; *Tadorna cana*; *T. ferruginea*; *T. radjah*.

- × *Tadorna tadornoides* (♂) [Australian Shelduck] CHR. HPF Cavazza 1931a; Hertwig 1936; Heinroth 1911; Poll 1910 (p. 35), 1911c (p. 454 and Tafel 4³), 1921.
- × *Tadorna variegata* [New Zealand Shelduck] CHR. DRS. Scherer and Hilsberg 1982.

Tadorna tadornoides [Australian Shelduck]
See: *Alopochen aegyptiacus*; *Anas platyrhynchos*; *Anser indicus*; *Chloephaga poliocephala*; *Tadorna cana*; *T. ferruginea*; *T. tadorna*.

Tadorna variegata [New Zealand Shelduck]
See: *Anas acuta*; *A. platyrhynchos*; *Anser indicus*; *Chloephaga picta*; *C. poliocephala*; *Tadorna cana*; *T. ferruginea*; *T. tadorna*.

Honeyguides

Family Indicatoridae

Indicator conirostris [Thick-billed Honeyguide]

- × ***Indicator minor*** [Lesser Honeyguide] ENHR (Kenya, Dem. Rep. Congo, Cameroon). A hybrid population (*pallidus*), which has been described as a race of *I. conirostris*, occurs in Cameroon and se Nigeria. Borrow and Demey 2001 (p. 546); Dowsett and Dowsett-Lemaire 1993 (p. 346); Prigogine 1985; Short and Horne 2001 (p. 453).

Indicator exilis [Least Honeyguide]

- × ***Indicator willcocksii*** [Willcocks's Honeyguide] NHR (Wonegizi, n Liberia). Winkler and Christie 2002.

Indicator maculatus [Spotted Honeyguide]

- × ***Indicator variegatus*** [Scaly-throated Honeyguide] PCZ (s Sudan, Uganda). No hybrids as yet reported. Short and Horne 2001 (p. 464).

Indicator minor [Lesser Honeyguide] See: *Indicator conirostris*.

Indicator variegatus [Scaly-throated Honeyguide] See: *Indicator maculatus*.

Indicator willcocksii [Willcocks's Honeyguide] See: *Indicator exilis*.

Prodotiscus insignis [Western Green-backed Honeyguide]

- × ***Prodotiscus zambsesiae*** [Eastern Green-backed Honeyguide] ONHR (Angola). Winkler and Christie 2002.

Woodpeckers

Family Picidae

Blythipicus pyrrhotis [Bay Woodpecker]

- × ***Blythipicus rubiginosus*** [Maroon Woodpecker] Probable ACZ in s Malay Penin. at ~950 m. No hybrids as yet reported. Short 1982b.

Campephilus melanoleucos [Crimson-crested Woodpecker] There are PCZs between this bird and two similar woodpeckers, *Campephilus guatemalensis* (Pale-billed Woodpecker) and *Campephilus गयाquilensis* (Guayaquil Woodpecker). The contact zone with the former is in Panama, that with the latter, in the Andes of sw Colombia, Ecuador, and n Peru. No hybrids as yet reported. Two populations (*cearae*, *melanoleucos*) treated as races of *C. melanoleucos*, are separated by a vast intermediate hybrid population in Brazil (Goias, Mato Grosso), Bolivia, Paraguay and nw Argentina. Size increases clinally southward. Probable hybrids between *melanoleucos* and another population (*malherbii*) also treated as a race of *C. melanoleucos*, are known from e Colombia (Villavicencio, Barrigan, Caqueta). Short 1982b (pp. 440, 443); Winkler and Christie 2002.

Campephilus rubricollis [Red-necked Woodpecker] Two populations (*rubricollis*, *trachelopyrus*), treated as races of this bird, hybridize in Ecuador, n Peru, and w Brazil. Short 1982b (p. 436); Winkler and Christie 2002 (p. 347).

Campethera abingoni [Golden-tailed Woodpecker]

- × ***Campethera mombassica*** [Mombasa Woodpecker] ONHR (e Tanzania). Hybrids were taken near Moshi and Dar es Salaam. These birds are sometimes lumped. Short 1982b (p. 196); Winkler and Christie 2002.

Campethera bennettii [Bennett's Woodpecker]

× *Campethera nubica* [Nubian Woodpecker] ENHI (e Africa). A population (*scriptoricauda*) of Tanzania and n Mozambique is morphologically and geographically intermediate and, thus, a PHP of this cross. It has been treated as a race of both these birds and as a separate species. Short 1982b (pp. 191, 193); Winkler and Christie 2002.

Campethera cailliautii [Little Spotted Woodpecker]

× *Campethera maculosa* [Little Green Woodpecker] NHR (Ghana). A hybrid is known from Aburi. Prigogine 1987; Short 1982b (p. 200).

× *Campethera permista* [Green-backed Woodpecker] ENHR (Dem. Rep. Congo, Angola). These birds are often treated as conspecific. Prigogine 1987.

Campethera maculosa [Little Green Woodpecker] See: *Campethera cailliautii*.

Campethera mombassa [Mombasa Woodpecker] See: *Campethera abingoni*.

Campethera nubica [Nubian Woodpecker] See also: *Campethera bennettii*.

× *Campethera punctuligera* [Fine-spotted Woodpecker] ENHI (s Sudan). A population (*balia*), treated as a race of *C. punctuligera*, is intermediate in morphology and range and, thus, a PHP of this cross. Goodwin 1968 (p. 20).

Campethera permista [Green-backed Woodpecker] See: *Campethera cailliautii*.

Campethera punctuligera [Fine-spotted Woodpecker] See: *Campethera nubica*.

Campethera scriptoricauda [Reichenow's Woodpecker] See: *Campethera bennettii* × *C. nubica*.

Celeus castaneus [Chestnut-colored Woodpecker]

× *Piculus rubiginosus* [Golden-olive Woodpecker] NHR (Guerrero, Mexico)?? Miller et al. note that an old paper reports a hybrid from Atoyac. Miller et al. 1957.

Celeus elegans [Chestnut Woodpecker]

× *Celeus flavescens* [Blond-crested Woodpecker] ENHI. A population treated as

a race of *C. flavescens* (*ochraeus*) is in contact with *C. elegans* in ne Brazil (Pará, Maranhão) and approaches it morphologically. It is thus a PHP of this cross. Short 1972c (p. 25).

× *Celeus lugubris* [Pale-crested Woodpecker] NHR. ENHI (Paraguay and Mato Grosso, Brazil). *C. lugubris* morphologically approaches *C. elegans* (more rufous, less barring) at the n end of its range. A hybrid was treated as a species (*Celeus roosevelti*). Kratter et al. 1992; Short 1972c (pp. 13–20).

Celeus flavescens [Blond-crested Woodpecker] See also: *Celeus elegans*.

× *Celeus lugubris* [Pale-crested Woodpecker] NHR. ENHI (n Argentina, Paraguay, s Brazil). *C. lugubris* morphologically approaches *C. flavescens* at the e edge of its range. Short 1972c (p. 24); 1982b (p. 403). Internet: DIGI.

Celeus grammicus [Scaly-breasted Woodpecker]

× *Celeus undatus* [Waved Woodpecker] NHR. PCZ along R. Negro, Brazil. Short mentions an intermediate specimen from the Caura River area of Venezuela. Short 1982b (p. 397).

Celeus lugubris [Pale-crested Woodpecker] See: *Celeus elegans*; *C. flavescens*.

Celeus undatus [Waved Woodpecker] *Celeus grammicus*.

Chrysocolaptes lucidus [Greater Flameback]

Two populations (*guttacristatus*, *strictus*) sometimes treated as races of this bird have a PCZ in w Java, but according to Mees (p. 32), "both forms are so scarce, ... that the question whether they interbreed ... in the wild is bound to remain unanswered." Mees 1996 (pp. 32, 100).

Colaptes auratus [Yellow-shafted Flicker]

× *Colaptes cafer* [Red-shafted Flicker] ENHR (sw Canada, cen. U.S.). HPF(♂ & ♀). Hybrid zone extends some 3,000 km, from New Mexico and Texas n to the Canadian border, then nw to se Alaska. A recent study (Wiebe and Bortolotti, 2001) in sw Canada showed that Red- and Yellow-shafted flickers tend to mate assortatively, not randomly, so that there

is a deficit of hybrid (orange-shafted or pink-shafted) birds in that part of the zone. From a taxonomic standpoint this fact is significant, as these birds are now often lumped, due to reports of random mating in s parts of the zone (e.g., Moore 1987). Many ♂ hybrids have a red and black moustache, partial red nape patch, and an intermediate head pattern. Hybrid was treated as a species (*Colaptes ayresi* Audubon 1843; *Colaptes hybridus* Baird 1858). Hybrids occur frequently over much of N. America. Moore (1995, p. 5) says this zone is "at least 4,000–7,500" years old. Nomenclature remains controversial. Ackermann 1898; Alexander 1938; Anderson 1970, 1971; Audubon 1840–1844; Henry and Baird 1858; Baldwin 1910; Bent 1908, 1939; Berlioz 1927; Bock 1971; Deakin 1936; Erskine 1962; Gordon 1967; Graber and Graber 1951; Gray 1958; Grudzien and Moore 1986; Grudzien et al. 1987; Ivey and Tyler 2002; Julian 1972; Legendre 1936; Mayr 1942; McGillivray and Biermann 1987; Meise 1928a; Moore 1987, 1995; Moore and Buchanan 1985; Moore and Koenig 1986; Moore and Price 1993; Moore et al. 1991; Rhoads 1892; Ridgway 1909; Rising 1983a; Shields 1988; Short 1965, 1972a; Sibley and Monroe 1990; Suchetet 1897a; Taverner 1934; Test 1942, 1969; Wiebe 2000; Wiebe and Bortolotti 2001, 2002; Wynne-Edwards 1948. Internet: DIGI.

- × ~~*Colaptes chrysoides* [Gilded Flicker]~~ Gray (1958) says presumed natural hybrids have been reported, but this cross is dubious; the only report is very old (Breninger 1898) and the range of *Colaptes cafer* intervenes between these two birds.

Colaptes ayresi [Ayres's Flicker] See: *Colaptes auratus* × *C. cafer*.

Colaptes cafer [Red-shafted Flicker]
See also: *Colaptes auratus*.

- × *Colaptes chrysoides* [Gilded Flicker] ENHR (U.S.). A narrow hybrid zone exists in cen. and s Arizona. Hybrids occur in woodlands along streams flowing from mts into Sonora Desert. Hybrids tend to be more like Gilded

than Red-shafted. Note that *C. cafer* and *C. chrysoides* ♂♂ both have a prominent red malar stripe, while *C. auratus* ♂♂ have a black one. Due to hybridization, these birds are sometimes lumped. Johnson 1969; Moore 1995; Short 1965; Sibley 2000 (p. 318). Internet: DIGI.

- × *Colaptes mexicanoides* [Guatemalan Flicker] ENHR (Isthmus of Tehuantepec, Mexico). Due to hybridization, these birds are now often lumped. Winkler and Christie 2002; Winkler et al. 1995 (p. 320).

Colaptes campestris [Campo Flicker]

- × *Colaptes campestris* [Field Flicker] ENHR (s cen. Paraguay). These birds are often lumped due to hybridization. Short 1972b; 1982b (p. 389).

Colaptes campestris [Field Flicker]

See: *Colaptes campestris*.

Colaptes chrysoides [Gilded Flicker]

See also: *Colaptes auratus*; *Colaptes cafer*.

- × *Melanerpes uropygialis* (♀) [Gila Woodpecker] CHR. BRO: sw U.S., nw Mexico. A hybrid hatched Mar. 29, 2003 at the Arizona-Sonora Desert Museum, Tucson, AZ. As of Nov. 5, 2004, it was still alive and healthy in the Mixed Species Aviary Exhibit. Walkosak 2004.

Colaptes hybridus See: *Colaptes auratus* × *C. cafer*.

Colaptes melanochloros [Green-barred Woodpecker]

- × *Colaptes melanolaimus* [Golden-breasted Woodpecker] ENHR (S. America). BRO: Paraná and Uruguay valleys. Due to hybridization, these birds are now often lumped. Short 1982b (p. 374); Traylor 1951.

Colaptes melanolaimus [Golden-breasted Woodpecker] See: *Colaptes melanochloros*.

Colaptes mexicanoides [Guatemalan Flicker]
See: *Colaptes cafer*.

Dendrocopos assimilis [Sind Woodpecker]

- × *Dendrocopos syriacus* [Syrian Woodpecker] ONHR (e Laristan, Iran). Meise 1975; Short 1982b (p. 275); Vaurie 1959b (pp. 17^r, 18–20).

Dendrocopos atratus [Stripe-breasted Woodpecker]

- × *Dendrocopos macei* [Fulvous-breasted Woodpecker] PCZ/ACZ (Myanmar, Laos). *D. atratus* occurs above *D. macei*. No hybrids as yet reported. Short 1982b (pp. 249, 251).

Dendrocopos canicapillus [Grey-capped Woodpecker]

- × *Dendrocopos kizuki* [Pygmy Woodpecker] PCZ in the Ussuri-Amur region of e Siberia. No hybrids as yet reported. Short 1982b (pp. 237, 241).

Dendrocopos kizuki [Pygmy Woodpecker]
See: *Dendrocopos canicapillus*.

Dendrocopos leucopterus [White-winged Woodpecker]

- × *Dendrocopos major* [Great Spotted Woodpecker] ENHR (nw China). Hybridization occurs in Tianshan and Ala Tau mts. *D. m. tianshanicus* is a PHP of this cross. Laine 1993; Meise 1975; Panov 1989; Short 1982b (pp. 281, 287); Vaurie 1959b (pp. 8–9, 12–13), 1965a; Winkler and Christie 2002.

Dendrocopos leucotos [White-backed Woodpecker]

- × *Dendrocopos lilfordi* [Lilford's Woodpecker] NHR. ACZ in e Balkans. These birds are often treated as conspecific. Internet: DIGI.
- × *Dendrocopos major* [Great Spotted Woodpecker] NHR (Sweden). BRO: n Eurasia. Short describes a ♂ hybrid in the Stockholm Museum (taken in Dec. in Vastmanland). Christensen 1999; Kolthoff 1920; Laine 1993; Short 1982b.

Dendrocopos lilfordi [Lilford's Woodpecker]
See: *Dendrocopos leucotos*.

Dendrocopos macei [Fulvous-breasted Woodpecker] See: *Dendrocopos atratus*. *D. macei* includes two parapatric populations (*analis*, *macei*), formerly treated as separate species, that were lumped due to extensive hybridization (about 20% of specimens identified as *macei* were found to have white spots in the central retrices indicating gene flow). Short 1982b (p. 249).

Note: *D. major* contains two strongly differentiated populations (*cabanisi*, *major*) separated by a PHP. Internet: DIGI.

Dendrocopos major [Great Spotted Woodpecker]

See also: *Dendrocopos leucopterus*; *D. leucotos*.

- × *Dendrocopos medius* [Middle Spotted Woodpecker] NHR? Old reports. Braune 1910a; Pohlmann 1884.
- × *Dendrocopos syriacus* (♀?) [Syrian Woodpecker] ENHR. BRO: e Europe. Mobile hybrid zone. *D. syriacus* dominates *D. major* and displaces it. ACZ (*major* occurs above *syriacus*). Balát and Folk 1956; Baryshnikov 2001; Ciosek and Tomialóć 1982; Gorman 1996, 1997, 1999; Harrop 2005; Kroneisl-Rucner 1956; Munteanu 1971; Ruge 1970; Short 1969a, 1982b (pp. 278, 279); Winkler 1971; Wüst 1981–1986. Internet: DIGI.

Dendrocopos medius [Middle Spotted Woodpecker] See: *Dendrocopos major*.

Dendrocopos syriacus [Syrian Woodpecker]
See: *Dendrocopos assimilis*; *D. major*.

Dendropicos elliotii [Elliott's Woodpecker]

- × *Dendropicos johnstoni* [Johnston's Woodpecker] ENHR (e Africa). BRO: near Lake Kivu. Due to hybridization, these birds are now usually lumped. Winkler and Christie 2002.

Dendropicos fuscescens [Cardinal Woodpecker]

- × *Dendropicos namaquus* [Bearded Woodpecker] ENHI (e Africa). Short (p. 217) notes that Stierling's Woodpecker (*Dendropicos stierlingi*) is "morphologically, behaviorally, and vocally intermediate." This statement suggests *stierlingi* as a PHP of this cross. Short 1982b.

Dendropicos gabonensis [Gabon Woodpecker]

- × *Dendropicos lugubris* [Melancholy Woodpecker] ENHR (sw Nigeria). A population (*reichenowi*), treated as a race of *D. gabonensis*, is intermediate in morphology and range and hybridizes with *D. lugubris*. Short 1982b (p. 216); Winkler et al. 1995 (pp. 243, 244); Winkler and Christie 2002.

Dendropicos goertae [Grey Woodpecker]

- × *Dendropicos griseocephalus* [Olive Woodpecker] ONHR (Angola, Rwanda).

- Due to hybridization, these birds are sometimes lumped. Hockey et al. 2005; Prigogine and Louette 1983. Internet: DIGI.
- × *Dendropicos spodocephalus* [Grey-headed Woodpecker] NHR (w Kenya). A hybrid is known from Kabare. Friedmann and Loveridge 1937 (p. 195).
- Dendropicos griseocephalus*** [Olive Woodpecker]
See also: *Dendropicos goertae*.
- × *Dendropicos spodocephalus* [Grey-headed Woodpecker] NHR (n Tanzania). Winkler and Christie 2002.
- Dendropicos johnstoni*** [Johnston's Woodpecker] See: *Dendropicos elliotii*.
- Dendropicos lugubris*** [Melancholy Woodpecker] See: *Dendropicos gabonensis*.
- Dendropicos namaquus*** [Bearded Woodpecker]
See: *Dendropicos fuscescens*.
- Note:** *Dendropicos spodocephalus* is here includes *abessinicus* and *rhodeogaster*.
- Dendropicos spodocephalus*** [Grey-headed Woodpecker] See: *Dendropicos goertae*; *D. griseocephalus*.
- Dendropicos stierlingi*** [Stierling's Woodpecker]
See: *Dendropicos fuscescens* × *D. namaquus*.
- Dinopium javanense*** [Common Flameback]
× *Dinopium shorii* [Himalayan Flameback] NHR (Myanmar). ENHI? The British Museum has a probable hybrid (from Thayetmyo). Winkler and Christie (2002, p. 373) say the Himalayan is "very similar to western forms of Common Flameback." This comment suggests that extensive gene flow is occurring (since these forms are adj. to the Himalayan's range). Short 1982b (p. 492).
- Dryocopus erythropus*** [Black-mantled Woodpecker]
× *Dryocopus lineatus* [Lineated Woodpecker] ONHR (s Brazil). These birds are often lumped. Short (1982b, p. 417) calls intermediates (likely hybrids) "morphs."
× *Dryocopus schulzi* [Black-bodied Woodpecker] ENHR (Argentina). HPF(vh). Hybrid populations (*fulcitus*, *major*) occur in e Chaco. Hybrids show black under the wings and are variably intermediate. Short 1982b (p. 412).
- Dryocopus lineatus*** [Lineated Woodpecker]
See also: *Dryocopus erythropus*.
- × *Dryocopus schulzi* [Black-bodied Woodpecker] ENHR. BRO: se Bolivia, w Paraguay and n Argentina. Morphologically, these birds are quite distinct. *D. schulzi* has a pure black belly and legs, while *D. lineatus* is light and laterally striped in the same regions. Museum of Comparative Zoology (Harvard) and the Stockholm Museum have hybrids. Short 1982b (p. 412).
- Dryocopus schulzi*** [Black-bodied Woodpecker]
See: *Dryocopus erythropus*; *D. lineatus*.
- Gecinulus grantia*** [Pale-headed Woodpecker]
× *Gecinulus viridis* [Bamboo Woodpecker] ENHI (se Asia). Two populations (*indochinensis*, *viridanus*) are geographically and morphologically intermediate and, thus, PHPs of this cross. Short 1982b (pp. 509–510); Wells 1999 (p. 568); Winkler and Christie 2002 (compare figures 201a, 201c and 202a of Plate 60).
- Hemicircus canente*** [Heart-spotted Woodpecker]
× *Hemicircus concretus* [Grey-and-buff Woodpecker] PCZ (n Malay Penin.). No hybrids as yet reported. Short 1982b (p. 527).
- Jynx ruficollis*** [Rufous-necked Wryneck]
× *Jynx torquilla* [Eurasian Wryneck] NHR? These birds overlap (only in winter) in Cameroon, where *J. ruficollis* begins breeding in February. Desfayes reported a hybrid, but Bock and Short say it is an aberrant *J. ruficollis*. Bock and Short 1972; Desfayes 1969; Short 1982b (p. 62).
- Meiglyptes jugularis*** [Black-and-buff Woodpecker]
× *Meiglyptes tristis* [Buff-rumped Woodpecker] PCZ (n Malay Penin.). No hybrids as yet reported. Short 1982b (p. 521).
- Melanerpes aurifrons*** [Golden-fronted Woodpecker]
× *Melanerpes carolinus* [Red-bellied Woodpecker] ENHR (sw Oklahoma to n Texas, U.S.). HPF(vh). Selander and Giller concluded that hybrids do not occur, but

Smith later found that they are common. Her results indicate that about 17% of birds in the hybrid zone are morphologically intermediate (p. 382). Male hybrids tend to have ♀ plumage. Pyle 1997; Rising 1983a; Selander and Giller 1963; Shackelford et al. 2000 (p. 3); Sibley 2000; Smith 1987. Internet: BALIN, BAFR.

- × *Melanerpes hoffmannii* [Hoffmann's Woodpecker] ENHR (s Honduras). The hybrid zone is along the Pespire R. between Pespire and Nacaome. Due to hybridization, Hoffmann's Woodpecker is often lumped with *M. aurifrons*, but it hybridizes extensively, too, with the *M. rubricapillus* in Costa Rica. Monroe 1968 (p. 215); Short 1982b (p. 157).
- × *Melanerpes uropygialis* [Gila Woodpecker] ENHR (sw Mexico). About 5% of birds in the contact zone (Zacatecas, Aguascalientes, e Jalisco) are hybrids. Miller et al. 1957; Selander and Giller 1963; Short 1982b (p. 163). Internet: PWRC4.

Melanerpes cactorum [White-fronted Woodpecker]

- × *Melanerpes flavifrons* [Yellow-fronted Woodpecker] PCZ in Paraguay and n Argentina (Corrientes). No hybrids as yet reported. Short 1982b (p. 143).

Melanerpes carolinus [Red-bellied Woodpecker] See: *Melanerpes aurifrons*.

Melanerpes cruentatus [Yellow-tufted Woodpecker]

- × *Melanerpes rubrifrons* [Red-fronted Woodpecker] ENHR (ne S. America). HPF(vh). All degrees of intermediacy occur. Due to hybridization, these birds are now often lumped. Haverschmidt 1968; Short 1982b (p. 134); Winkler and Christie 2002.

Melanerpes flavifrons [Yellow-fronted Woodpecker] *Melanerpes cactorum*.

Melanerpes hoffmannii [Hoffmann's Woodpecker]

See also: *Melanerpes aurifrons*.

- × *Melanerpes rubricapillus* [Red-crowned Woodpecker] ENHR (cen. Costa Rica). This cross has produced a large hybrid population between Tãcoles and Puerto Quepos. Stiles and Skutch 1989.

Melanerpes rubricapillus [Red-crowned Woodpecker] See: *Melanerpes hoffmannii*.

Melanerpes rubrifrons [Red-fronted Woodpecker] See: *Melanerpes cruentatus*.

Melanerpes uropygialis [Gila Woodpecker] See: *Colaptes chrysoides*; *Melanerpes aurifrons*.

Mulleripicus pulverulentus [Great Slaty Woodpecker] Two populations (*harterti*, *pulverulentus*), treated as races of this bird, hybridize in peninsular Thailand. These hybrids were treated as an race (*celadinus*). Short 1982b (p. 535); Winkler and Christie 2002; Winkler et al. 1995.

Picoides arizonae [Arizona Woodpecker]

- × *Picoides stricklandi* [Strickland's Woodpecker] ENHR (nw Mexico). These birds have usually been lumped since Davis reported that hybrids are common. However, Johnson et al. say such treatment "discounts the great morphological differences between the 2 groups." Davis 1965[†]; Johnson et al. 1999 (p. 3).

Picoides borealis [Red-cockaded Woodpecker]

- × *Picoides villosus* [Hairy Woodpecker] NHR. BRO: se U.S. A specimen from n Mexico (Sierra del Carmen) is deemed this hybrid. Miller 1955; Short 1982b.

Picoides nuttallii [Nuttall's Woodpecker]

- × *Picoides pubescens* [Downy Woodpecker] NHR (n California). HPF(♂♂). An F₁ hybrid produced offspring with a ♀ Nuttall's. Miller 1955; Ridgway 1887; Short 1971; Unitt 1986. Internet: GGAT, PWRC3.

Picoides scalaris [Ladder-backed

- Woodpecker] ENHR (nw Mexico, sw U.S.). HPF(vh). Hybridization occurs in Kern and San Bernadino cos., California, and in nw Baja California. Short (1982b, p. 296) says "10 percent of both species in California are affected by hybridization ... whereas 12 percent of *nuttallii* and 30 percent of *scalaris* in northern Baja California show signs of introgression." In Baja California, hybridization involves *P. s. eremicus*. Birds with intermediate crown color are hybrid, but evaluation of multiple characters reveals additional hybrids.

Lowther 2001; Short 1971, 1982b (pp. 295, 296); Winkler et al. 1995 (p. 284). Internet: NUTW.

Picoides pubescens [Downy Woodpecker]

See also: *Picoides nuttallii*.

× *Picoides scalaris* [Ladder-backed Woodpecker] NHR (Texas). Sexton 1986.

Picoides scalaris [Ladder-backed Woodpecker]

See also: *Picoides nuttallii*; *P. pubescens*.

× *Picoides villosus* [Hairy Woodpecker] NHR (Mexico). BRO: N. and Cen. America. Lowther 2001; Miller 1955; Short 1971.

Picoides stricklandi [Strickland's Woodpecker]

See: *Picoides arizonae*.

Picoides villosus [Hairy Woodpecker]

See: *Picoides borealis*; *P. scalaris*.

Piculus collopterus [Stripe-cheeked

Woodpecker] See: *Piculus leucolaemus* × *P. simplex*.

Piculus leucolaemus [White-throated Woodpecker]

× *Piculus simplex* [Rufous-winged Woodpecker] ENHI (Panama). The Stripe-cheeked Woodpecker (*Piculus collopterus*) is geographically and morphologically intermediate and is thus a PHP of hybridization of *P. simplex* with *P. leucolaemus* (or with *P. litae*, which is quite similar to *P. leucolaemus*). These birds are sometimes lumped. Short 1982b (p. 359).

Piculus litae [Lita Woodpecker]

× *Piculus simplex* [Rufous-winged Woodpecker] See: *Piculus leucolaemus* × *P. simplex*.

Piculus rubiginosus [Golden-olive

Woodpecker] See: *Celexus castaneus*.

Piculus simplex [Rufous-winged Woodpecker]

See: *Piculus leucolaemus*.

Note: *Picumnus albosquamatus* here includes two populations, formerly treated as separate species, *albosquamatus* (White-wedged Piculet) and *guttifer* (Guttate Piculet), which are now lumped because they hybridize extensively in the w Mato Grosso (Brazil). Bond and Meyer de Schauensee 1942–1943; Short 1982b (p. 88).

Picumnus albosquamatus [White-wedged Piculet]

× *Picumnus cirratus* [White-barred Piculet] ENHR. Hybrid zone in Brazil (Mato Grosso)

and Bolivia. Hybridization is with *P. c. thamnophiloides*. Lencione Neto 1995; Short 1982b (pp. 85, 88); Winkler et al. 1995 (p. 180).

× *Picumnus dorbygnianus* [Ocellated Piculet] ONHR (Bolivia, e of Lake Titicaca). Short 1982b (p. 86); Winkler and Christie 2002.

× *Picumnus pilcomayensis* [Pilcomayo Piculet] ONHR. Hybridization is with *P. a. guttifer*, in e Bolivia (Santa Cruz) and adj. Brazil (w Mato Grosso). Short 1982b (p. 88); Winkler et al. 1995 (p. 180).

Picumnus castelnau [Plain-breasted Piculet]

× *Picumnus subtilis* [Fine-barred Piculet] NHR (cen. Peru). The Smithsonian has a ♂ hybrid (USNM #240125), taken in Nov. at Santa Rosa (upper Ucayali R., where these birds both occur). Short 1982b (pp. 93, 94); Winkler and Christie 2002.

Picumnus cirratus [White-barred Piculet]

See also: *Picumnus albosquamatus*.

× *Picumnus dorbygnianus* [Ocellated Piculet] ENHR. Hybridization is in s Bolivia (Tarija, Chuquisaca) and, probably, n Argentina (Jujuy). These birds are sometimes lumped. Short 1982b; Winkler and Christie 2002; Winkler et al. 1995 (p. 180).

× *Picumnus pilcomayensis* [Pilcomayo Piculet] ENHR (e Paraguay). BRO: s Amazonia. These birds are now usually lumped. Short 1982b; Winkler et al. 1995.

× *Picumnus temminckii* [Ochre-collared Piculet] ENHR (se Brazil). Hybrid populations occur in Parana and São Paulo. These birds are often lumped. Short 1982b (p. 86); Winkler et al. 1995 (pp. 180, 182).

× *Picumnus varzeae* [Varzea Piculet] ENHR (Brazil). HPF(vh). Many hybrids, intermediate in all degrees, are known from the lower Amazon (Óbidos, Faro, Santarém). Hybridization is with *P. c. macconnelli*. Sibley and Monroe 1990; Short 1982b (pp. 82–83); Winkler et al. 1995 (p. 180).

Picumnus dorbygnianus [Ocellated Piculet]

See: *Picumnus albosquamatus*; *P. cirratus*.

Picumnus fulvescens [Tawny Piculet]

× *Picumnus limae* [Ochraceous Piculet] NHI (ne Brazil). Intermediate

specimens from Paráiba, where these birds appear to meet, were described under the name *saturatus*.

Winkler et al. 1995 (pp. 185–186).

Picumnus granadensis [Greyish Piculet]

× *Picumnus olivaceus* [Olivaceous Piculet] ENHI (w Colombia). A population (*antioquiensis*) of the n Andes is geographically and morphologically intermediate and, thus, a PHP of this cross. Short 1982b (p. 99).

Picumnus limae [Ochraceous Piculet]

See: *Picumnus fulvescens*.

Picumnus minutissimus [Guianan Piculet]

× *Picumnus spilogaster* [White-bellied Piculet] NHR (Guyana). A hybrid taken on the Supernam River is in the British Museum. Short 1982b (p. 78).

Picumnus olivaceus [Olivaceous Piculet]

See: *Picumnus granadensis*.

Picumnus pilcomayensis [Pilcomayo Piculet]

See also: *Picumnus albosquamatus*; *P. cirratus*.

× *Picumnus temminckii* [Ochre-collared Piculet] Short says hybridization is likely, but not yet known, in ne Argentina. Short 1982b (p. 86).

Picumnus spilogaster [White-bellied Piculet]

See: *Picumnus minutissimus*.

Picumnus subtilis [Fine-barred Piculet]

See: *Picumnus castelnaui*.

Picumnus temminckii [Ochre-collared Piculet]

See: *Picumnus cirratus*; *P. pilcomayensis*.

Picumnus varzeae [Varzea Piculet]

See: *Picumnus cirratus*.

Picus canus [Grey-faced Woodpecker]

× *Picus viridis* (♂) [Green Woodpecker] ONHR (e Europe, w Russia). HPF These hybrids are like *P. canus*, but they have a red crown, reddish nape, and light eyes. Berger 1990; Bird and Südbeck 2004; Dmoch 2003; Friedmann 1993; Ivanchev 1993; Komisja 2003; Ruge 1966; Salomonsen 1947[†]; Senge 2003; Short 1982b (p. 479); Südbeck 1991.

Picus chlorolophus [Lesser Yellownappe]

× *Picus puniceus* [Crimson-winged Woodpecker] These birds have an ACZ at 900 m on the Malay Peninsula and on Sumatra (*chlorolophus* occurs above

puniceus). No hybrids as yet reported. Sibley and Monroe 1990 (p. 60).

Picus flavinucha [Greater Yellownappe]

× *Picus mentalis* [Checker-throated Woodpecker] These birds have an ACZ at 1,700 m on the Malay Peninsula and on Sumatra (*flavinucha* occurs above *mentalis*). No hybrids as yet reported. Sibley and Monroe 1990 (p. 60).

Picus mentalis [Checker-throated Woodpecker]

See: *Picus flavinucha*.

Picus puniceus [Crimson-winged Woodpecker]

See: *Picus chlorolophus*.

Picus vaillantii [Levaillant's Woodpecker]

See: *Picus viridis*.

× *Picus viridus* [Green Woodpecker] ENHI.

A population in the Iberian Peninsula (*sharpei*) is geographically and morphologically intermediate and, thus, a PHP of this cross. These birds are sometimes lumped. Short 1982b (p. 480); Winkler and Christie 2002.

Picus viridanus [Streak-breasted Woodpecker]

× *Picus vittatus* [Laced Woodpecker]

ENHR. BRO: Myanmar, w Thailand. These birds are sometimes lumped. In comparison with *P. vittatus*, *P. viridanus* has a rather restricted range. Within it, many variably intermediate birds (apparent hybrids) occur. Short 1982b (pp. 470–471).

Picus viridis [Green Woodpecker]

See also: *Picus canus*; *P. vaillantii*.

Picus vittatus [Laced Woodpecker]

See: *Picus viridanus*.

Sasia abnormis [Rufous Piculet]

× *Sasia ochracea* [White-browed Piculet]

ENHI (s Myanmar, se Thailand). Short (p. 104) says no hybrids are known, but then says “the southern subspecies *S. ochracea* ‘*hasbroucki*’ of Tenasserim and adjacent provinces of Thailand (the area of possible contact with *S. abnormis*) has a white eye stripe that is smaller than that of other races of *S. ochracea*, hence tending toward *S. abnormis*.” Thus, *hasbroucki* (= *reichenowi*) is intermediate in morphology and range and a PHP of this cross. Short 1982b (pp. 102, 104).

Note: *Sphyrapicus nuchalis*, *S. ruber*, and

S. varius have been treated as three species, as two (*nuchalis* and *varius* lumped), or as one. Sibley and Monroe 1990.

Sphyrapicus nuchalis [Red-naped Sapsucker]

× ***Sphyrapicus ruber*** [Red-breasted Sapsucker]

ENHR (sw Canada, nw U.S.) HPF (♂ & ♀). Hybrid zone is in s British Columbia and southward in Cascades. Trombino found that 32% of birds in the portion of the zone in sw Oregon were morphologically intermediate. Adult survivorship (nest site return rates) were lower in hybrids than in either pure parental type, but hatchling success was not reduced. Hybrids occur further s in winter (e.g., Arizona). See: *Sphyrapicus ruber* × *S. varius*. These birds are sometimes lumped. Brinkley 2001 (p. 138); Howell 1952; Johnson and Zink 1983; Johnson and Johnson 1985; Ratti 1984; Scott et al. 1976; Short 1969a; Terrill et al. 2000 (p. 324); Trombino 1999; Williams 1983. Internet: EDUBI, SANTC.

× ***Sphyrapicus thyroideus*** [Williamson's Sapsucker] NHR (w N. America). Oberholser reported a ♀ hybrid obtained in Oct. at 1,800 m in the Huachuca Mts. of s Arizona (Cleveland Museum #10042) described by Short and Morony, who also describe a ♂ hybrid. The latter was taken in Jan. at Rancheria de los Apaches in n Chihuahua (AMNH #56494). Both parents winter in the area where the hybrids were found. The ♂ hybrid is similar to a ♂ Williamson's, but is smaller, with more extensive red on throat and a red crown patch. The ♀ is like Williamson's with a red crown patch. Kaufmann 1990; Oberholser 1930; Short and Morony 1970.

× ***Sphyrapicus varius*** (prob. ♀) [Yellow-bellied Sapsucker] ENHR (sw Alberta, Canada). HPF Contact occurs in e slope forests. Howell 1952; Hudon 2000; Kaufmann 1990; Semenchuk 1992; Short 1969a; Sibley and Monroe 1990. Internet: PMAED, PMAED3.

Sphyrapicus ruber [Red-breasted Sapsucker]

See also: *Sphyrapicus nuchalis*.

× ***Sphyrapicus varius*** [Yellow-bellied Sapsucker] ENHR (cen. British Columbia, Canada). Also, two populations, treated as races of *S. ruber*, hybridize in s Oregon. Kaufmann notes that hybrids between the northern population, *ruber*, and either the Red-naped or the Yellow-bellied can look much like *S. ruber*'s southern population, *daggetti*. This observation suggests *daggetti* as a PHP of crossing between these three birds. Bennett 1983; Howell 1952; Kaufmann 1990; Short 1969a. Internet: PMAED, SANTC.

Sphyrapicus thyroideus [Williamson's Sapsucker] See: *Sphyrapicus nuchalis*.

Sphyrapicus varius [Yellow-bellied Sapsucker]

See: *Sphyrapicus nuchalis*; *S. ruber*.

Veniliornis affinis [Red-stained Woodpecker]

× ***Veniliornis casini*** [Golden-collared Woodpecker] PCZ in Rio Negro region (n Brazil). No hybrids as yet reported. Short 1982b (p. 355).

Veniliornis casini [Golden-collared Woodpecker] See: *Veniliornis affinis*.

Veniliornis frontalis [Dot-fronted Woodpecker]

× ***Veniliornis passerinus*** [Little Woodpecker] NHR (Bolivia, nw Argentina). These birds are sometimes lumped. Winkler and Christie 2002.

Veniliornis passerinus [Little Woodpecker]

See: *Veniliornis frontalis*.

Barbets and Tinkerbirds

Families Capitonidae, Megalaimidae

Capito auratus [Gilded Barbet]

× ***Capito niger*** [Black-spotted Barbet] ENHR. BRO: n S. America. These birds are sometimes lumped. Haffer 1997; Short and Horne 2001 (p. 301).

Eubucco bourcierii [Red-headed Barbet]

× ***Eubucco richardsoni*** [Lemon-throated Barbet] NHR (Rio Napo, Ecuador). BRO: nw S. America (Ecuador, se Colombia). These birds differ markedly in color pattern. Short and Horne 2001 (pp. 308, 311); Winkler and Christie 2002.

Eubucco richardsoni [Lemon-throated Barbet]

See: *Eubucco bourcierii*.

Eubucco versicolor [Versicolored Barbet]

E. versicolor, which occurs in the Andes of Peru and Bolivia, contains three populations (*versicolor*, *glaucogularis*, and *steerii*) which hybridize in two separate hybrid zones in Peru. *Versicolor* and *glaucogularis* hybridize in the Urubamba Valley (near Adma and Santa Ana), while *steerii* and *glaucogularis* hybridize further to the n around Huachipa in n Huamuco. Short and Horne 2001 (p. 316); Zimmer 1930.

Note: Although they differ morphologically and vocally, the following three birds (*Lybius albicauda*, *L. leucocephalus*, and *L. senex*) are sometimes lumped due to extensive hybridization.

Lybius albicauda [White-tailed Barbet]

× *Lybius leucocephalus* [White-headed Barbet] ENHR (e Africa). Short and Horne 1988, 2001 (p. 193); Sibley and Monroe 1990. Internet: DIGI.

× *Lybius senex* [White Barbet] ENHR (e Africa). Short and Horne 1988, 2001 (p. 193); Sibley and Monroe 1990. Internet: DIGI.

Lybius leucocephalus [White-headed Barbet]

See also: *Lybius albicauda*.

× *Lybius senex* [White Barbet] ENHR (e Africa). Short and Horne 1988, 2001 (p. 193); Sibley and Monroe 1990. Internet: DIGI.

Lybius macclounii [MacClounie's Barbet]

× *Lybius minor* [Black-backed Barbet] ENHR. BRO: n Angola and sw Dem. Rep. Congo. A population (*intercedens*) is intermediate in morphology and range and, thus, a PHP of this cross. Dowsett and Dowsett-Lemaire 1980; Short 1982a; Short and Horne 1988, 2001; Winkler and Christie 2002.

Lybius minor [Black-backed Barbet]

See: *Lybius macclounii*.

Lybius senex [White Barbet] See: *Lybius albicauda*; *L. leucocephalus*.

Megalaima australis [Blue-eared Barbet] Two populations (*cyanotis*, *duvaucelii*), treated as races of this bird, are connected by a variably intermediate population (*stuarti*) in Thailand (s Tenasserim, Malay Peninsula). Short and Horne 2001 (p. 274).

Megalaima franklinii [Golden-throated Barbet]

Two populations (*auricularis*, *franklinii*), usually treated as races of this bird,

hybridize in Vietnam (Annam) and adjacent Laos. Short and Horne 2001 (p. 255).

Megalaima lineata [Lineated Barbet]

× *Megalaima zeylanica* [Brown-headed Barbet] PCZ in ne India and sw Nepal. No hybrids as yet reported, but these birds are so similar that hybrids might easily go undetected. Winkler and Christie 2002.

Megalaima zeylanica [Brown-headed Barbet]

See: *Megalaima lineata*.

Pogoniulus bilineatus [Golden-rumped Tinkerbird]

× *Pogoniulus chrysoconus* [Yellow-fronted Tinkerbird] NHR. BRO: Mozambique, e Zambia. Prigogine 1985.

× *Pogoniulus leucolaima* [Lemon-rumped Tinkerbird] ENHR (Rwanda, Burundi). Due to hybridization, these birds are now often lumped. Short and Horne 2001 (p. 162); Prigogine 1980a, 1980b.

Pogoniulus chrysoconus [Yellow-fronted Tinkerbird]

See also: *Pogoniulus bilineatus*.

× *Pogoniulus pusillus* [Red-fronted Tinkerbird] NHR (e Africa). Snow 1978.

Pogoniulus leucolaima [Lemon-rumped Tinkerbird] See: *Pogoniulus bilineatus*.***Pogoniulus pusillus*** [Red-fronted Tinkerbird]

See: *Pogoniulus chrysoconus*.

Tricholema flavipunctata [Spot-headed Barbet]

× *Tricholema hirsuta* [Hairy-breasted Barbet] ENHR. Hybrid zone in w Nigeria. Due to hybridization, these birds are now usually lumped. Borrow and Demey 2001 (p. 540); Short and Horne 2001 (p. 174); Winkler and Christie 2002.

Tricholema frontata [Miombo Pied Barbet]

× *Tricholema leucomelas* [Pied Barbet] ONHR (sw Zambia). HPF(vh). This poorly studied, narrow hybrid zone is near Livingston (and probably also to the w, in Zambia and Angola). Dowsett and Dowsett-Lemaire 1980, 1993 (p. 346); Prigogine 1984; Short and Horne 2001 (pp. 179, 181); Winkler and Christie 2002.

Tricholema hirsuta [Hairy-breasted Barbet]

See: *Tricholema flavipunctata*.

Tricholema leucomelas [Pied Barbet]

See: *Tricholema frontata*.

Toucans and Aracaris**Family Ramphastidae*****Aulacorhynchus caeruleogularis***

[Blue-throated Toucanet]

- × *Aulacorhynchus prasinus* [Emerald Toucanet] ENHR (s Cen. America). Due to hybridization, these birds are often lumped. Short and Horne 2001 (pp. 325–326).

Aulacorhynchus calorhynchus [Yellow-billed Toucanet]

- × *Aulacorhynchus sulcatus* [Groove-billed Toucanet] ENHR. HPF BRO: coastal mts of n Venezuela (se Carabobo, w Lara). Schwartz 1972; Short and Horne 2001 (p. 331).

Aulacorhynchus prasinus [Emerald Toucanet]See: *Aulacorhynchus caeruleogularis*.***Aulacorhynchus sulcatus*** [Groove-billed Toucanet] See: *Aulacorhynchus calorhynchus*.***Pteroglossus aracari*** [Black-necked Aracari]

- × *Pteroglossus pluricinctus* [Many-banded Aracari] NHR (Carapo, Rio Paragua, se Venezuela). Short and Horne 2001 (pp. 382, 383, 390); Winkler and Christie 2002.

Pteroglossus azara [Ivory-billed Aracari]

- × *Pteroglossus flavirostris* [Yellow-billed Aracari] ENHR. Hybrid zone is in ne Peru and w Brazil (Moyobamba area and e, also along the Solimões R. and probably upper Rio Negro). Haffer 1974; Short and Horne 2001 (p. 380); Winkler and Christie 2002.
- × *Pteroglossus inscriptus* [Lettered Aracari] NHR (Jurua R., Brazil). Short and Horne 2001 (Plate 34 and pp. 374, 377, 380); Zimmer and Mayr 1943. Internet: REM.
- × *Pteroglossus mariae* [Brown-mandibled Aracari] ENHR. Hybrid zone is in w Brazil (lower R. Parús). Short and Horne 2001 (p. 380); Winkler and Christie 2002.

Pteroglossus erythropygius [Pale-mandibled Aracari]

- × *Pteroglossus sanguineus* [Stripe-billed Aracari] ENHR (sw Colombia, Ecuador). These birds are sometimes lumped. Short and Horne 2001 (Plate 34 and p. 394).

Pteroglossus flavirostris [Yellow-billed Aracari]
See also: *Pteroglossus aracari*.

- × *Pteroglossus mariae* [Brown-mandibled Aracari] ENHR (n Peru, Amazon, Brazil). Winkler and Christie 2002.

Pteroglossus frantzii [Fire-billed Aracari]

- × *Pteroglossus torquatus* [Collared Aracari] NHR. BRO: w Panama, sw Costa Rica. These birds are sometimes lumped. Short and Horne 2001 (p. 398); Winkler and Christie 2002.

Pteroglossus humboldti [Humboldt's Aracari]See also: *Pteroglossus inscriptus* × *P. viridis*.

- × *Pteroglossus inscriptus* [Lettered Aracari] ONHR (Rio Madiera region, Amazonia, Brazil). *P. humboldti* ♀♀ are more similar to those of *P. viridis* (Green Aracari) than to those of *P. inscriptus*. See: *P. inscriptus* × *P. viridis*. Due to hybridization, these birds are now usually lumped. Short and Horne 2001 (Plate 34 and p. 374); Winkler and Christie 2002.

- × *Pteroglossus mariae* [Brown-mandibled Aracari] NHR. The Maroon-banded Aracari (*Pteroglossus ollalae*), based on one specimen, is now considered to be this hybrid. Short and Horne 2001 (Plate 34 and p. 380).

Pteroglossus inscriptus [Lettered Aracari]See also: *Pteroglossus azara*; *P. humboldti*.

- × *Pteroglossus mariae* [Brown-mandibled Aracari] NHR (Rio Jurua, w Brazil). Winkler and Christie 2002.
- × *Pteroglossus viridis* [Green Aracari] ENHI. BRO: lower Amazon. *Pteroglossus humboldti* (Humboldt's Aracari) is intermediate in morphology and range. It is thus a PHP of this cross. Winkler and Christie 2002.

Pteroglossus mariae [Brown-mandibled Aracari] See: *Pteroglossus azara*; *P. flavirostris*; *P. humboldti*; *P. inscriptus*.***Pteroglossus ollalae*** [Maroon-banded Aracari]
See: *Pteroglossus humboldti* × *P. mariae*.***Pteroglossus pluricinctus*** [Many-banded Aracari] See: *Pteroglossus aracari*.***Pteroglossus sanguineus*** [Stripe-billed Aracari]
See also: *Pteroglossus erythropygius*.

× *Pteroglossus torquatus* [Collared Aracari] ONHR (nw Colombia). HPF(vh). The hybrid zone is w of the Gulf of Urabá. These birds are sometimes lumped. Haffer 1967 (pp. 27–34); Hilty and Brown 1986; Short and Horne 2001 (p. 394).

Pteroglossus torquatus [Collared Aracari]

See: *Pteroglossus frantzii*; *P. sanguineus*.

Pteroglossus viridis [Green Aracari]

See: *Pteroglossus inscriptus*.

Ramphastos ambiguus [Yellow-throated Toucan]

× *Ramphastos swainsonii* [Chestnut-mandibled Toucan] ONHR (Puerto Valdivia, lower Cauca Valley, Colombia). Due to hybridization, these birds are now often lumped. Short and Horne 2001 (p. 429); Winkler and Christie 2002.

Note: According to Winkler and Christie (2002), huge hybrid populations exist between *Ramphastos ariel*, *R. citreolaemus*, *R. culminatus*, and *R. vitellinus*. Because of this extensive hybridization, these birds are now often lumped.

Ramphastos ariel [Ariel Toucan]

× *Ramphastos culminatus* [Yellow-ridged Toucan] ENHR. BRO: Brazil, s of Amazon. De Germiny 1937a, 1937b; Meyer de Schauensee 1966; Short and Horne 2001 (Plate 33 and pp. 413–415); Winkler and Christie 2002.

× *Ramphastos dicolorus* [Red-breasted Toucan] NHR (se Brazil). Short and Horne 2001 (p. 404); Sick 1993; Winkler and Christie 2002.

Ramphastos citreolaemus [Citron-throated Toucan]

× *Ramphastos culminatus* [Yellow-ridged Toucan] ENHR. BRO: nw Venezuela. Short and Horne 2001 (Plate 33 and pp. 413–415); Winkler and Christie 2002.

× *Ramphastos vitellinus* [Channel-billed Toucan] ENHR. BRO: e Venezuela. De Germiny 1937a, 1937b; Winkler and Christie 2002.

Ramphastos culminatus [Yellow-ridged Toucan]

See also: *Ramphastos ariel*; *R. citreolaemus*.

× *Ramphastos vitellinus* [Channel-billed Toucan] ENHR. BRO: Brazil, s Venezuela. The Gould Osculant Toucan (*R. osculans*), which occurs in Venezuela and the upper Rio Negro region of Brazil, is probably this hybrid. Winkler and Christie 2002; Meyer de Schauensee 1966.

Ramphastos cuvieri [Cuvier's Toucan]

× *Ramphastos tucanus* [Red-billed Toucan] ENHI. These birds are connected by a variably intermediate population which extends over a huge region in n S. America (s Venezuela and much of w Brazil). Birds in this intermediate population are more similar to *R. cuvieri* toward the sw and to *R. tucanus* toward the ne, so the variation across this extremely wide hybrid zone appears to be clinal in nature. Short and Horne note that a population in n Bolivia (*inca*) appears to be a semi-stabilized intermediate population derived from this cross. Due to the hybrid nature of the connecting populations, Short and Horne recently treated these birds as conspecific. Short and Horne 2001 (p. 423); Winkler and Christie 2002.

Ramphastos dicolorus [Red-breasted Toucan]

See also: *Ramphastos ariel*.

× *Ramphastos sulfuratus* [Keel-billed Toucan] CHR. DRS. Haffer 1978; IZY 1977.

Ramphastos osculans [Gould Osculant Toucan] See: *Ramphastos culminatus* × *R. vitellinus*.

Ramphastos sulfuratus [Keel-billed Toucan]

See: *Ramphastos dicolorus*.

Ramphastos swainsonii [Chestnut-Mandibled Toucan] See: *Ramphastos ambiguus*.

Ramphastos tucanus [Red-billed Toucan]

See: *Ramphastos cuvieri*.

Ramphastos vitellinus [Channel-billed Toucan]

See: *Ramphastos citreolaemus*; *R. culminatus*.

Selenidera langsdorffii [Tawny-tufted Toucanet]

× *Selenidera reinwardtii* [Golden-collared Toucanet] ONHR (ne Peru). Hybrids occur in the upper Marranon R. region (R. Ucayali, R. Huallaga). Haffer 1969; Meyer de Schauensee 1966; Short and Horne 2001 (Plate 34† and p. 347).

Jacamars**Family Galbulidae**

Galbalcyrhynchus leucotis [White-eared Jacamar]

× *Galbalcyrhynchus parusianus* [Peru Jacamar] PCZ (R. Ucayali, Peru). No hybrids as yet reported. These birds are sometimes lumped. Tobas et al. 2002.

Galbula galbula [Green-tailed Jacamar]

× *Galbula leucogastra* [Bronzy Jacamar] ONHR (Surinam). Tobas et al. 2002.

Galbula leucogastra [Bronzy Jacamar]
See: *Galbula galbula*.

Galbula melanogenia [Black-chinned Jacamar]

× *Galbula ruficauda* [Rufous-tailed Jacamar] ENHR (e Panama, nw Colombia). HPF(vh). The Smithsonian has a specimen (USNM #425910) taken in Jan. in Antioquia, Colombia (Nicocli). Due to hybridization, these birds are now usually lumped. Haffer 1967, 1975; Hilty and Brown 1986; Stiles and Skutch 1989.

× *Galbula rufiviridis* [Red-and-green Jacamar] ONHR (Venezuela). Due to hybridization, these birds are now usually lumped. Sibley and Monroe 1990.

Galbula ruficauda [Rufous-tailed Jacamar]
See: *Galbula melanogenia*.

Galbula rufiviridis [Red-and-green Jacamar]
See: *Galbula melanogenia*.

Puffbirds**Family Bucconidae**

Note: Residing primarily in the Amazonian rainforest, puffbirds are poorly known. Most have proven difficult subjects of study and even basic data on nesting, feeding, and vocalizations, let alone hybridization, are largely lacking.

Hypnelus bicinctus [Two-banded Puffbird]

× *Hypnelus ruficollis* [Russet-throated Puffbird] ENHI (nw S. America). Intermediate populations exist in nw Venezuela and n Colombia. These birds are sometimes lumped. Rasmussen and Collar 2002; Sibley and Monroe 1990.

Monasa fidelis [Goldman's Nunbird]

× *Monasa morphoeus* [White-fronted Nunbird] ENHR (nw Colombia). Due to hybridization, these birds are now usually lumped. Sibley and Monroe 1990.

Hornbills**Family Bucerotidae**

Anorrhinus galeritus [Bushy-crested Hornbill]

× *Anorrhinus tickelli* [Brown Hornbill] PCZ (Myanmar–Thailand border). These birds are often lumped, but no hybrids are as yet reported. Kemp 2001 (p. 491).

Anthracoceros albirostris [Northern Pied-Hornbill]

× *Anthracoceros convexus* [Oriental Pied-Hornbill] CAENHR (cen. Malay Penin.). Birdpark Avifauna (Holland) had two hybrid broods (in July 1990 and May 1993). These birds are often treated as conspecific. Frith and Frith 1978, 1983; Wells 1999 (pp. 486–487). Internet: ZOO307.

× *Anthracoceros coronatus* [Malabar Pied-Hornbill] ENHR?? The Friths rejected Sanft's report of a hybrid zone in ne India. Frith and Frith 1983; Sanft 1960.

Anthracoceros convexus [Oriental Pied-Hornbill] See: *Anthracoceros albirostris*.

Anthracoceros coronatus [Malabar Pied-Hornbill] See: *Anthracoceros albirostris*.

Anthracoceros malayanus [Black Hornbill]

× *Anthracoceros marchei* [Palawan Hornbill] PCZ (Balabac Strait). No hybrids are as yet reported. Kemp 2001 (p. 499).

Anthracoceros marchei [Palawan Hornbill]
See: *Anthracoceros malayanus*.

Buceros bicornis [Great Hornbill]

× *Buceros rhinoceros* (♂) [Rhinoceros Hornbill] CANHR. BRO: Malay Peninsula; Sumatra. Kemp 2001 (p. 503); Uehara 1990 (in Takaki 1996). Internet: ZOO307.

Ceratogymna atrata [Black-casqued Hornbill]

× *Ceratogymna cylindricus* [Brown-cheeked Hornbill] BRO: coast of Gulf of Guinea. These birds have not been reported to hybridize, but the Yellow-casqued Hornbill (*Ceratogymna elata*) is morphologically

intermediate (author's conclusion based on Kemp's plates 43 and 44). Kemp (p. 523) says Yellow-casqued Hornbills are often seen in the company of Brown-cheeked Hornbills, but does not propose *C. elata* as a PHP of this cross. Kemp 2001.

Ceratogymna cylindricus [Brown-cheeked Hornbill] See: *Ceratogymna atrata*.

Ceratogymna elata [Yellow-casqued Hornbill] See: *Ceratogymna atrata* × *C. cylindricus*.

Ceratogymna fistulator [Piping Hornbill] Three populations, *duboisii*, *fistulator*, and *sharpii*, treated as races of this bird, hybridize where they meet. Two, *duboisii* and *sharpii*, are rather similar white-winged, tan-billed birds. Their hybrid zone is in e Cameroon. The markedly distinct, black-winged, black-billed *fistulator* hybridizes with *sharpii* at the Niger River. Kemp 2001 (p. 518).

Note: The Tertiary Hornbill (*Penelopides panini*) has been split into the Mindanao (*P. affinis*), Luzon (*P. manillae*), Mindoro (*P. mindorensis*), and Tertiary (*P. panini*) hornbills. Before these birds were separately recognized, they were often mixed in zoos and frequently hybridized. HPF Hybrids are often very similar to one or the other parental type. Only wild-caught birds can be identified with certainty. Huebner et al. 2003. Internet: ZOO307.

Tockus damarensis [Damaraland Hornbill]

× ***Tockus erythrorhynchus*** (♂?) [Red-billed Hornbill] CAENHR (n Namibia). HPF Narrow hybrid zone s of Etosha Pan (between Groofontein and Outjo). Hybrids have lower reproductive success than parents. These birds differ in facial plumage, eye color, calls, and displays. However, they are sometimes lumped. Delpont 2001; Delpont et al. 2004; Hockey et al. 2005. Internet: ZOO307.

Tockus deckeni [Von der Deken's Hornbill]

× ***Tockus jacksoni*** [Jackson's Hornbill] CANHR. PCZ in e Africa. In zoos, these birds have hybridized repeatedly. The Smithsonian has a specimen taken on the Tana R. (Kenya) in Aug. (USNM #243847). *T. jacksoni* is often described as a color morph of *T. deckeni*, but their distributions are parapatric. Internet: NFIO.

Tockus erythrorhynchus [Red-billed Hornbill] See also: *Tockus damarensis*.

× ***Tockus jacksoni*** [Jackson's Hornbill] CHR. BRO: se Sudan. Internet: NFIO.

× ***Tockus leucomelas*** [Southern Yellow-billed Hornbill] CHR. Hybrids fledged at the South African National Zoo. Kemp 1995.

Tockus fasciatus [African Pied Hornbill]

× ***Tockus semifasciatus*** [Allied Hornbill] ENHR (w Africa). BRO: Nigeria. These birds are often lumped. Sibley and Monroe 1990.

Tockus flavirostris [Eastern Yellow-billed Hornbill]

× ***Tockus leucomelas*** [Southern Yellow-billed Hornbill] CHR? BRO: s Africa These birds were recently split. Strehlow (ZOO307) says some hybrids may be listed in zoo holdings as pure *Tockus flavirostris*. Internet: ZOO307.

Tockus jacksoni [Jackson's Hornbill]

See: *Tockus deckeni*; *T. erythrorhynchus*.

Tockus leucomelas [Southern Yellow-billed Hornbill] See: *Tockus erythrorhynchus*; *T. flavirostris*.

Tockus pallidirostris [Pale-billed Hornbill]

Two populations treated as races of this bird (*neumanni*, *pallidirostris*) hybridize in Zambia. Kemp 2001.

Tockus semifasciatus [Allied Hornbill]

See: *Tockus fasciatus*.

Hoopoes

Family Upupidae

Upupa africana [African Hoopoe]

× ***Upupa epops*** [Eurasian Hoopoe] ENHI.

A population (*waibeli*) is intermediate in morphology and range, and thus a PHP of this cross. These similar birds are often lumped. Kristín 2001 (p. 410).

Woodhoopoes

Family Phoeniculidae

Phoeniculus bollei [White-headed Woodhoopoe]

× ***Phoeniculus castaneiceps*** [Forest Woodhoopoe] NHR (w Africa). Dowsett and Dowsett-Lemaire 1993.

Phoeniculus castaneiceps [ForestWoodhoopoe] See: *Phoeniculus bollei*.***Phoeniculus damarensis*** [Violet Woodhoopoe]

× *Phoeniculus purpureus* [Green Woodhoopoe] ONHR (Angola, Namibia). These birds are sometimes lumped. Clancey 1986.

Phoeniculus purpureus [Green Woodhoopoe]See also: *Phoeniculus damarensis*.

× *Phoeniculus somaliensis* [Black-billed Woodhoopoe] ENHR? A population, *abyssinicus*, of n Ethiopia and Eritrea, has been proposed to be a product of this cross. These birds are sometimes treated as conspecific. Ligon 2001 (p. 430).

Phoeniculus somaliensis [Black-billedWoodhoopoe] See: *Phoeniculus purpureus*.**Scimitar-bills****Family Rhinopomastidae*****Rhinopomastus aterrimus*** [Black Scimitar-bill]

× *Rhinopomastus cyanomelas* [Common Scimitar-bill] ONHR (s Angola, se Dem. Rep. Congo, possibly w Zambia). These birds are sometimes lumped. They differ in voice and morphology. Ligon 2001 (p. 433); Sibley and Monroe 1990 (p. 80).

Trogons**Family Trogonidae*****Apaloderma narina*** [Narina Trogon]

× *Apaloderma vittatum* [Bar-tailed Trogon] ACZ in e Africa (*vittatum* occurs above *narina*). No hybrids as yet reported. Stevenson and Fanshawe 2002.

Pharomachrus auriceps [Golden-headed Quetzal]

× *Pharomachrus pavoninus* [Pavonine Quetzal] ENHI. BRO: w S. America. A population (*hargitti*) has been treated as a race of both both *P. auriceps* and *P. pavoninus*, a history of treatment suggesting it as a PHP of this cross. It is also geographically intermediate (ext. e Colombia, w Venezuela). Another population (*heliactin*) has been treated as a race of each, but is not geographically

intermediate. The Pavonine and Golden-headed quetzals have sometimes been treated as conspecific. Fjeldså and Krabbe 1990 (p. 300); Johnsgard 2000 (pp. 63, 65, 68, 69); Meyer de Schauensee 1966 (p. 192); Zimmer 1948.

Trogon aurantiiventris [Orange-bellied Trogon]

× *Trogon puella* [Jalapa Trogon] ENHI (w Costa Rica). HPF(vh). A population (*underwoodi*) is variably intermediate. Possible ACZ (*puella* occurs above *aurantiiventris*). Johnsgard 2000 (p. 133).

Trogon aurantius [Brazilian Trogon]

× *Trogon surrucura* [Suruca Trogon] PCZ in se Brazil (Rio de Janeiro, Minas Gerais). No hybrids as yet reported. These birds are often treated as conspecific, but the northern *aurantius* has an orange abdomen and yellow eye ring, while *surrucura* has a red abdomen and orange eye ring. Johnsgard 2000.

Trogon citreolus [Citreoline Trogon]

× *Trogon melanocephalus* [Black-headed Trogon] NHR (s Mexico). PCZ (mts of nw Oaxaca). A probable hybrid has been reported from Sarabia (a ♂ with yellow irides and slate-blue eye rings). Early authors (pre-1960s) treated these birds as conspecific. Schaldach et al. 1997.

Trogon massena [Slaty-tailed Trogon]

× *Trogon melanurus* [Black-tailed Trogon] A population, *australis*, in ne S. America, known as Chapman's Trogon, has been classified as a race of both these birds. Such a history of treatment suggests *australis* as a PHP of this cross (although it is not geographically intermediate). Sibley and Monroe 1990 (p. 81).

Trogon melanocephalus [Black-headed Trogon]See: *Trogon citreolus*.***Trogon melanurus*** [Black-tailed Trogon]See: *Trogon massena*.***Trogon personatus*** [Masked Trogon]

× *Trogon temperatus* [Highland Trogon] ENHR. BRO: n Andes. Due to hybridization, these birds are now usually lumped. Fjeldså and Krabbe 1990; Meyer de Schauensee 1964; Sibley and Monroe 1990.

Trogon puella [Jalapa Trogon]

See: *Trogon aurantiventris*.

Trogon surrucura [Suruca Trogon]

See: *Trogon auranitius*.

Trogon temperatus [Highland Trogon]

See: *Trogon personatus*.

Rollers

Family Coraciidae

Coracias abyssinica [Abyssinian Roller]

× *Coracias caudata* [Lilac-breasted Roller] ENHI. PCZ (ne Ethiopia). A population (*lorti*), treated as a race of *C. caudatus*, is intermediate in morphology and range, and thus a PHP of this cross. Fry 2001a (p. 372 and Plate 28); Fry and Fry 1992.

Note: Three of the following rollers (*Coracias affinis*, *C. benghalensis*, and *C. indica*) are now usually lumped.

Coracias affinis [Burmese Roller]

× *Coracias benghalensis* [Northern Roller] ENHR (n India, Nepal). These birds are often lumped. Berlioz 1927; Finn 1900a; Fry 2001a (pp. 344, 371); Hachisuka (Marquess) 1928; Menegaux 1915; Rothschild (Lord) 1923; Sibley and Monroe 1990; Suchetet 1897a.

× *Coracias indica* [Southern Roller] ENHR (n Bay of Bengal)? Sibley and Monroe 1990.

Coracias benghalensis [Northern Roller]

See also: *Coracias affinis*.

× *Coracias caudata* [Lilac-breasted Roller] CHR. DRS. The Amsterdam Zoo (Holland) had a hybrid in 1966. IZY 1968.

× *Coracias garrulus* [European Roller] NHR?? Old record. Suchetet 1897a.

× *Coracias indica* [Southern Roller] ENHR. Hybrid zone is in India (~20°N). Sibley and Monroe 1990 (p. 84).

Coracias caudata [Lilac-breasted Roller]

See also: *Coracias abyssinica*; *C. benghalensis*.

× *Coracias indica* [Southern Roller] CHR. DRS. The Amsterdam Zoo (Holland) had a hybrid in 1964. IZY 1968 (p. 422).

× *Coracias lorti* [Blue-breasted Roller] NHR (coastal Kenya). These birds have long been lumped. Jacobi 1917.

Coracias garrulus [European Roller]

See: *Coracias benghalensis*.

Coracias indica [Southern Roller]

See: *Coracias affinis*; *C. benghalensis*; *C. caudata*.

Coracias lorti [Blue-breasted Roller]

See: *Coracias caudata*.

Coracias spatulata [Racket-tailed Roller]

× *Coracias weigalli* [Weigall's Roller]

ENHR. A 200–km-wide hybrid zone extends from s Tanzania to cen.

Mozambique. Clancey suggested that these birds be lumped, due to hybridization, but they are morphologically distinct and have often been treated separately. Clancey 1969; Fry 2001a (p. 372); Sibley and Monroe 1990 (p. 83).

Coracias weigalli [Weigall's Roller]

See: *Coracias spatulata*.

Courol

Family Leptosomidae

Leptosomus discolor [Courol] Two distinctively plumaged populations treated as races of this bird occur, one on Grand Comoro, *gracilis*, the other in Madagascar, *discolor*. Goodman says “*gracilis*, is sometimes considered a separate species, on basis of differences in size, plumage, and voice; however, [a third population] *intermedius* appears intermediate.” It occurs on the intervening island Anjouan. Goodman 2001 (p. 395).

Motmots

Family Momotidae

Electron carinatum [Keel-billed Motmot]

× *Electron platyrhynchum* [Broad-billed Motmot] Mixed pairs occur in Cosa Rica. No hybrids as yet reported. Snow 2001 (p. 280); Stiles and Skutch 1989 (p. 241).

Momotus aequatorialis [Highland Motmot]

× *Momotus momota* [Blue-crowned Motmot] ENHR (nw S. America). ACZ at 1,400 m (*aequatorialis* occurs above *momota*). Due to hybridization, these birds are often lumped,

but Hilty and Brown say that *M. aequatorialis* "is almost surely a separate species." Hilty and Brown 1986 (p. 309); Sibley and Monroe 1990 (p. 85).

Todies

Family Todidae

Todus angustirostris [Narrow-billed Tody]
 × *Todus subulatus* [Broad-billed Tody] These similar birds have a broad ACZ on Hispaniola at ~1,500 m (*angustirostris* occurs above *subulatus*). No hybrids are as yet reported. Kepler 2001 (p. 263).

Kingfishers

Family Alcedinidae

Alcedo azurea [Azure Kingfisher]
 × *Alcedo meninting* [Blue-eared Kingfisher] PCZ (Moluccas). No hybrids as yet reported, but these birds' similarity might foil detection. Fry 1980 (pp. 144, 145).
 × *Alcedo websteri* [Bismarck Kingfisher] PCZ in s Bismarcks (Vittiaz Strait). No hybrids as yet reported. Fry 1980 (pp. 144, 145).
Alcedo cristata [Malachite Kingfisher]
 × *Alcedo leucogaster* [White-bellied Kingfisher] ENHI (Gulf of Guinea islands). The Principe and Sao Tome kingfishers (*Alcedo nais*, *A. thomensis*) have been treated as races of both *A. cristata* and *A. leucogaster*. They have traits common to both. These facts suggest *A. nais* and *A. thomensis* as PHPs of this cross. Dowsett and Dowsett-Lemaire 1993 (p. 343); Fry and de Naurois 1984; Sibley and Monroe 1990 (p. 87); White 1965; Woodall 2001 (p. 233). Internet: DIGI.
Alcedo leucogaster [White-bellied Kingfisher]
 See: *Alcedo cristata*.
Alcedo meninting [Blue-eared Kingfisher]
 See: *Alcedo azurea*.
Alcedo nais [Principe Kingfisher]
 See: *Alcedo cristata* × *A. leucogaster*.
Alcedo quadribrachys [Shining Blue Kingfisher]

× *Alcedo semitorquata* [Half-collared Kingfisher] PCZ (e Angola, nw Zambia). No hybrids as yet reported. Fry 1980; Fry and Fry 1992.
Alcedo semitorquata [Half-collared Kingfisher]
 See: *Alcedo quadribrachys*.
Alcedo thomensis [Sao Tome Kingfisher]
 See: *Alcedo cristata* × *A. leucogaster*.
Alcedo websteri [Bismarck Kingfisher]
 See: *Alcedo azurea*.
Ceyx erithacus [Black-backed Kingfisher]
 × *Ceyx rufidorsa* [Rufous-backed Kingfisher] ENHR (s Malay Penin., Borneo, Sumatra). A hybrid population has been treated as a race (*jungei*). Migrants are exclusively *C. erithacus*. *C. rufidorsa* is sedentary. The Smithsonian has a ♀ hybrid taken in Borneo at Sabah in Oct. (USNM #483360). Due to hybridization these very different-looking birds are sometimes lumped. Fry 1980 (p. 140); Meise 1975; Ripley and Beehler 1987; Sibley and Monroe 1990; Sims 1959; Voous 1951; Wells 1999; White and Bruce 1986; Wolters 1975–1982 (p. 123); Woodall 2001 (p. 229).
Halcyon chelicuti [Striped Kingfisher] Two populations (*chelicuti*, *eremogiton*), treated as races of this bird, have a hybrid zone in s Mali. Borrow and Demey 2001; Fry and Fry 1992.
Halcyon leucocephala [Grey-headed Kingfisher]
 × *Halcyon senegalensis* [Woodland Kingfisher] CHR? BRO: sub-Saharan Africa. Wennrich 1982.
Halcyon senegalensis [Woodland Kingfisher]
 See also: *Halcyon leucocephala*.
 × *Halcyon senegaloides* [Mangrove Kingfisher] NHR? BRO: e Africa. So-called Woodland Kingfishers with aberrant bill colors and narrow black carpal comma on underwing may represent this cross. Hammer 1983, 1984, 1989; Hockey et al. 2005.
Halcyon senegaloides [Mangrove Kingfisher]
 See: *Halcyon senegalensis*.
Pelargopsis capensis [Stork-billed Kingfisher]
 × *Pelargopsis melanorhyncha* [Black-billed Kingfisher] ENHI (w Indonesia)? BRO:

Makassar Strait. Fry notes that “some races [of *P. melanorhyncha*] have scarlet in the bill and sky-blue in the rump,” traits of *P. capensis*, which suggests the occurrence of gene flow between these birds. Fry 1980 (p. 127).

Note: Although their contact zones are poorly studied and no hybrids have been reported, many members of *Todirhamphus* in Australasia are separated by PCZs (e.g., *T. australasia*, *T. chloris*, *T. godeffroyi*, *T. pyrrhopygia*, *T. ruficollaris*, *T. saurophaga*, *T. sanctus*, *T. tuta*, *T. veneratus*). Fry 1980 (p. 135).

Syma megarhyncha [Mountain Kingfisher]

× **Syma torotoro** [Yellow-billed Kingfisher] NHR. ACZ in New Guinea between 700 and 1,200 m (*megarhyncha* occurs above *torotoro*). Apparent hybrids have been reported (Woodall says “possible hybrids”). Due to the similarity of these birds, hybrids should be hard to recognize. Woodall 2001 (p. 226).

Todirhamphus chloris [Collared Kingfisher]

× **Todirhamphus cinnamominus** [Micronesian Kingfisher] NHR? The Ryukyu Kingfisher (*Todirhamphus miyakoensis*), based on one specimen from Miyako-shima, is either an extinct race of *T. cinnamominus* or this hybrid. Internet: DIGI.

Todirhamphus cinnamominus [Micronesian Kingfisher] See: *Todirhamphus chloris*.

Todirhamphus diops [Blue-and-white Kingfisher]

× **Todirhamphus lazuli** [Lazuli Kingfisher] NHR (Indonesia). The Zoological Museum of Amsterdam has a hybrid. Internet: ZMA.

Todirhamphus lazuli [Lazuli Kingfisher] *Todirhamphus diops*.

Todirhamphus macleayii [Forest Kingfisher]

× **Todirhamphus nigrocyaneus** [Micronesian Kingfisher] PCZ in nw New Guinea (adjacent to Astrolabe Bay). No hybrids as yet reported. Fry 1980 (pp. 132–133); Woodall 2001 (pp. 215, 216).

Todirhamphus nigrocyaneus [Micronesian Kingfisher]

See: *Todirhamphus macleayii*.

Kookaburras

Family Dacelonidae

Dacelo gaudichaud [Rufous-bellied Kookaburra]

× **Dacelo novaeguineae** [Laughing Kookaburra] ENHI. A bird of s New Guinea (Morehead R. to Wassi Kussa R.) and the Aru Is., the Spangled Kookaburra (*Dacelo tyro*) is intermediate in morphology and range and is thus a PHP of this cross. Moreover, Woodall's Plate 11 suggests that a second bird, *Dacelo leachi* (Blue-winged Kookaburra), of n Australia, is morphologically intermediate, but closer to *D. novaeguineae* (personal conclusion of author). It is also geographically intermediate. Fry 1980 (p. 122); Woodall 2001 (pp. 201, 203).

Dacelo leachi [Blue-winged Kookaburra]

See: *Dacelo gaudichaud* × *D. novaeguineae*.

Dacelo novaeguineae [Laughing Kookaburra]

See: *Dacelo gaudichaud*. A narrow hybrid zone exists between two populations (*minor*, *novaeguineae*) usually treated as races of *D. novaeguineae*. Wing and bill measurements show a marked, abrupt change just s of Cooktown (Queensland, Australia). Ford 1986.

Dacelo tyro [Spangled Kookaburra]

See: *Dacelo gaudichaud* × *D. novaeguineae*.

Bee-eaters

Family Meropidae

Merops apiaster [European Bee-eater]

× **Merops nubicus** (♂) [Carmine Bee-eater] CHR. DRS. HPF Callegari 1970[†].

Merops bullocki [Red-throated Bee-eater]

× **Merops oreobates** [Cinnamon-chested Bee-eater] NHI? BRO: e Africa (nw of Lake Victoria). A rare yellow-throated bird (*boleslavskii*), treated by Fry as a variant of *M. bullocki*, appears intermediate between these birds (opinion of author on basis of Fry's Plate 26). Fry 2001b (p. 332 and Plate 26).

Merops gularis [Black Bee-eater] Two

populations treated as races of this bird,

the black-headed *australis* and the turquoise-superciliaried *gularis*, hybridize in se Nigeria. Fry 2001b (p. 328).

Merops muelleri [Blue-headed Bee-eater]

Two populations treated as races of this bird, the blue-browed *mentalis* and the white-browed *muelleri*, hybridize where they meet at the Cameroon–Nigeria border. Fry 2001b (p. 328).

Merops nubicus [Carmine Bee-eater]

See: *Merops apiaster*.

Merops oreobates [Cinnamon-chested Bee-eater]

See also: *Merops bullocki*.

× **Merops variegatus** [Blue-breasted Bee-eater] ENHI. Fry and Fry (p. 257) note that where these birds overlap (e Africa), Blue-breasted Bee-eaters “are almost identical to Cinnamon-chested,” but not where they are not in contact (e.g., Zambia), a finding suggesting extensive gene flow. In addition, a population (*lafresnayii*) has been treated as a race of both these birds, which suggests it as a PHP of this cross. It has also been treated as a separate species *Merops lafresnayii* (Ethiopian Bee-eater). Fry 2001b (p. 332); Fry and Fry 1992.

Merops pusillus [Little Bee-eater] Five populations of sub-Saharan Africa treated as races of this bird (*argutus*, *cyanostictus*, *meridionalis*, *pusillus*, *ocularis*) all hybridize where their ranges meet. Fry 2001b (p. 331).

Merops variegatus [Blue-breasted Bee-eater]

See: *Merops oreobates*.

Nyctyornis amictus [Red-bearded Bee-eater]

× **Nyctyornis athertoni** [Blue-bearded Bee-eater] PCZ (n Malay Penin.). No hybrids as yet reported. Fry 2001b (p. 327); Fry and Fry 1992.

Mousebirds

Family Coliidae

Colius striatus [Speckled Mousebird] *C. striatus* is often divided into three groups of races; hybridization is frequent between races within each group, but rare between races in different groups. De Juana 2001 (p. 75); Schifter 1985.

Cuckoos and Coucals

Families Centropidae, Coccyzidae, Cuculidae

Cacomantis variolosus [Brush Cuckoo] In Australia two populations, *dumetorum* and *variolosus*, usually treated as races of this bird, hybridize in the Burdekin lowland (ne Queensland) and are therefore usually lumped. These birds are, however, distinct (*variolosus* is dark, migratory, and larger than *dumetorum*, which is yellowish and sedentary). Ford 1987 (p. 174); Mason et al. 1984.

Centropus bengalensis [Lesser Coucal]

× **Centropus viridis** [Philippine Coucal] NHR. BRO: Philippines. Parkes describes a hybrid from n Luzon. Parkes 1984.

Centropus burchelli [Burchell's Coucal]

× **Centropus superciliosus** [White-browed Coucal] ONHR (Zambia). Hybrids occur in Zimbabwe, Zambia, Mozambique, and n Malawi. These birds also have a PCZ in s Tanzania. Due to hybridization, they are sometimes lumped. Dowsett and Dowsett-Lemaire 1993 (p. 335); Payne 1997 (p. 592); Snow 1978; Stevenson and Fanshawe 2002 (p. 196).

Centropus cupreicaudus [Coppery-tailed Coucal]

× **Centropus monachus** [Blue-headed Coucal] NHR (s Africa). These birds are sometimes treated as conspecific. Payne 1997 (p. 591).

Centropus epomidis [Rufous-bellied Coucal]

× **Centropus senegalensis** [Senegal Coucal] ENHR (Nigeria, Ghana). HPF These birds are often lumped. Payne says they interbreed freely. Payne 1997.

Centropus monachus [Blue-headed Coucal]

See: *Centropus cupreicaudus*.

Centropus phasianinus [Pheasant Coucal]

There is a hybrid zone between two populations (*melanurus*, *phasianinus*), treated as races of this bird, in the Burdekin lowland (ne Queensland) where an abrupt shift in a variety of measures occurs (e.g., lengths of tail, wing, bill). Ford 1987 (p. 174); Mason et al. 1984.

Centropus senegalensis [Senegal Coucal]

See: *Centropus epomidis*.

Centropus superciliosus [White-browed

Coucal] See: *Centropus burchelli*.

Centropus viridis [Philippine Coucal]

See: *Centropus bengalensis*.

Chrysococcyx crassirostris

[Pied Bronze-Cuckoo]

× *Chrysococcyx rufomerus* [Green-cheeked Bronze-Cuckoo] NHR (Indonesia, e Lesser Sunda Is.). A hybrid is known from Babar. Ford 1982c.

Chrysococcyx minutillus [Little

Bronze-Cuckoo]

× *Chrysococcyx russatus* [Gould's Bronze-Cuckoo] ENHR. Hybrid zone is in ne Queensland. HPF(vh). Though hybrids are abundant, few F₁ individuals occur in the zone. Due to hybridization, these birds are sometimes lumped, but they differ in color. Blakers et al. 1985 (p. 301); Christidis and Boles 1994; Ford 1982c, 1987; Higgins 1999 (pp. 751–752, 753, 758, 759); Parker 1981; Payne 1997 (p. 563); Simpson and Day 1999 (p. 148).

Chrysococcyx rufomerus [Green-cheeked Bronze-Cuckoo]

See: *Chrysococcyx crassirostris*.

Chrysococcyx russatus [Gould's

Bronze-Cuckoo]

See: *Chrysococcyx minutillus*.

Coccyzus americanus [Yellow-billed Cuckoo]

× *Coccyzus erythrophthalmus* [Black-billed Cuckoo] NHR. BRO: ne U.S., Canada (Ontario Penin.). Parkes says these birds sometimes lay eggs in each other's nests, and speculates this practice could have led to a young bird imprinting on the wrong type. The Carnegie Museum of Natural History has an alleged hybrid collected in Oct. in Meridian, Pennsylvania (CM #149972). Payne asserts this record refers to a juvenile *C. americanus*. Parkes 1984; Payne 1997 (p. 595).

Coccyzus erythrophthalmus [Black-billed Cuckoo]

See: *Coccyzus americanus*.

Cuculus clamosus [Black Cuckoo]

A population in e Africa (*jacksoni*), sometimes treated as a race of *C. clamosus*, is a hybrid population resulting from interbreeding of two other populations (*melanurus*, *phasianinus*) usually treated as races of this bird. Payne 1997 (p. 553).

Eudynamis scolopacea [Asian Koel] Diamond (2002, p. 5) says populations on Long Island (Melanesia) and its neighbors are “of recent hybrid origin, between the Bismarck race *salvadorii* and the New Guinea race *rufiventer*” of *E. scolopacea*. He also suggests (p. 5) that these hybrid populations must have arisen after Long was defaunated by volcanic eruption in 1670.

Piaya cayana [Squirrel Cuckoo] Payne says “the abruptness and rarity of intergradation” between two populations (*mexicana*, *thermophila*), treated as races of this bird, “in Oaxaca, S Mexico, suggest that these forms may belong to distinct species, though a few intermediates [i.e., hybrids] are known.” Payne 1997 (p. 601).

Parrots and Their Allies**Family Psittacidae**

Note: Hybridizing parrot genera are summarized in Figure 5.

Note: Gray (1958) lists crosses between *Agapornis canus* and six of its congeners, *A. fischeri*, *A. lilianae*, *A. nigrigenis*, *A. pullarius*, *A. personatus*, *A. roseicollis*, and *A. taranta*. However, she cites only Legendre (1936), who does not specifically mention these crosses.

Agapornis canus [Grey-headed Lovebird]

× *Melopsittacus undulatus* (♀) [Budgerigar] CHR? DRS. LFH. Page reported a hybrid that survived to leave the nest. Prestwich quotes [in translation] Dr. Karl Russ (*Die Gefiederte Welt* 1890, p. 223): “A very interesting hybrid breeding has succeeded in the bird-room of Baron von Grote. As this gentleman informs us, a short time ago a hybrid between a Madagascar Lovebird and a hen Budgerigar left the nest. This bird has

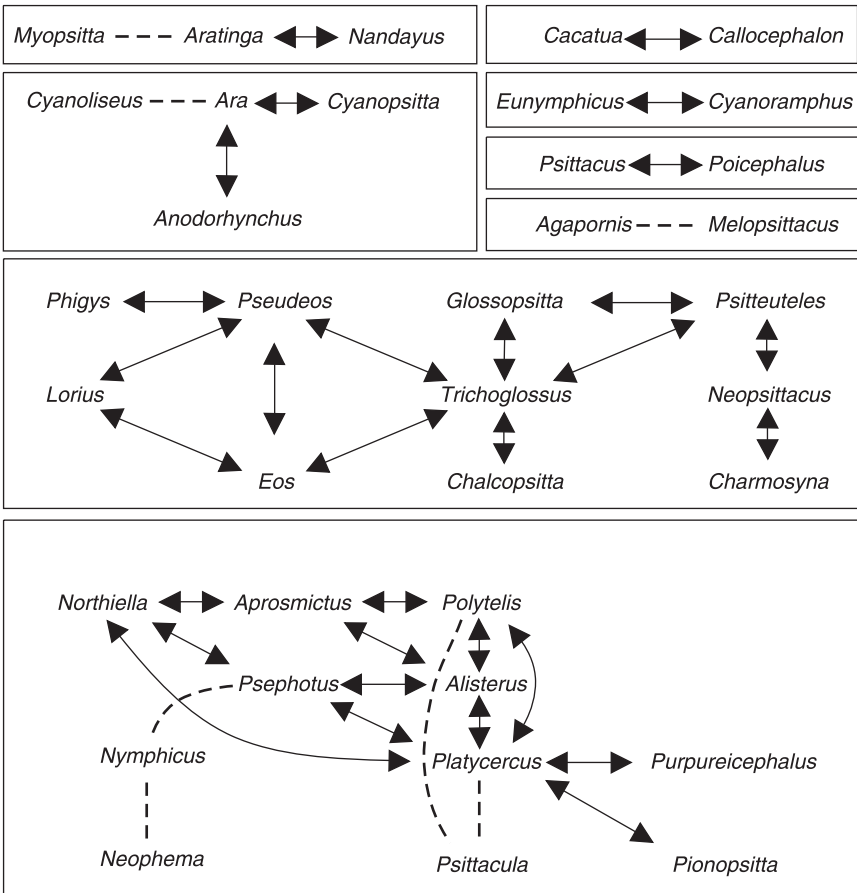


Figure 5. Hybridizing parrot genera. Arrows indicate reported hybridization. Dotted lines indicate questionable reports.

the shape and markings of a Budgerigar, but the head, neck, and about half the upper surface show the colouration of a young Madagascar Lovebird. It is very strong and healthy.” Prestwich says Russ’s description indicates that the hybrid was fully reared. Budgerigar hybrids have also been reported for *A. nigrigenis*, *A. personatus*, and *A. roseicollis*. All reports have involved a Budgerigar ♀. *Avicultural Magazine* 1928 (pp. 15, 189), 1943

(pp. 81–82); Gray 1958; Hopkinson 1926 (p. 227), 1941; Page 1918a; Prestwich 1950–1952 (p. 183).

Note: *Agapornis fischeri*, *A. lilianae*, *A. nigrigenis*, and *A. personatus* are sometimes treated as conspecific.

Note: Gray (1958) lists hybridization between *A. fischeri* and *A. pullarius*. However, she cites only Legendre (1936), who does not specifically list such a cross.

Agapornis fischeri [Fischer's Lovebird]

× *Agapornis lilianae* (↔) [Lilian's Lovebird] CHR. HPF(+). DRS. These birds are sometimes lumped. Ara 1952b; Baker and Ranson 1938; Buckley 1982 (p. 86); Delacour 1930; Gurney 1931; Hampe 1939; Hopkinson 1930, 1931a (p. 247), 1933a, 1941; Prestwich 1929, 1943c, 1949c (p. 37), 1950, 1950–1952 (pp. 200, 217, 223).

× *Agapornis nigrigenis* (↔) [Black-cheeked Lovebird] CHR. DRS. HPF(+). These birds are sometimes lumped. Three-way hybrids are known with *A. personatus*. Ara 1952b; Buckley 1982 (p. 86); Delacour 1930; Gurney 1931; Hampe 1939; Hopkinson 1931a; Prestwich 1929, 1943b, 1950–1952 (pp. 201, 224). Internet: AGAP.

× *Agapornis personatus* (↔) [Yellow-collared Lovebird] CAENHR. HPF(+). BRO: ne Tanzania, se Kenya. These birds are sometimes lumped. Hybridization with introduced *A. fischeri* in Kenya may be displacing endemic *A. personatus*. Hybrids are larger and more vigorous than either parent. They look like a Fischer's, but with a dark brown patch on the upper part of the head. Common in captivity. Prestwich (1950–1952) mentions a three-way hybrid ((*A. fischeri* × *A. personatus*) × (*A. fischeri* × *A. roseicollis*)). *Avicultural Magazine* 1929 (pp. 93, 133), 1930 (pp. 22, 153, 290), 1931 (p. 58); Baker and Ranson 1938; Blanchard 1929; Buckley 1982 (p. 86); Collar 1997; Delacour 1930, 1936b; Fletcher 1962; Gurney 1931; Hampe 1939; Hopkinson 1930, 1931a (p. 308), 1933a, 1935a, 1941; *IZY* 1979, 1980, 1981, 1982, 1983, 1984–1985, 1986, 1994; 1998; Prestwich 1928, 1929, 1943a, 1949c (p. 40), 1950, 1950–1952 (p. 200); Stevenson and Fanshawe 2002 (p. 180); Tavistock (Marquess of) 1929a; Thompson 1987. Internet: AGAP.

× *Agapornis roseicollis* (♀) [Rosy-faced Lovebird] CHR. DRS. HPF(♂♂). Buckley

(1969) says ♀ hybrids strongly prefer ♂ hybrids over ♂♂ of either parental type, even when cross-fostered with parental birds. Females produce small eggs. Both parents produce young with light-colored heads, but hybrid young are dusky-headed. Buckley 1969, 1982; Delacour 1930, 1931; Dilger 1962a, 1962b; Hampe 1939; Hopkinson 1930, 1931a, 1933a, 1941; *IZY* 1975, 1984–1985, 1998; Olivaux 1929; Prestwich 1929 (p. 79), 1950, 1950–1952 (pp. 199, 201).

× *Agapornis taranta* (↔) [Black-winged Lovebird] CHR? DRS. HPF Ara 1952b; Prestwich 1950–1952 (pp. 194, 201).

Note: Gray (1958) lists crosses of *Agapornis lilianae* with *A. pullarius* and *A. taranta*, but cites only Legendre (1936), who does not list these crosses.

Agapornis lilianae [Lilian's Lovebird]

See also: *Agapornis fischeri*.

× *Agapornis nigrigenis* (↔) [Black-cheeked Lovebird] CANHR. HPF(♂ & ♀). Three-way hybrids are known with *A. personatus*. Prestwich (1950–1952, p. 224) mentions natural hybrids collected in n Zambia (in July). A hybrid described by Haarer adopted three Cockatiel chicks and successfully raised one. These birds are sometimes lumped. Adult hybrids are like *A. lilianae*, but with blackish cheeks. *Avicultural Magazine* 1926 (p. 224), 1927 (pp. 114, 322), 1928 (pp. 16, 189, 301); Bennett 1928; Blanchard 1929; Brickell 1989 (p. 232); Gurney 1931; Haarer 1935; Hampe 1939; Hopkinson 1930 (p. 21), 1931a, 1933a (p. 49), 1941; Low 1929; Prestwich 1944, 1949c (pp. 10, 43), 1950, 1950–1952 (pp. 218, 223–224).

× *Agapornis personatus* (↔) [Yellow-collared Lovebird] CHR. DRS. HPF(♂ & ♀). These birds are sometimes treated as conspecific. *Avicultural Magazine* 1929 (p. 78), 1931 (p. 77); Delacour 1930; *Die Gefiederte Welt* 1928 (p. 498); Hampe 1939; Hopkinson

1930, 1933a, 1941; Low 1929; Prestwich 1929, 1943b; 1949c (p. 40), 1950–1952 (pp. 211, 217, 218).

- × *Agapornis roseicollis* (↔) [Rosy-faced Lovebird] CHR. DRS. HPF *Avicultural Magazine* 1928 (p. 189), 1929 (pp. 21, 133), 1930 (p. 21); Brickell 1989 (p. 232); Delacour 1930; Hampe 1939; Hopkinson 1931a, 1933a, 1941; Low 1929; Prestwich 1949c (p. 42), 1950–1952 (pp. 193, 194, 217); Warren 1932.

Note: Gray (1958) lists crosses of *Agapornis nigrigenis* with *A. pullarius* and *A. taranta*, but cites only Legendre (1936), who does not mention these crosses.

Agapornis nigrigenis [Black-cheeked Lovebird]
See also: *Agapornis fischeri*; *A. lilianae*.

- × *Agapornis personatus* (↔) [Yellow-collared Lovebird] CHR. DRS. HPF These birds are sometimes lumped. Prestwich says backcrosses to Black-cheeked look exactly like a large Yellow-collared. *Avicultural Magazine* 1929 (p. 133), 1932 (p. 158); Baker and Ranson 1938; Christie-Miller 1928; Delacour 1930; Hampe 1939; Hopkinson 1931a (pp. 226, 248), 1933a, 1934, 1941; Moore 1929, 1930; Prestwich 1949c (p. 40), 1950–1952.
- × *Agapornis roseicollis* (↔) [Rosy-faced Lovebird] CHR. HPF (♂ & ♀). DRS. *Avicultural Magazine* 1925 (p. 107), 1927 (p. 116); 1928 (p. 16); 1932 (p. 158); Brickell 1989 (p. 232); Delacour 1930; Hampe 1939; Hopkinson 1926, 1933a (p. 313), 1941; Marriner 1927; Prestwich 1928, 1950–1952.
- × *Melopsittacus undulatus* (♀) [Budgerigar] CHR? DRS. Page (*Bird Notes* 1911, p. 211), a generally reliable source, says “Our esteemed member Mrs. Higginbotham has four young of the above cross [Black-cheeked Lovebird × Green Budgerigar] hatched out and doing well. The male of a pair of Black-cheeks forsook his own mate and paired up with the Budgerigar. Seven eggs were duly laid, of which four duly hatched out,

both parents shared the duties of incubation.” Budgerigar hybrids have also been reported for *Agapornis canus*, *A. personatus*, and *A. roseicollis*. *Bird Notes* 1911; Prestwich 1950–1952.

Agapornis personatus [Yellow-collared Lovebird]
See also: *Agapornis fischeri*; *A. lilianae*; *A. nigrigenis*.

- × *Agapornis pullarius* [Red-headed Lovebird] CHR. DRS. HPF IZY 1975.
 - × *Agapornis roseicollis* (↔) [Rosy-faced Lovebird] CHR. DRS. HPF Common in captivity. Hill describes a hybrid. Anderson 1963; Ara 1952b; *Avicultural Magazine* 1928 (pp. 73, 189), 1929 (pp. 78, 133), 1942 (p. 158); Delacour 1930, 1936b (p. 346); Hampe 1939; Hill 1942; Hopkinson 1931a, 1933a, 1941; IZY 1966, 1967, 1968, 1976; 1982; Kuroda 1960b; *L'Oiseau et la Revue Française d'Ornithologie* 1928 (p. 95); Prestwich 1949c, 1950–1952 (pp. 194, 210).
 - × *Agapornis taranta* (♂) [Black-winged Lovebird] CHR? DRS. HPF Ara 1952a, 1952b; Prestwich 1950–1952 (p. 196).
 - × *Melopsittacus undulatus* (♀) [Budgerigar] CHR? DRS. LFH. Budgerigar hybrids have also been reported for *Agapornis canus*, *A. nigrigenis*, and *A. roseicollis*. Gjessing 1953.
- Agapornis pullarius*** [Red-faced Lovebird]
See: *A. personatus*. Gray (1958) lists crosses of *A. pullarius* with two other congeners (*A. roseicollis*, and *A. taranta*), but she cites only Legendre (1936), who does not specifically list these crosses.
- Agapornis roseicollis*** [Rosy-faced Lovebird]
See also: *A. fischeri*; *A. lilianae*; *A. nigrigenis*; *A. personatus*; *A. pullarius*.
- × *Agapornis taranta* [Black-winged Lovebird] CHR? DRS. HPF? Ara 1952b; Legendre 1936.
 - × *Melopsittacus undulatus* (♀) [Budgerigar] CHR?? DRS. Prestwich (1950–1952, p. 193) quotes Bush (*The Foreigner* 1939, p. 34): “A friend of mine has a young bird

- from a Peachfaced Lovebird and a Green Budgerigar." Budgerigar hybrids have also been reported for *Agapornis canus*, *A. personatus*, and *A. nigrigenis*. Boosey 1952; Gray 1958; Museau 1985; Prestwich 1943a, 1950–1952.
- Agapornis taranta*** [Black-winged Lovebird]
See: *A. fischeri*; *A. personatus*; *A. pullarius*; *A. roseicollis*.
- Alisterus amboinensis*** [Amboina King-Parrot]
- × ***Aprosmictus erythropterus***
[Red-winged Parrot] CANHR. BRO: sw New Guinea? LFH? Hopkinson 1930, 1933a, 1942; Prestwich 1930b, 1943c, 1947; Tavistock (Marquess of) 1927, 1928a, 1928b, 1928c, 1929b, 1930, 1932a, 1932b, 1935.
- × ***Polytelis alexandrae*** [Princess Parrot] CHR. DRS. Internet: PPAR, PREV.
- Alisterus chloropterus*** [Green-winged King-Parrot]
- × ***Alisterus scapularis*** [Australian King-Parrot] CHR. DRS. Prestwich 1950–1951, 1956. Internet: KING.
- Alisterus scapularis*** [Australian King-Parrot]
See also: *Alisterus chloropterus*.
- × ***Aprosmictus erythropterus*** (♀ prob. ↔)
[Red-winged Parrot] CANHR. BRO: e Australia. Bower-Thomas 1994; Cayley 1938; Delacour 1949a; Hopkinson 1926, 1942; Page 1914b; Pomarede 1991; Prestwich 1949b, 1950–1951; Tavistock (Marquess of) 1930. Internet: KING.
- × ***Platycercus elegans*** [Crimson Rosella] CHR. BRO: se coast of Australia. Ackermann 1898; Mitchell 1988. Suchetet 1897a. Internet: KING.
- × ***Polytelis anthopeplus*** [Regent Parrot] CHR? BRO: se Australia (ne of Melbourne). Internet: KING.
- × ***Polytelis swainsonii*** [Superb Parrot] CHR. BRO: e New South Wales (Australia). Cayley 1938; Fasey 1908; Hopkinson 1926, 1942; Page 1914b; Prestwich 1950–1951. Internet: KING.
- × ***Psephotus haematonotus*** [Red-rumped Parrot] CHR? BRO: e Victoria and e New South Wales (Australia). *Avicultural Magazine* 1949; Gray 1958.
- Amazona aestiva*** [Blue-fronted Parrot]
- × ***Amazona albifrons*** (♂) [White-fronted Parrot] CHR. DRS. Braune 1910a.
- × ***Amazona amazonica*** [Orange-winged Parrot] CHR. BRO: s Brazil, w Bolivia. IZY 1979, 1986.
- × ***Amazona auropalliata*** (♀ prob. ↔) [Yellow-naped Parrot] CHR. DRS. Prestwich 1949c, 1950–1951.
- × ***Amazona autumnalis*** (♀) [Red-lore'd Parrot] CHR. DRS. Lamb 1953, 1954.
- × ***Amazona festiva*** (♀) [Festive Parrot] CHR. DRS. Hopkinson 1942; Prestwich 1950–1951.
- × ***Amazona leucocephala*** (♂) [Cuban Parrot] CHR. DRS. *Die Gefiederte Welt* 1887; Hopkinson 1926, 1939b, 1942; Prestwich 1950–1951.
- × ***Amazona ochrocephala*** [Yellow-crowned Parrot] CHR. DRS. IZY 1990, 1991.
- × ***Amazona oratrix*** (prob. ↔) [Yellow-headed Parrot] CHR. DRS. Prestwich 1949c, 1950, 1950–1951.
- × ***Amazona viridigenalis*** (♀) [Red-crowned Parrot] CHR? DRS. Hopkinson 1939b; Prestwich 1950–1951.
- Amazona agilis*** [Black-billed Parrot]
- × ***Amazona pretrei*** (♀) [Red-spectacled Parrot] CHR. DRS. Fertile eggs only. No hatched hybrids reported. *Avicultural Magazine* 1973 (p. 142).
- × ***Amazona ventralis*** [Hispaniolan Parrot] CHR. DRS. Hybrids have been produced at the Center for the Study and Conservation of Psittaciformes (Rome) in 1990. IZY 1990, 1991, 1993, 1994, 1998.
- Amazona albifrons*** [White-fronted Parrot]
See also: *Amazona aestiva*.
- × ***Amazona viridigenalis*** (♂) [Red-crowned Parrot] CHR. BRO: s Gulf coast of Mexico? Hopkinson 1934, 1940a, 1942; Prestwich 1950–1951.
- Amazona amazonica*** [Orange-winged Parrot]
See: *Amazona aestiva*.

Amazona arausiaca [Red-necked Parrot]

× *Amazona ochrocephala* (♀) [Yellow-crowned Parrot] CHR. DRS. HPF Nichols reported a single female hybrid (pale blue forehead, yellow crown, red secondaries, lacked pinkish-red throat feathers), which crossed back to a Red-necked male. Backcross hybrid looked like *A. arausiaca* with a few yellow crown feathers. See *Amazona auropalliata* × *A. oratrix*. Nichols 1981.

Amazona auropalliata [Yellow-naped Parrot]

See also: *Amazona aestiva*.

× *Amazona oratrix* (prob. ↔) [Yellow-headed Parrot] ENHR. HPF(vh). BRO: Cen. America. These taxa are sometimes lumped with *A. ochrocephala* since they are all connected by a graded series of intermediates. However, they are often treated separately because birds from opposite extremes of the geographic continuum differ markedly in appearance. Collar 1997; Sibley and Monroe 1990.

Amazona autumnalis [Red-lore Parrot]

See also: *Amazona aestiva*.

× *Amazona oratrix* [Yellow-headed Parrot] CHR. BRO: Cen. America. Internet: BII.
 × *Amazona vinacea* [Vinaceous Parrot] CHR. DRS. Internet: BII.

Amazona collaria [Yellow-billed Parrot]

× *Amazona festiva* [Festive Parrot] CHR. BRO: w Brazil? *Avicultural Magazine* 1959 (p. 40)*.

Amazona dufresniana [Blue-cheeked Parrot]

× *Amazona finschi* [Lilac-crowned Parrot] CHR. DRS. IZY 1974.

Amazona festiva [Festive Parrot]

See also: *Amazona aestiva*; *Amazona collaria*.

× *Amazona ochrocephala* [Yellow-crowned Parrot] CHR. BRO: Amazonia. IZY 1982.

Amazona finschi [Lilac-crowned Parrot]

See also: *Amazona dufresniana*.

× *Amazona viridigenalis* [Red-crowned Parrot] ONHR (U.S.). DRS, but hybridization occurs in Florida where these birds are introduced. Froke (1981) says both are present, too, in s California. Internet: FWCS.

Amazona leucocephala [Cuban Parrot]

See also: *Amazona aestiva*.

× *Amazona ventralis* [Hispaniolan Parrot] CHR. DRS. Center for the Study and Conservation of Psittaciformes (Rome) had hybrids in 1990. IZY 1991, 1993, 1998.

Amazona ochrocephala [Yellow-crowned Parrot]

See also: *Amazona aestiva*; *A. arausiaca*; *A. festiva*.

× *Amazona oratrix* (♂) [Yellow-headed Parrot] CHR. DRS. *Avicultural Magazine* 1976 (p. 108).

Amazona oratrix [Yellow-headed Parrot]

See: *Amazona aestiva*; *A. auropalliata*; *A. autumnalis*; *A. ochrocephala*.

Amazona pretrei [Red-spectacled Parrot]

See: *Amazona agilis*.

Amazona ventralis [Hispaniolan Parrot]

See: *Amazona agilis*; *A. leucocephala*.

Amazona vinacea [Vinaceous Parrot]

See: *Amazona autumnalis*.

Amazona viridigenalis [Red-crowned Parrot]

See: *Amazona aestiva*; *A. albifrons*; *A. finschi*.

Anodorhynchus glaucus [Glaucous Macaw]

× *Anodorhynchus hyacinthinus* [Hyacinth Macaw] NHR?? Some claim the rare Lear's Macaw (*Anodorhynchus leari*) is this hybrid; its lack of success in captive breeding suggests low fertility, which, together with its rarity, is consistent with a hybrid origin. However, one of its supposed parents, *A. glaucus*, is thought to be extinct (although, perhaps, it does survive somewhere in Amazonia). So if Lear's is hybrid, it may represent an interesting case of a hybrid population surviving one of its parents. A major point against the hybrid origin hypothesis is the fact that the former distribution of the Glaucous Macaw is far s (se Brazil, Paraguay, Uruguay) of the current range of Lear's (ne Brazil). Panov 1989; Ridgely 1981; Voous 1965; Wolters 1975–1982 (p. 57). Internet: BMAC.

Anodorhynchus hyacinthinus [Hyacinth Macaw]

See also: *Anodorhynchus glaucus*.

- × *Ara ararauna* (♀) [Blue-and-yellow Macaw] CHR. BRO: cen. Brazil, s of Amazon. Hybrid is known as Caloshua Macaw. *Avicultural Magazine* 1966 (p. 32); *IZY* 1967, 1970, 1971, 1982. Internet: AVBI.
- × *Ara chloroptera* (♀) [Green-winged Macaw] CHR. BRO: cen. Brazil, s of Amazon. *Avicultural Magazine* 1975 (p. 37). Internet: BII.
- × *Ara macao* [Scarlet Macaw] CHR. BRO: cen. Brazil, s of Amazon. *IZY* 1968; Machado 1975b. Internet: BII.
- Anodorhynchus leari*** [Lear's Macaw]
See also: *Anodorhynchus glaucus* × *A. hyacinthinus*.
- × *Ara ararauna* [Blue-and-yellow Macaw] NHR? The Mayagüez Zoo (Puerto Rico) received a bird from Brazil. Silva thought it was probably this hybrid. Since the putative parents meet in Brazil, it may be a natural hybrid. It has a mandibular patch similar to that of *A. leari*. Silva 1989 (pp. 156–157).
- Aprosmictus erythropterus*** [Red-winged Parrot]
See also: *Alersterus amboinensis*; *A. scapularis*.
- × *Aprosmictus jonquillaceus* (♀) [Olive-shouldered Parrot] CHR. DRS. Prestwich 1950–1951; Sprawson 1946.
- × *Northiella haematogaster* [Bluebonnet] CHR? BRO: w Australia. Hopkinson 1933a, 1933b.
- × *Polytelis alexandrae* (♂) [Princess Parrot] CHR. LFH? BRO: interior of n Australia. Cayley 1938; Hopkinson 1926, 1933a; Prestwich 1950–1951; Seth-Smith 1927; Tavistock (Marquess of) 1925, 1926, 1928a, 1928c, 1930, 1932a, 1932b; Smith 1979. Internet: PPAR, PREV.
- × *Polytelis anthopeplus* (↔) [Regent Parrot] CHR. DRS. Delacour 1930, 1949a, 1965; Hopkinson 1931a, 1942; Prestwich 1949b, 1950–1951; Seth-Smith 1927; Tavistock (Marquess of) 1925, 1926, 1928a, 1928c, 1930, 1932a, 1932b.
- × *Polytelis swainsonii* (♂) [Superb Parrot] CHR. LFH. BRO: interior of ne New South Wales (Australia). Fletcher 1962; Hopkinson 1926, 1942; *IZY* 1965; Prestwich 1949c, 1950–1951; Tavistock (Marquess of) 1939.
- Ara ambigua*** [Buffon's Macaw]
- × *Ara ararauna* [Blue-and-yellow Macaw] CHR. BRO: nw Colombia. Internet: AVBI.
- × *Ara chloroptera* [Green-winged Macaw] CHR. BRO: nw Colombia. Hybrid is known to breeders as the Buffwing Macaw. Three-way hybrids with *A. militaris* are known. Internet: BII, EXOT.
- × *Ara militaris* [Military Macaw] CAENHR (S. America). HPF Collar says these birds are “sometimes treated as conspecific, but in spite of evidence of interbreeding the characters of the two forms are consistently different over their respective ranges.” Hybrid is known to breeders as the Miliffons Macaw. A population in w Ecuador (*A. ambigua guayaquilensis*) is intermediate between *A. ambigua* and *A. militaris* and therefore a PHP of this cross. Collar 1997; Fjeldsø et al. 1987. Internet: AVBI, MECC, PRUK.
- Ara ararauna*** [Blue-and-yellow Macaw]
See also: *Anodorhynchus hyacinthinus*; *A. leari*; *Ara ambigua*.
- × *Ara chloroptera* (↔) [Green-winged Macaw] CHR (very commonly produced). BRO: ne S. America, Amazonia. HPF Hybrid is known to breeders as the Harlequin Macaw. Differential viability in hybrids. Anderson 1932[†]; Auber and Hill 1953; *Avicultural Magazine* 1932 (pp. 226–227); Braune 1910; Haas 1986; Heemann 1982; Hill 1947, 1948; Hopkinson 1926, 1938d, 1941; Hutchinson 1932[†]; *IZY* 1971, 1973, 1974, 1993, 1997, 1998; Prestwich 1950–1951; Seth-Smith 1938; von Stephanitz 1897. Internet: AVBI, EXOT.
- × *Ara macao* (↔) [Scarlet Macaw] CHR (very common). BRO: Amazonia n and s of the Amazon. HPF (♂ & ♀). First bred at Catalina Island Bird Park, California, the hybrid is known as the Catalina or Rainbow Macaw. The backcross to *A. macao* is the Camelot Macaw (second backcross is known as the Capri Macaw). A three-way hybrid with *A. chloroptera*, known as the Flame Macaw, is also bred. The parents occur naturally in mixed flocks. Anderson 1932[†]; Anderson 1936[†]; *Avicultural Magazine* 1964 (p. 226)[†];

- Bronzini 1946; Collar 1997; Delacour 1937a, 1938; Gray 1958; Hopkinson 1933a, 1941; Hutchinson 1932[†]; IZY 1971, 1973, 1993, 1997, 1998; Kelly 1949; Lint 1948; Low 1978; Prestwich 1945, 1949c (pp. 11–12), 1950–1951; Stott 1951. Internet: AVBI, CENP, EXOT, HILL.
- × *Ara militaris* [Military Macaw] CHR. BRO: ne S. America? Hybrid known as Miligold Macaw. Delacour 1961. IZY 1974. Internet: AVBI.
- Ara auricollis*** [Yellow-collared Macaw]
- × *Ara nobilis* [Red-shouldered Macaw] CHR. BRO: Brazil. The São Paulo Zoo had six hybrids. IZY 1984–1985.
- × *Ara severa* [Chestnut-fronted Macaw] CHR. BRO: Brazil. Cape Town World of Birds (S. Africa) had a hybrid in 1985. IZY 1987.
- Ara chloroptera*** [Green-winged Macaw]
See also: *Anodorhynchus hyacinthinus*; *Ara ambigua*; *A. ararauna*.
- × *Ara macao* (♀) [Scarlet Macaw] CANHR. BRO: Amazonia. A very common hybrid, known to breeders as the Ruby Macaw. Taibel et al. report a probable natural hybrid. Harper 1972, 1975; Hill 1949; IZY 1973, 1974, 1997, 1998; Taibel et al. 1963; Prestwich 1950–1951; Shevlyagin 1992. Internet: AVBI.
- × *Ara militaris* (♀) [Military Macaw] CHR. BRO: nw S. America. HPF. The hybrid is known as the Calico Macaw, and backcross to the Green-winged, as Cameo Macaw. *Avicultural Magazine* 1972 (p. 18); IZY 1983, 1993, 1997; Minchin 1931; Prestwich 1950–1951; Rothschild 1913. Internet: AVBI, EXOT.
- Ara couloni*** [Blue-headed Macaw]
- × *Ara maracana* (♂) [Blue-winged Macaw] CHR. BRO: n Bolivia (Rio Orton)? *Avicultural Magazine* 1978 (p. 235).
- Ara macao*** [Scarlet Macaw]
See also: *Anodorhynchus hyacinthinus*; *Ara ambigua*; *A. ararauna*; *A. chloroptera*.
- × *Ara militaris* (↔ usu. ♀?) [Military Macaw] CHR. BRO: nw S. America. Common in captivity. Ackermann 1898; Gray 1958; Hopkinson 1926, 1938d, 1941; IZY 1977, 1981, 1982, 1983, 1984–1985, 1994; Page 1914b; Prestwich 1950–1951; Przibram 1910; Seth-Smith 1903a; Warren 1914. Internet: AVBI.
- Ara maracana*** [Blue-winged Macaw]
See also: *Ara couloni*.
- × *Cyanoliseus patagonus* [Burrowing Parakeet] CHR? DRS. Silva suggests that Whitley's Parakeet (*Cyanoliseus whitleyi*) is a hybrid of this type. Alternatively, Forshaw suggested that it is a cross between *C. patagonus* and a large Aratinga, probably *Aratinga wagleri*. Forshaw 1973 (p. 415); Silva 1989 (p. 214).
- × *Cyanopsitta spixii* (♂) [Spix's Macaw] NHR (Brazil). The last wild Spix's Macaw ♂ paired with a Blue-winged ♀ (in preference to the last wild Spix's ♀). Conservationists removed the resulting clutch and later found that one egg contained a 10-day-old hybrid embryo. *C. spixii* is now extinct in the wild. Juniper 2003 (p. 190); Miyaki et al. 2001. Internet: DECT.
- Ara militaris*** [Military Macaw]
See: *Ara ambigua*; *A. ararauna*; *A. chloroptera*; *A. macao*.
- Ara nobilis*** [Red-shouldered Macaw]
See: *Ara auricollis*.
- Ara severa*** [Chestnut-fronted Macaw]
See: *Ara auricollis*.
- Note:** Parakeets in the genus *Aratinga* are often called conures.
- Aratinga acuticaudata*** [Blue-crowned Parakeet]
- × *Aratinga canicularis* [Orange-fronted Parakeet] CHR. BRO: nw S. America. IZY 1986.
- Aratinga aurea*** [Peach-fronted Parakeet]
- × *Aratinga jandaya* [Jandaya Parakeet] CHR. BRO: ne Brazil. Hopkinson 1926; Page 1914b; Poltimore (Lord) 1914a; Prestwich 1950–1951.
- × *Aratinga pertinax* [Brown-throated Parakeet] CHR. BRO: nw of Amazon Delta. St. Petersburg Zoo (Russia) had hybrids in 1984. IZY 1986; Sturton-Johnson 1905.
- × *Aratinga solstitialis* [Sun Parakeet] CHR. BRO: lower Amazon. Hopkinson 1926, 1941; Prestwich 1950, 1950–1951.

- × *Myopsitta monachus* [Monk Parakeet]
CHR?? Prestwich 1950–1951.
- Aratinga cactorum*** [Cactus Parakeet]
- × *Aratinga pertinax* [Brown-throated Parakeet]
CHR. DRS. Francis 1957; Hallstrom 1956;
Lendon 1957.
- Aratinga canicularis*** [Orange-fronted Parakeet]
See also: *Aratinga acuticaudata*.
- × *Nandayus nenday* [Nanday Parakeet] CHR.
DRS. IZY 1976.
- Aratinga chloroptera*** [Hispaniolan Parakeet]
- × *Aratinga nana* [Olive-throated Parakeet]
CHR. DRS. Silva 1984.
- × *Nandayus nenday* [Nanday Parakeet] CHR.
DRS. *Avicultural Magazine* 1984 (p. 173).
- Aratinga erythrogenys*** [Cherry-headed
Parakeet]
- × *Aratinga mitrata* [Mitred Parakeet] CHR.
DRS. Internet: AVBI.
- × *Aratinga wagleri* [Scarlet-fronted Parakeet]
CHR. BRO: w Ecuador, nw Peru.
The Ostrava Zoo (Czech Republic) had
hybrids. IZY 1997.
- Aratinga finschi*** [Crimson-fronted Parakeet]
- × *Aratinga leucophthalmus* [White-eyed
Parakeet] NHR? An intermediate is
reported from e Colombia. However, the
ranges of these birds appear to be disjunct.
These birds are sometimes treated as
conspecific. Collar 1997.
- Aratinga holochlora*** [Green Parakeet]
- × *Aratinga weddellii* [Dusky-headed Parakeet]
CHR. DRS. Three hybrids were produced at
Busch Gardens (Florida, U.S.). IZY 1977.
- Aratinga jandaya*** [Jandaya Parakeet]
See also: *Aratinga aurea*.
- × *Aratinga pertinax* (↔?) [Brown-throated
Parakeet] CHR. BRO: Amazon Delta?
Hopkinson 1926, 1941; Prestwich
1950–1951.
- × *Aratinga solstitialis* (♀) [Sun Parakeet]
CHR (Amazon Delta). Hybrid known
as Jen-Sun, or Sunday, Conure. BRO:
Amazon Delta? IZY 1998;
Machado 1975b. Internet: AVBI.
- × *Aratinga wagleri* [Scarlet-fronted Parakeet]
CHR. DRS. Well-developed chicks were
found dead in the shell. Prestwich
1950–1951.
- × *Nandayus nenday* (♀) [Nanday Parakeet]
CHR. DRS. HPF. These hybrids are easily bred.
Brosset 1968; Carthew 1954; Stott 1951;
- Aratinga leucophthalmus*** [White-eyed
Parakeet] See: *A. finschi*.
- Aratinga mitrata*** [Mitred Parakeet]
See: *A. erythrogenys*.
- Aratinga nana*** [Olive-Throated Parakeet]
See: *A. chloroptera*.
- Aratinga pertinax*** [Brown-throated Parakeet]
See: *Aratinga aurea*; *A. cactorum*; *A. jandaya*.
- Aratinga solstitialis*** [Sun Parakeet]
See also: *Aratinga aurea*; *A. jandaya*.
- × *Nandayus nenday* [Nanday Parakeet] CHR.
DRS. Hybrid is known to breeders as Nan-
Sun Conure. Internet: AVBI.
- Aratinga wagleri*** [Scarlet-fronted Parakeet]
See also: *Aratinga erythrogenys*; *A. jandaya*.
- × *Cyanoliseus patagonus* [Burrowing Parakeet]
See: *Ara maracana* × *Cyanoliseus patagonus*.
- Aratinga weddellii*** [Dusky-headed Parakeet]
See: *Aratinga holochlora*.
- Brotogeris chiriri*** [Yellow-chevroned Parakeet]
- × *Brotogeris pyrrhopterus* [Grey-cheeked
Parakeet] CHR. DRS. Harris 1998.
- × *Brotogeris versicolurus* [White-winged
Parakeet] CHR. BRO: Brazil, s of the
Amazon (e Para, Rio Tapajós).
These birds are sometimes lumped.
However, Brightsmith notes that in
areas where they occur sympatrically
mixed flocks are rare, and natural
hybrids, unknown. Brightsmith 1999
(p. 4); Collar 1997; Harris 1998;
Pranty and Voren 2003.
- Brotogeris cyanoptera*** [Cobalt-winged
Parakeet]
- × *Brotogeris gustavi* [Blue-margined Parakeet]
ONHR (n Peru, upper Huallaga Valley).
These birds are sometimes lumped. Sibley
and Monroe 1990 (p. 128).
- Brotogeris gustavi*** [Blue-margined Parakeet]
See: *Brotogeris cyanoptera*.
- Brotogeris jugularis*** [Orange-chinned
Parakeet]
- × *Brotogeris pyrrhopterus* (♂) [Grey-cheeked
Parakeet] CHR. DRS. *Avicultural Magazine*
1944 (p. 185); Prestwich 1949c,
1950–1951.

× *Brotogeris tirica* (♂) [Plain Parakeet] CHR. DRS. Three hybrids died five weeks after hatching. *Avicultural Magazine* 1938 (p. 33); Prestwich 1949c, 1950–1951.

× *Brotogeris versicolurus* (♂) [White-winged Parakeet] CHR. DRS. Two hybrids were obtained. One almost reached maturity. *Avicultural Magazine* 1938 (p. 34); Prestwich 1949c, 1950–1951.

× ~~*Pittacula krameri* (♀) [Rose-ringed Parakeet]~~ Shore-Baily (1917) and Gray (1958) are cited for this cross, but they say only that eggs produced by a mixed pair were all clear. There was no hybrid. Shore-Baily (p. 15) says the Orange-chinned ♂, though less than half his mate's size, defended her "most gallantly. He spent much of his time, whilst the hen was sitting, in the mouth of the nesting-box, from which coign of vantage he sallied forth against all and sundry that ventured near, screaming lustily the while. He regularly fed the hen while she was on the nest and it is a great pity their efforts were not better rewarded."

Brotogeris pyrrhopterus [Grey-cheeked Parakeet]

See also: *Brotogeris chiriri*; *B. jugularis*.

× *Brotogeris versicolurus* [White-winged Parakeet] CHR. DRS. Harris 1998.

Brotogeris tirica [Plain Parakeet] See: *Brotogeris jugularis*.

Brotogeris versicolurus [White-winged Parakeet] See: *Brotogeris chiriri*; *B. jugularis*; *B. pyrrhopterus*.

Chalcopsitta atra [Black Lory]

× *Chalcopsitta scintilla* [Yellow-streaked Lory] ENHI (w New Guinea). A population (*insigna*), treated as a race of *C. atra*, is geographically and morphologically intermediate and, thus, a PHP of this cross. Collar 1997.

Chalcopsitta cardinalis [Cardinal Lory]

× ~~*Eclectus roratus* [Eclectus Parrot]~~ Some cite Gray (1958) for this cross, when, in fact, she only lists the cross *Eclectus cardinalis* × *E. roratus*. She identifies this *E. cardinalis* as the Ceram Eclectus, which is now usually lumped with *E. roratus*. She does not refer to a cross between Eclectus Parrot and Cardinal

Lory, but did use the name *Lorius* to refer to the Eclectus Parrot's genus. This name ceased to be used for Eclectus Parrots in 1970. Collar 1997; Gray 1958.

Chalcopsitta scintilla [Yellow-streaked Lory]
See also: *Chalcopsitta atra*.

× *Trichoglossus haematodus* [Rainbow Lorikeet] CHR. A single hybrid was produced at the Berlin Zoo in 1977. IZY 1979.

Charmosyna josefinae [Josephine's Lorikeet]

× *Charmosyna papou* [Papuan Lorikeet] CHR. BRO: Indonesia. Two hybrids occurred at San Diego Zoo in 1978. IZY 1980.

Charmosyna papou [Papuan Lorikeet] See: *Charmosyna josefinae*.

Charmosyna pulchella [Fairy Lorikeet]

× *Neopsittacus musschenbroekii* [Yellow-billed Lorikeet] CHR. BRO: New Guinea. Bruch and Bruch 1983; Collar 1997.

Cyanoliseus patagonus [Burrowing Parakeet]

See: *Ara maracana*; *Aratinga wagleri*.

Cyanoliseus whitleyi [Whitley's Macaw]

See: *Ara maracana* × *Cyanoliseus patagonus*.

Cyanopsitta spixii [Spix's Macaw]

See: *Ara maracana*.

Cyanoramphus auriceps [Yellow-crowned Parakeet]

× *Cyanoramphus malherbi* [Malherbe's Parakeet] CAONHR (Lake Sumner, New Zealand). Supposedly pure captive stocks of Malherbe's show signs of hybridization with *C. auriceps*. These birds are often lumped. Snyder et al. 2000; Triggs and Daugherty 1996. Internet: WLDP.

× *Cyanoramphus novaezelandiae* (♀) [Red-crowned Parakeet] CAENHR. HPF(♂ & ♀). BRO: Chatham group (e of New Zealand). A population (*forbesi*) on Mangere and Little Mangere Island, usually treated as a race of *C. auriceps*, is considered critically threatened by genetic swamping by *C. novaezelandiae*. A conservation program has been set up to control Red-crowned Parakeets to prevent interbreeding. Braune 1910a; Butler 1986; Cade 1983; Dyer 1987; Flack 1976; Higgins 1999 (p. 502); Hopkinson 1943; Nixon 1994; Prestwich 1950–1952 (p. 357); Russ 1892; Sagar 1988;

Shirihai 2002 (pp. 284, 285); Silva 1989 (pp. 108–109); Smith 1975; Taylor 1975; Triggs and Daugherty 1996; Veitch 1979.

Cyanoramphus malherbi [Malherbe's Parakeet]
See: *Cyanoramphus auriceps*.

Cyanoramphus novaeseelandiae [Red-crowned Parakeet]

See also: *Cyanoramphus auriceps*; *C. malherbi*.

× **Eunymphicus cornutus** [Horned Parakeet]
CHR. BRO: New Caledonia. Quinque 1980.

Note: Two populations (*roratus*, *vosmaeri*) treated as races of *Eclectus roratus*, hybridize on the island of Ceram. The Grand Eclectus (*roratus*) occurs on Buru, Amboin, Ceram, and s Moluccas. The Vosmaeri Eclectus (*vosmaeri*) inhabits larger islands of the n and cen. Molluccas. Swicegood and Thompson say specimens from Ceram (which neighbors the Moluccas), typed as Grand Eclectus, "have taken on some of the yellow coloration and size of the Vosmaeri Eclectus" (Internet: LVOS). This cross is also known in captivity. Hill 1944. Internet: ISIS.

Eclectus roratus [Eclectus Parrot] See: *Chalcopsitta cardinalis*.

Note: Although members of *Eos* generally have disjunct ranges in New Guinea and the Moluccas, contact may occur when birds fly to adjacent islands.

Eos sp.

× **Trichoglossus ornatus** [Ornate Lorikeet]
CHR. IZY 1984–1985.

Eos bornea [Red Lory]

× **Eos cyanogenia** [Black-winged Lory] CHR. DRS. Of four hybrids hatched at San Diego Zoo, three survived. IZY 1975.

× **Eos histrio** (prob. ♂) [Red-and-blue Lory] CHR. Delacour 1937a; Prestwich 1949c, 1950–1951.

× **Eos semilarvata** [Blue-eared Lory] ACZ (Ceram) at 1,200 m. No hybrids as yet reported (*E. semilarvata* is rare in captivity). Juniper and Parr 1998 (pp. 222, 224).

× **Lorius lory** [Black-capped Lory] CHR. BRO: e Ceram Sea. Busch Gardens (Florida, U.S.) had hybrids in 1966 and 1967. IZY 1968, 1969.

× **Trichoglossus haematodus** (prob. ♀) [Rainbow Lorikeet] CHR. BRO: Ceram, Buru. Common in captivity. Collar 1997; Delacour 1937a; IZY 1975, 1982, 1989; Prestwich 1949c, 1950–1951.

× **Trichoglossus ornatus** [Ornate Lorikeet] CHR. BRO: w Moluccas? Five occurred at Thüringer Zoo (Germany) in 1985. IZY 1987.

Eos cyanogenia [Black-winged Lory]
See: *Eos bornea*.

Eos histrio [Red-and-blue Lory]
See also: *Eos bornea*.

× **Eos reticulata** (prob. ♂) [Blue-streaked Lory] CHR? This hybrid may have been *E. histrio* × *E. squamata*. Prestwich 1949c, 1950–1951.

× **Eos squamata** (prob. ♂) [Violet-necked Lory] CHR? This bird may have been *E. histrio* × *E. reticulata*. Hopkinson 1938c (p. 300) Prestwich 1949c, 1950–1951; Stott 1951.

× **Lorius lory** (prob. ♂) [Black-capped Lory] CHR. *Lorius lory* resides in New Guinea and is unlikely to come into contact with any member of *Eos* (with the exception of *E. squamata* in the ext. w of the island). Stott 1951.

Eos reticulata [Blue-streaked Lory]
See also: *Eos histrio*.

× **Lorius lory** [Black-capped Lory] CHR. Two hybrids occurred at the Natal Zoo (S. Africa) in 1978. IZY 1980 (p. 404).

Eos semilarvata [Blue-eared Lory]
See: *Eos bornea*.

Eos squamata [Violet-necked Lory]
See also: *Eos histrio*.

× **Pseudeos fuscata** [Dusky Lory] CHR. BRO: w New Guinea. Internet: BBAB.

× **Trichoglossus haematodus** (♂) [Rainbow Lorikeet] CHR. BRO: w New Guinea. Hartley 1910a, 1910b, 1912; Prestwich 1950–1951.

Eunymphicus cornutus [Horned Parakeet]
See also: *Cyanoramphus novaeseelandiae*.

× **Eunymphicus uvaensis** (♂) [Ouvea Parakeet] CHR. BRO: Loyalty Is., New Caledonia? These birds are often lumped. *Avicultural Magazine* 1910 (p. 62); *Bird Notes* 1910 (p. 193); Butler 1910b (vol. 2, p. 237); Prestwich 1950–1952 (pp. 348–349, 350); Tavistock (Marquess of) 1929c (p. 193).

Forpus coelestis [Pacific Parrotlet]

× *Forpus crassirostris* (♀) [Blue-winged Parrotlet] CHR. PCZ in Ecuador and n Peru. *Avicultural Magazine* 1968 (p. 103), 1969 (pp. 14–15).

× *Forpus cyanopygius* [Mexican Parrotlet] CHR? Haddock obtained this hybrid (earlier reports are probably incorrect). DRS. *Avicultural Magazine* 1930 (p. 288), 1932 (pp. 85, 101, 102); Haddock 1969; Prestwich 1949c (p. 19).

× ~~*Forpus passerinus*~~ [~~Green-rumped Parrotlet~~] Some cite Gray (1958) for this cross but, she listed it only to point out that it was mistakenly reported. Gray 1958; Hopkinson 1933a; Plath 1933, Prestwich 1949c.

Forpus conspicillatus [Spectacled Parrotlet]

× *Forpus crassirostris* [Blue-winged Parrotlet] CHR. DRS. See *Forpus conspicillatus* × *F. cyanopygius*. Prestwich 1949c (pp. 18–19).

× *Forpus cyanopygius* [Mexican Parrotlet] CHR?? This hybrid has been reported, but Prestwich says the cross in question was actually *Forpus conspicillatus* × *F. crassirostris*. Dalborg-Johansen 1953; Gray 1958 (p. 158); Hopkinson 1933b, 1934; Prestwich 1949c (pp. 18–19).

× *Forpus passerinus* (♀) [Green-rumped Parrotlet] CHR. BRO: ne S. America. This cross was initially incorrectly reported as *Forpus coelestis* × *F. passerinus*. Gray 1958; Hopkinson 1942; Plath 1933; Prestwich 1950–1951.

Forpus crassirostris [Blue-winged Parrotlet]

See also: *Forpus coelestis*; *F. conspicillatus*.

× *Forpus passerinus* (↔) [Green-rumped Parrotlet] CHR. DRS. These birds are sometimes treated as conspecific. Hampe 1938[†]; Prestwich 1950–1951.

Forpus cyanopygius [Mexican Parrotlet]

See also: *Forpus coelestis*; *F. conspicillatus*.

× *Forpus passerinus* (♂) [Green-rumped Parrotlet] CHR. *Avicultural Magazine* 1953 (p. 167).

Forpus passerinus [Green-rumped Parrotlet]

See: *Forpus coelestis*; *F. conspicillatus*; *F. crassirostris*; *F. cyanopygius*.

***Glossopsitta* sp.**

× *Trichoglossus* sp. CHR. A hybrid of this type was produced at Melbourne Zoo (Australia) in 1985. *IZY* 1987.

Glossopsitta concinna [Musk Lorikeet]

× *Glossopsitta pusilla* [Little Lorikeet] CHR. HPF. BRO: se Australia (Victoria). Internet: BWLD.

× *Trichoglossus chlorolepidotus* [Scaly-breasted Lorikeet] CHR. BRO: se Australia. Anonymous 1960; *IZY* 1972, 1976; Neff 1994. Internet: KCBB, SCAL.

× *Trichoglossus haematodus* (♀) [Rainbow Lorikeet] CAENHR (se Australia). HPF(♂ & ♀). BRO: Yorke Penin., South Australia. Donato 2002; *IZY* 1986, 1987; Prestwich 1950–1952 (p. 29). Internet: KCBB.

Glossopsitta porphyrocephala [Purple-crowned Lorikeet]

× *Glossopsitta pusilla* [Little Lorikeet] CHR. BRO: se Australia (Victoria). Internet: PARR.

× *Psitteteles versicolor* [Varied Lorikeet] CHR. DRS. Internet: PARR.

× *Trichoglossus chlorolepidotus* [Scaly-breasted Lorikeet] CHR. BRO: se Australia. Neff 1994. Internet: SCAL.

Glossopsitta pusilla [Little Lorikeet]

See: *Glossopsitta concinna*; *G. porphyrocephala*.

Loriculus beryllinus [Ceylon Hanging-Parrot]

× *Loriculus galgulus* (♂) [Blue-crowned Hanging-Parrot] CHR. DRS. Two hybrids were reared at Chester Zoo (U.K.) in 1959. Bloom 1960; Buckley 1968 (p. 163).

Lorius domicella [Purple-naped Lory]

× *Lorius garrulus* [Chattering Lory] CHR. BRO: Moluccas? *IZY* 1969, 1970, 1971, 1972, 1977.

× *Lorius lory* [Black-capped Lory] CHR. BRO: Misool? *IZY* 1968.

× *Trichoglossus rubritonquis* (♂) [Red-collared Lorikeet] CHR. DRS. Delacour 1949a; Prestwich 1949b (p. 129), 1950–1952 (p. 26).

Lorius garrulus [Chattering Lory]

See also: *Lorius domicella*.

× *Lorius lory* [Black-capped Lory] CHR. BRO: islands w of New Guinea? *IZY* 1971, 1974, 1975, 1977, 1988.

- × *Pseudeos fuscata* [Dusky Lory] CHR.
A single hybrid was produced at Birdworld (Farnham, U.K.) in 1977. *IZY* 1979 (p. 330).
- × *Trichoglossus haematodus* (♂) [Rainbow Lorikeet] CHR. BRO: islands between Hamahera and w New Guinea. Hartley 1912; Hopkinson 1926, 1941; *IZY* 1994; Page 1914b; Prestwich 1950–1952 (p. 26).
- × *Trichoglossus ornatus* (♂) [Ornate Lorikeet] CHR. BRO: Moluccas? Woschitz 1973.
- Lorius lory** [Black-capped Lory] See: *Eos bornea*; *E. histrio*; *E. reticulata*; *Lorius domi-cellula*; *L. garrulus*.
- Melopsittacus undulatus** [Budgerigar]
See: *Agapornis canus*; *A. nigrigenis*; *A. personatus*; *A. roseicollis*; Appendix 2.
- Myopsitta monachus** [Monk Parakeet]
See: *Aratinga aurea*.
- Nandayus nenday** [Nanday Parakeet]
See: *Aratinga canicularis*; *A. chloroptera*; *A. jandaya*; *A. solstitialis*.
- Neophema chrysostris** [Blue-winged Parrot]
× *Neophema pulchella* (♀) [Turquoise Parrot] CHR. BRO: se Australia. LFH? These birds are markedly different in appearance. Boosey 1947; Boosey and Brooksbank 1931, 1933; Brooksbank 1949; Prestwich 1947.
- × *Nymphicus hollandicus* (♂) [Cockatiel] CHR?? BRO: se Australia. *Avicultural Magazine* 1949 (p. 32), 1950 (p. 190); Prestwich 1950–1952 (p. 56).
- Neophema elegans** [Elegant Parrot]
× *Neophema pulchella* (↔) [Turquoise Parrot] CHR. BRO: Victoria, Australia? Boosey 1955; Cayley 1938; Ezra 1940b, 1941; Gray 1958; Hopkinson 1933a, 1943; Porter 1958; Prestwich 1949c; Seth-Smith 1940.
- × *Neophema splendida* (prob. ♂) [Scarlet-chested Parrot] CHR. BRO: sw and se Australia. LFH. Boosey 1947; Prestwich 1947.
- Neophema pulchella** [Turquoise Parrot]
See also: *Neophema chrysostris*; *N. elegans*.
- × *Neophema splendida* [Scarlet-chested Parrot] CHR. BRO: se Australia? LFH. Anderson 1963; Cayley 1938; Hopkinson 1943; *IZY* 1981, 1993; McCullagh 1954. Internet: UNSW.
- Neophema splendida** [Scarlet-chested Parrot]
See: *Neophema elegans*; *N. pulchella*.
- Neopsittacus musschenbroekii** [Yellow-billed Lorikeet]
See also: *Charmosyna pulchella*.
- × *Psittuteles goldiei* [Goldie's Lorikeet] CHR. BRO: Indonesia. The Stuttgart Zoo (Germany) had hybrids. *IZY* 1981, 1982.
- Nestor meridionalis** [Common Kaka] Captive hybrids are reported between *N. m. occidentalis* and *N. m. meridionalis*. *IZY* 1973.
- Note:** Two populations, *haematogaster* and *haematorrhous*, treated as races of *Northiella haematogaster*, have a wide hybrid zone w of the Dividing Range in nw New South Wales and s Queensland (Ford 1974c; Forshaw 1981). The former is olive-shouldered and yellow-vented; the latter, red-shouldered and red-vented.
- Northiella haematogaster** [Bluebonnet]
See also: *Aprosmictus erythropterus*.
- × *Platycercus adscitus* [Pale-headed Rosella] CHR. BRO: e Australia. HPF: Cayley 1938. Internet: PALE.
- × *Psephotus dissimilis* [Hooded Parrot] CHR. DRS. Internet: BWLD.
- × *Psephotus haematonotus* (↔) [Red-rumped Parrot] CHR. BRO: se Australia. Bush 1950; Cayley 1938; Hopkinson 1926, 1933b, 1934, 1943; Seth-Smith 1924.
- × *Psephotus varius* (♀) [Mulga Parrot] CHR. BRO: se Australia. Bush 1950; Decoux 1920; Prestwich 1950. Internet: BWLD.
- Nymphicus hollandicus** [Cockatiel]
See also: *Neophema chrysostris*.
- × *Psephotus haematonotus* (♀) [Red-rumped Parrot] CHR?? BRO: se Australia. A bird mentioned by Greene “was said to be a hybrid between a female Red-rump and a male Cockatiel, to which latter bird it certainly bore more resemblance than to the former.” Greene 1884–1887 (vol. 1, p. 38).
- Phigys solitarius** [Collared Lory]
× *Pseudeos fuscata* [Dusky Lory] CHR (Taronga Zoo, Sydney). DRS. Hybrids closely resemble the Black-capped Lory (*Lorius lory*). The Collared Lory is much smaller

than the Dusky Lory. Anonymous 1959, 1960. Internet: BBAB.

Pionites leucogaster [White-bellied Parrot]

- × *Pionites melanocephala* (♂) [Black-headed Parrot] CAENHR. BRO: Amazonia. *Avicultural Magazine* 1958 (p. 89); Haffer 1977b; Hopkinson 1942; Novaes 1981; Panov 1989; Poltimore (Lady) 1936, 1958; Prestwich 1950–1951.

Pionites melanocephala [Black-headed Parrot]
See also: *Pionites leucogaster*.

- × *Pionus maximiliani* (♀) [Scaly-headed Parrot] CHR. BRO: Amazonia? Prestwich 1950–1951.

Pionopsitta pileata [Pileated Parrot]

- × *Platycercus elegans* [Crimson Rosella] CHR. DRS. *P. pileata* is a South American bird, *P. elegans*, an Australian one. Van Heyst 1958.

Pionus maximiliani [Scaly-headed Parrot]
See: *Pionites melanocephala*.

Platycercus adelaidae [Adelaide Rosella]

See also: *P. elegans* × *P. flaveolus*.

- × *Platycercus barnardi* [Mallee Ringneck] CAENHR (s Flinders Range, Australia). HPF Langdon says hybrids have Adelaide's head, but Mallee's body. Higgins 1999; Langdon 2004; North 1911.
- × *Platycercus caledonicus* (↔) [Green Rosella] CHR. DRS. Hopkinson 1933a, 1943; Prestwich 1949c.
- × *Platycercus elegans* (↔) [Crimson Rosella] CAENHR (se Australia). HPF F₁ hybrids are sometimes larger than either parent. This cross is really a backcross (see *P. elegans* × *P. flaveolus*). These birds are markedly different in appearance, but are now sometimes lumped due to hybridization. *Avicultural Magazine* 1935 (p. 117); Cayley 1938; Ford 1987; Higgins 1999; Hopkinson 1926, 1933a; Page 1914b; Poltimore (Lord) 1912; Prestwich 1949c (p. 44); Waud 1925.
- × *Platycercus eximius* [Eastern Rosella] CHR? BRO: se Australia. Hopkinson 1933a, 1943.
- × *Platycercus flaveolus* [Yellow Rosella] ENHR (Australia). Gene flow occurs along the Marne R. See: *P. elegans* × *P. flaveolus*. Cain 1955; Ford 1987 (p. 173); Higgins 1999; Joseph and Hope 1984.

- × *Psephotus chrysopterygius* (♀) [Golden-shouldered Parrot] CHR. DRS. Prestwich 1947.

Note: In ne Queensland, a hybrid zone exists between populations often treated as races of *P. adscitus*, the yellow-breasted, pale yellow-backed *adscitus*, and the blue-breasted, golden yellow-backed *palliceps*. Ford 1986.

Note: Because *Platycercus adscitus* is intermediate, it has been proposed to be a link between *Platycercus* and *Psephotus*. Surprisingly, it is also intermediate and considered a link between the Northern and Eastern rosellas (*Platycercus venustus* and *P. eximius*). Internet: PALE.

Platycercus adscitus [Pale-headed Rosella]
See also: *Northiella haematogaster*.

- × *Platycercus barnardi* [Mallee Ringneck] CAENHR (s Australia). Birch 1956; Hopkinson 1933a, 1943; Keast 1961; Meise 1975; Silver 1931. Internet: PALE.
- × *Platycercus caledonicus* [Green Rosella] CHR. DRS. Internet: PALE.
- × *Platycercus elegans* (↔) [Crimson Rosella] CHR. HPF BRO: Bass Strait? Hopkinson 1931a, 1943; Kelly 1949; Low 1929; Prestwich 1949c; Stott 1951; Tavistock (Marquess of) 1932a. Internet: PALE.
- × *Platycercus eximius* (↔) [Eastern Rosella] ENHR (Australia). HPF(vh). ACZ (*adscitus* occurs above *eximius*). Hybrid zone is in ne New South Wales and se Queensland. Hybrids look patchy and are variably intermediate. A population (*ceciliae*), treated as a race of the Eastern Rosella, shares traits with the Pale-headed (greenish-blue rump and golden feather margins on back and mantle). Due to hybridization, these birds are sometimes lumped. Ackermann 1898; *Avicultural Magazine* 1949; Boosey 1952b; Brereton and Sourry 1959; Cannon 1983; Cayley 1938; Cooper and McAllan 1995; Ford 1987 (p. 174); Forshaw 1981; Higgins 1999; Hopkinson 1926, 1933a, 1943; Keast 1961; Page 1914b; Prestwich 1949c, 1950; Przibram 1910; Voigt 1933; Warren 1914. Internet: EROS, PALE, SFAU.

- × *Platycercus flaveolus* [Yellow Rosella] CHR. DRS. Internet: PALE.
 - × *Platycercus icterotis* (♀) [Western Rosella] CHR. DRS. Gray 1958. Internet: PALE.
 - × *Platycercus venustus* [Northern Rosella] ENHI (n York Penin., ne Australia). HPF A population (*adscitus*), usually treated as a race of the Pale-headed, shares plumage traits (bi-colored cheek patches, dusky yellow rump, dull yellow margins to feathers of back and mantle, etc.) with the Northern. It is also geographically intermediate and, thus, a PHP of this cross. Barnard 1950, 1952a; McCullagh 1954; Plath 1953. Internet: PALE.
 - × *Platycercus zonarius* (♂ prob. ↔) [Port Lincoln Parrot] CHR. DRS. HPF Birch 1956; Cayley 1938; Hopkinson 1926, 1933a, 1943; Panov 1989; Silver 1931; Wall 1985. Internet: PALE.
 - × *Psephotus chrysopterygius* (↔) [Golden-shouldered Parrot] CHR. BRO: York Penin. (ne Australia). HPF (♂ & ♀). A three-way hybrid occurred with a *Platycercus barnardi* ♂. Gray 1958; Seth-Smith 1903a; Watkins 1947. Internet: PALE.
 - × *Psephotus haematonotus* (↔) [Red-rumped Parrot] CHR. BRO: se Queensland and ne New South Wales (Australia). Boosey 1947; Boosey 1952b; Cayley 1938; Gray 1958; Hopkinson 1926, 1933a, 1943; Prestwich 1947; Seth-Smith 1906b. Internet: DIGI, PALE.
 - × *Purpureicephalus spurius* (♀) [Red-capped Parrot] CHR. DRS. *Avicultural Magazine* 1949; Harwood 1957; Hubbell 1954. Internet: PALE.
- Platycercus barnardi*** [Mallee Ringneck]
See also: *Platycercus adelaidae*; *P. adscitus*.
- × *Platycercus caledonicus* [Green Rosella] CHR. DRS. Delacour 1930; Hopkinson 1931a.
 - × *Platycercus elegans* (↔) [Crimson Rosella] CHR. BRO: se Australia. Three-way hybrids are known with *P. zonarius*. *Avicultural Magazine* 1966 (p. 28); IZY 1971; Prestwich 1949c; West 1957.
 - × *Platycercus eximius* [Eastern Rosella] CHR. BRO: se Australia. Internet: EROS, RNGN.
 - × *Platycercus flaveolus* (♀?) [Yellow Rosella] CANHR (s New South Wales, Australia). HPF Baker and Ranson 1938; Cayley 1938; North 1904. Internet: MAHER.
 - × *Platycercus icterotis* [Western Rosella] CHR. DRS. Internet: RNGN.
 - × *Platycercus macgillivrayi* [Cloncurry Parrot] ENHR (Australia). Hybridization occurs in the Diamantina R. drainage (Queensland). These birds are now usually lumped. See: *Platycercus barnardi* × *P. zonarius*. Higgins 1999.
 - × *Platycercus zonarius* [Port Lincoln Parrot] ENHR (s Australia). HPF A hybrid zone runs along the Flinders Range. Hybrids within the zone show a full range of intermediate plumages. Some look much like *P. barnardi*, others, much like *P. zonarius*. A hybrid was treated as a race (*whitei*). In ne Australia, *P. macgillivrayi* shares traits with both of these birds and is geographically intermediate, which suggests it as a PHP of this cross. Due to hybridization, these birds are often lumped. Blakers et al. 1985; Cain 1955 (pp. 455, 464–467); Cayley 1938; Delacour 1930; Faisey 1905; Fisher 1970; Ford 1987 (p. 174); Ford and Parker 1974 (pp. 178–179); Forshaw 1981; Gray 1958; Hall and Frith 1974; Hopkinson 1926, 1933a, 1943; Langdon 2004[†]; Seth-Smith 1906b; Sibley and Monroe 1990 (p. 116). Internet: DIGI.
 - × *Psephotus haematonotus* (♀) [Red-rumped Parrot] CHR. BRO: se Australia. Baker and Ranson 1938; Hopkinson 1934, 1943; Seth-Smith 1933.
- Platycercus caledonicus*** [Green Rosella]
See also: *Platycercus adelaidae*; *P. adscitus*; *P. barnardi*.
- × *Platycercus elegans* (↔) [Crimson Rosella] CHR. BRO: vicinity of Bass Strait? Hopkinson 1933a, 1943; Prestwich 1949c.
 - × *Platycercus eximius* (↔) [Eastern Rosella] CANHR. BRO: e Tasmania. Hybrids are known from se Tasmania. Delacour 1930; Higgins 1999; Hopkinson 1931a, 1933a, 1943. Internet: EROS.
 - × *Platycercus zonarius* (♀) [Port Lincoln Parrot] CHR. DRS. Hopkinson 1926, 1943.

- × *Psephotus haematonotus* (♀) [Red-rumped Parrot] CHR. BRO: vicinity of Bass Strait? Boosey 1940.
- × *Purpureicephalus spurius* (♀) [Red-capped Parrot] CHR. DRS. Gould 1967.
- Platycercus elegans*** [Crimson Rosella]
See also: *Alisterus scapularis*; *Pionopsitta pileata*; *Platycercus adelaidae*; *P. adscitus*; *P. barnardi*; *P. caledonicus*.
- × *Platycercus eximius* (↔) [Eastern Rosella] CANHR (Australia). HPF BRO: e Australia. Hybrid was treated as a species, *P. erythropterus* (Red-mantled Parakeet). Ackermann 1898; Braune 1910a; Cayley 1938; Courtney 1967; Gray 1958; Hamel 1970; Higgins 1999; Hopkinson 1926 (p. 228), 1943; Low 1929; Marriner 1911; Mitchell 1987, 1991; Prestwich 1949c, 1950; Przibram 1910; Rogan 1966; Rothschild 1913; Seth-Smith 1906a; Suchetet 1897a; Wyndham 1979; ZSL 1949. Internet: BOSL, EROS.
- × *Platycercus flaveolus* (↔) [Yellow Rosella] CAENHR (e South Australia). HPF(♂ & ♀). The Adelaide Rosella, *P. adelaidae*, is the natural hybrid of *P. elegans* and *P. flaveolus*. It is abundant within its limited range (i.e., within the hybrid zone) and is a common sight in Adelaide. It has been treated as a separate species and as a race of both *P. elegans* and *P. flaveolus*. Naturally occurring *P. adelaidae* are identical to known *P. elegans* × *P. flaveolus* hybrids produced in aviaries. Boehm 1954; Brooksbank 1949; Cain 1955; Collar 1997; Ford 1987; Forshaw 1973 (pp. 226, 233[†]), 1981; Hobbs 1956, 1958; Irwin et al. 2001; Juniper and Parr 1998; Keast 1961; Meise 1975. Internet: APAN, CAMA, DIGI, FRIG[†].
- × *Platycercus zonarius* (♀) [Port Lincoln Parrot] CANHR. DRS. Hybrids resemble *Platycercus zonarius*. Cayley 1938; Fasey 1905; Hopkinson 1926, 1943; Page 1914b; Prestwich 1947, 1949c; West 1957.
- × *Psittacula krameri* (♂) [Rose-ringed Parakeet] CHR? DRS. *Avicultural Magazine* 1949.
- × *Purpureicephalus spurius* (♀) [Red-capped Parrot] CHR. DRS. *Avicultural Magazine* 1958 (p. 64).
- Platycercus eximius*** [Eastern Rosella]
See also: *Platycercus adelaidae*; *P. adscitus*; *P. barnardi*; *P. caledonicus*; *P. elegans*.
- × *Cacatua roseicapillus* (♀) [Galah] Brooksbank says a hen Galah mated to a cock Eastern Rosella laid fertile eggs. "As however, the cock (after the manner of most Parakeets, who think their wives should do all the work) refused to incubate, the exasperated hen, who expected her husband to take his turn at sitting, threw in her hand so the eggs failed to hatch." This cross would connect families Psittacidae and Cacatuidae. Brooksbank 1949 (p. 176).
- × *Platycercus flaveolus* (↔) [Yellow Rosella] CHR. BRO: se Australia. Caley 1938; Hopkinson 1926, 1933a, 1943; Rothschild 1913. Internet: EROS.
- × *Platycercus icterotis* (↔) [Western Rosella] CHR. HPF(♂ & ♀). ♂ hybrids derived from both reciprocal crosses are partially fertile; ♀ hybrids derived from ♂ Eastern × ♀ Western are also fertile, but less so than ♂♂. DRS. Astley 1909b; Barnard 1950, 1952a, 1952b; Cayley 1938; Hampe 1937; Hopkinson 1926, 1943; IZY 1981; Maitland 1951; Page 1914b; Prestwich 1947, 1949c. Internet: EROS.
- × *Platycercus venustus* (♂) [Northern Rosella] CHR. DRS. HPF(♂ & ♀). Red head feathers are edged with black in hybrids. Boosey 1943, 1947; Boosey 1952b; Brooksbank 1949 (p. 180); Prestwich 1947; Sprawson 1953. Internet: EROS.
- × *Platycercus zonarius* (↔) [Port Lincoln Parrot] CHR. BRO: s Australia (Flinders Range?). Hopkinson 1926, 1930, 1943; Page 1914b; Prestwich 1949c; Rothschild 1913. Internet: EROS.
- × *Polytelis swainsonii* (♂) [Superb Parrot] CHR. HPF? BRO: se Australia. Cayley 1938; Hopkinson 1933a, 1942, 1943; Prestwich 1950–1951. Internet: EROS.
- × *Psephotus chrysopterygius* (♀) [Golden-shouldered Parrot] CHR. DRS. Risdon 1951b. Internet: EROS.

- × *Psephotus haematonotus* (↔) [Red-rumped Parrot] CANHR. HPF? BRO: se Australia. *Avicultural Magazine* 1905; Cayley 1938; Hopkinson 1926, 1943; Page 1907, 1914b; Prestwich 1947, 1950; Rothschild 1913; Seth-Smith 1904a, 1907a. Internet: EROS.
- × *Psephotus varius* [Mulga Parrot] CHR. BRO: se Australia. Internet: EROS.
- × *Purpurecephalus spurius* [Red-capped Parrot] CHR. DRS. Harwood 1957. Internet: EROS.

Platycercus flaveolus [Yellow Rosella]

See also: *Platycercus adelaidae*; *P. adscitus*; *P. barnardi*; *P. elegans*; *P. eximius*.

- × *Platycercus venustus* (♂) [Northern Rosella] CHR. DRS. West 1957.
- × *Platycercus zonarius* (♀) [Port Lincoln Parrot] CHR. BRO: interior of n West Australia. Gray 1958.
- × *Psephotus haematonotus* (♀) [Red-rumped Parrot] CHR. BRO: se Australia. *Avicultural Magazine* 1949.

Note: Two populations (*icterotis*, *xanthogenys*), treated as races of *Platycercus icterotis*, have a broad hybrid zone extending from Perth to Albany (sw Australia). Higgins 1999.

Platycercus icterotis [Western Rosella]

See also: *Platycercus adscitus*; *P. barnardi*; *P. eximius*.

- × *Psephotus haematonotus* (↔) [Red-rumped Parrot] CHR. DRS. Boosey 1947; Boosey 1952b; Castle and Hadlow 1964; Gargan 1946.
- × *Purpurecephalus spurius* [Red-capped Parrot] CHR. DRS. Harwood 1957; Hopkinson 1933a, 1943; Prestwich 1930a, 1949c.

Platycercus macgillivrayi [Cloncurry Parrot]

See: *Platycercus barnardi* × *P. zonarius*.

Platycercus venustus [Northern Rosella] See:

Platycercus adscitus; *P. caledonicus*; *P. eximius*; *P. flaveolus*.

Note: In sw Western Australia hybrid zones exist between three populations (*occidentalis*, *semitorquatus*, *zonarius*) often lumped under *Platycercus zonarius* (Baker 2000; Fisher 1970; Ford 1987; Forshaw 1981; Serventy and Whittell 1976). One, *semitorquatus*

(Twenty-eight Parrot), is a forest bird, with an all-green belly and prominent red brow; the other *zonarius*, a bird of the dry interior with a broad yellow breast band. The two differ in call. Baker says *semitorquatus*'s flight call is not heard in the zone (though many *semitorquatus*-type birds are present). Part of the hybrid zone is in Perth. To the n (Murchison R. area), *zonarius* has a second hybrid zone with the pale, lemon-yellow bellied *occidentalis* (Cain 1955; Fisher 1970; Forshaw 1981).

Platycercus zonarius [Port Lincoln Parrot]

See: *Platycercus adscitus*; *P. barnardi*; *P. caledonicus*; *P. elegans*; *P. eximius*; *P. flaveolus*.

Poicephalus crassus [Niam-Niam Parrot]

- × *Poicephalus cryptoxanthus* [Brown-headed Parrot] CHR. DRS. Clancey 1977.

- × *Poicephalus senegalus* [Senegal Parrot] PCZ on Chad–Cameroon border. No hybrids as yet reported. Borrow and Demey 2001 (p. 480).

Poicephalus cryptoxanthus [Brown-headed Parrot]

See also: *Poicephalus crassus*.

- × *Poicephalus meyeri* (♀) [Meyer's Parrot] CAENHR (se Zimbabwe). Brickell 1989 (p. 232); Clancey 1977; Prigogine 1984; Rowan 1983.

- × *Poicephalus rueppellii* [Rueppell's Parrot] CHR. DRS. IZY 1974.

Poicephalus meyeri [Meyer's Parrot]

See also: *Poicephalus cryptoxanthus*.

- × *Poicephalus rueppellii* (♀) [Rueppell's Parrot] CHR. BRO: Namibia. Brickell 1989 (p. 232); IZY 1968, 1969, 1970.

Poicephalus robustus [Cape Parrot]

- × *Poicephalus suahelicus* [Brown-necked Parrot] CHR. BRO: se Africa. These birds are often lumped. Internet: CRAIG.

Poicephalus rueppellii [Rueppell's Parrot]

See: *Poicephalus cryptoxanthus*; *P. meyeri*.

Poicephalus senegalus [Senegal Parrot]

See also: *Poicephalus crassus*.

- × *Psittacus erithacus* [Grey Parrot] CHR. PCZ (Senegal to e Nigeria). Bed'Hom 1999.

Poicephalus suahelicus [Brown-necked Parrot]

See: *Poicephalus robustus*.

Polytelis alexandrae [Princess Parrot]

See also: *Alisterus amboinensis*; *Aprosmictus erythropterus*.

- × ***Polytelis anthoepus*** (↔) [Regent Parrot] CHR. BRO: ext. s New South Wales (Australia). Anonymous 1959; Astley 1911; Cayley 1938; Fasey 1907; Hopkinson 1926, 1942; Page 1914b; Prestwich 1950–1951; Smith 1979. Internet: PPAR, PREV.
- × ***Polytelis swainsonii*** (♂ prob. ↔) [Superb Parrot] CHR. DRS. Astley 1919, 1923, 1924[†]; Cayley 1938; Clarke 1958; Gray 1958; Hopkinson 1926, 1942; Prestwich 1950–1951; Rothschild 1913; Smith 1979. Internet: PPAR, PREV.
- × ***Psephotus haematonotus*** [Red-rumped Parrot] CHR. DRS. Internet: PARR.
- × ***Psittacula krameri*** (prob. ♂) [Rose-ringed Parakeet] CHR? DRS. Prestwich 1950–1951. Internet: UNSW.

Polytelis anthoepus [Regent Parrot]

See also: *Alisterus scapularis*; *Aprosmictus erythropterus*; *Polytelis alexandrae*.

- × ***Polytelis swainsonii*** (↔) [Superb Parrot] CHR. BRO: sw Australia? F₁ hybrids are larger than either parent. They are also variable in color (unusual for F₁ hybrids). *Avicultural Magazine* 1949 (p. 33); Boosey 1940; Cayley 1938; Fasey 1906; Hopkinson 1926, 1942; Neunzig 1921; Page 1914b; Prestwich 1950–1951; Rothschild 1913; West 1957.

Polytelis swainsonii [Superb Parrot] See:

Alisterus scapularis; *Aprosmictus erythropterus*; *Platycercus eximius*; *Polytelis alexandrae*; *P. anthoepus*.

Prosopcia personatus [Masked Shining-Parrot]

- × ***Prosopcia tabuensis*** (♀) [Red Shining-Parrot] CHR. BRO: Fiji. Prestwich 1949c, 1950–1951.

Prosopcia splendens [Crimson Shining-Parrot]

- × ***Prosopcia tabuensis*** (♀) [Red Shining-Parrot] CHR. BRO: Fiji. Prestwich 1950–1951.

Prosopcia tabuensis [Red Shining-Parrot]

See: *Prosopcia personatus*; *P. splendens*.

Psephotus chrysopterygius [Golden-shouldered Parrot]

See also: *Platycercus adelaidae*; *P. adscitus*; *P. eximius*.

- × ***Psephotus dissimilis*** (♀) [Hooded Parrot] CHR. DRS. HPF. *Avicultural Magazine* 1956 (p. 118), 1960 (p. 83); Hallstrom 1954.

- × ***Psephotus varius*** (♀) [Mulga Parrot] CHR. DRS. Cayley 1938; Groen 1966[†]; Hopkinson 1943; Page 1914b; Rothschild 1913; Seth-Smith 1903b; Silva 1989 (p. 59). Internet: BWLD.

Psephotus dissimilis [Hooded Parrot]

See also: *Northiella haematogaster*; *Psephotus chrysopterygius*.

- × ***Psephotus haematonotus*** (♂) [Red-rumped Parrot] CHR. DRS. LFH. Baker and Ranson 1938; Boosey 1947, 1952; Boosey 1935, 1952b; Boosey and Brooksbank 1934; Brooksbank 1949 (p. 204); Cayley 1938; Hopkinson 1934, 1943; Silva 1989.
- × ***Psephotus varius*** [Mulga Parrot] CHR. DRS. Boosey 1940; Prestwich 1953; Silva 1989; Sprawson 1953.

Psephotus haematonotus [Red-rumped Parrot]

See also: *Alisterus scapularis*; *Northiella haematogaster*; *Nymphicus hollandicus*; *Platycercus adscitus*; *P. barnardi*; *P. caledonicus*; *P. eximius*; *P. flaveolus*; *P. icterotis*; *P. zonarius*; *Polytelis alexandrae*; *Psephotus dissimilis*.

- × ***Psephotus pulcherrimus*** (♂) [Paradise Parrot] CHR. *P. pulcherrimus* is probably extinct. Braune 1910a; Cayley 1938; Hopkinson 1926, 1943; Neunzig 1921; Silva 1989; von Croy 1877a, 1877b.
- × ***Psephotus varius*** (♀) [Mulga Parrot] CHR. BRO: se Australia. Anonymous 1960; *Avicultural Magazine* 1968 (p. 35); Boosey 1928; Cayley 1938; Jones 1968.

Note: Last recorded in 1927, the Paradise Parrot is almost certainly extinct.

Psephotus pulcherrimus [Paradise Parrot]

See also: *Psephotus haematonotus*.

- × ***Psephotus varius*** [Mulga Parrot] CHR. Prestwich 1950; Silva 1989.

Psephotus varius [Mulga Parrot] See: *Northiella haematogaster*; *Platycercus eximius*; *Psephotus chrysopterygius*; *P. dissimilis*; *P. haematonotus*; *P. pulcherrimus*.

Pseudeos fuscata [Dusky Lory]

See also: *Eos squamata*; *Lorius garrulus*; *Phigys solitarius*.

- × *Trichoglossus haematodus* (↔) [Rainbow Lorikeet] CHR. This cross is easily obtained. BRO: New Guinea. Delacour 1942 (p. 46), 1945; IZY 1978, 1980; Prestwich 1950–1952 (pp. 24–25). Internet: BBAB.
- Psittacula alexandri*** [Moustached Parakeet]
- × *Psittacula krameri* (♂) [Rose-ringed Parakeet] CHR. BRO: n India, Nepal, Myanmar. Anonymous 1964; IZY 1968; Prestwich 1949c.
- Psittacula calthropae*** [Layard's Parakeet]
- × *Psittacula columboides* [Malabar Parakeet] CHR. BRO: s India (near Palk Strait). San Diego Zoo (U.S.) had hybrids in 1978. IZY 1980.
- Psittacula columboides*** [Malabar Parakeet]
See: *Psittacula calthropae*.
- Psittacula cyanocephala*** [Plum-headed Parakeet]
- × *Psittacula himalayana* (♂) [Slaty-headed Parakeet] CAENHR (Uttar Pradesh, n India). Hybrids are more robust than either parent. Sibley and Monroe (1990, p. 121) list this hybrid as *Psittacula intermedia* (Intermediate Parakeet) and say it is likely a “good species.” It was first described by Rothschild in 1895, who even then noted its intermediacy. As late as 1973, only five specimens were known. Regarding the Intermediate Parakeet, Grimmett et al. say “recent evidence from captive-bred birds strongly suggests that this form is of hybrid origin.” F₁ ♀♀ are almost identical to Plum-headed ♀♀. *Avicultural Magazine* 1934 (p. 260); Collar 1997; Forshaw 1973 (p. 338); Gray 1958; Grimmett et al. 1998 (p. 420); Husain 1959; Inskipp and Inskipp 1995; Prestwich 1950–1951; Rasmussen and Collar 1999a, 1999b, 1999c; Wolters 1975–1982 (p. 62). Internet: DIGI.
- Psittacula derbyana*** [Derbyan Parakeet]
- × *Psittacula eupatria* (♂) [Alexandrine Parakeet] CHR. BRO: ne India? Prestwich 1950–1951; Sheffler 1952.
- × *Psittacula krameri* (↔) [Rose-ringed Parakeet] CHR. DRS. IZY 1974, 1975.
- Psittacula eupatria*** [Alexandrine Parakeet]
See also: *Psittacula derbyana*.
- × *Psittacula krameri* (↔) [Rose-ringed Parakeet] CANHR. HPF (♂ & ♀). BRO: India, Pakistan, Myanmar. Boosey 1947; Boosey 1955[†]; Prestwich 1947, 1949c, 1950–1951; Veitch 1955. Internet: WANA.[†]
- Psittacula finschi*** [Grey-headed Parakeet]
- × *Psittacula himalayana* [Slaty-headed Parakeet] ENHI. In Bengal and se Bhutan, where they meet, these birds approach each other morphologically. They have long been lumped, but were recently split. Collar 1997.
- Psittacula himalayana*** [Slaty-headed Parakeet]
See: *Psittacula cyanocephala*; *P. finschi*
- Psittacula krameri*** [Rose-ringed Parakeet]
See also: *Brotogeris jugularis*; *Platycercus elegans*; *Polytelis alexandrae*; *Psittacula alexandri*; *P. derbyana*; *P. eupatria*.
- × *Psittacula longicauda* (♀) [Long-tailed Parakeet] CHR. BRO: Andaman Islands? Hopkinson 1942; Prestwich 1950–1951.
- Psittacula intermedia*** [Intermediate Parakeet]
See: *Psittacula cyanocephala* × *P. himalayana*.
- Psittacula longicauda*** [Long-tailed Parakeet]
See: *Psittacula krameri*.
- Psittacus erithacus*** [Grey Parrot]
See: *Poicephalus senegalus*. The Grey (*P. erithacus erithacus*) and the Timneh Parrot (*P. erithacus timneh*) have crossed in captivity (IZY 1979, 1984–1985) and also come into contact in w Africa.
- Psitteuteles goldiei*** [Goldie's Lorikeet]
See also: *Neopsittacus musschenbroekii*.
- × *Trichoglossus euteles* [Olive-headed Lorikeet] CHR. DRS. Cape Town World of Birds (S. Africa) had a hybrid in 1986. IZY 1988.
- Psitteuteles versicolor*** [Varied Lorikeet]
See also: *Glossopsitta porphyrocephala*.
- × *Trichoglossus rubritorquis* [Red-collared Lorikeet] CHR. BRO: n Australia. Internet: PARR.
- Purpureicephalus spurius*** [Red-capped Parrot]
See: *Platycercus adscitus*; *P. caledonicus*; *P. elegans*; *P. eximius*; *P. icterotis*.
- Pyrrhura albipectus*** [White-necked Parakeet]
- × *Pyrrhura melanura* [Maroon-tailed Parakeet] CHR. BRO: s S. America. Collar 1997.

Pyrrhura devillei [Blaze-winged Parakeet]

- × *Pyrrhura frontalis* [Maroon-bellied Parakeet] ONHR (n Paraguay). Collar 1997; Sibley and Monroe 1990 (p. 125). Internet: DIGI.

Pyrrhura frontalis [Maroon-bellied Parakeet]
See also: *Pyrrhura devillei*.

- × *Pyrrhura leucotis* [White-eared Parakeet] CHR. BRO: coastal se Brazil. Braune 1910a; Hopkinson 1926, 1941; Prestwich 1950–1951.
- × *Pyrrhura melanura* (♀) [Maroon-tailed Parakeet] CHR. DRS. Low 1972[†].

Pyrrhura leucotis [White-eared Parakeet]
See: *Pyrrhura frontalis*.

Pyrrhura melanura [Maroon-tailed Parakeet]
See: *Pyrrhura albipectus*; *P. frontalis*.

Pyrrhura molinae [Green-cheeked Parakeet]

- × *Pyrrhura picta* [Painted Parakeet] ENHI? Treated at one time as a separate species, *Pyrrhura hypoxantha* (Yellow-sided Parakeet), a bird of sw Brazil, has generated much controversy. It is often described as an aberrant race of *P. molinae*. However, breeders have produced a bird that looks like *P. hypoxantha* from hybrids descended from this cross. Moreover, *P. molinae* and *P. picta* meet in sw Brazil (Mato Grosso). Thus, *P. hypoxantha* is a PHP of this cross. Collar 1997; Majijer et al. 1998; Meyer de Schauensee 1966. Internet: FETH.

Pyrrhura perlata [Pearly Parakeet]

- × *Pyrrhura rhodogaster* (♂) [Crimson-bellied Parakeet] CHR. BRO: s of lower Amazon? Machado 1975b.

Pyrrhura picta [Painted Parakeet]
See: *Pyrrhura molinae*.

Pyrrhura rhodogaster [Crimson-bellied Parakeet] See: *Pyrrhura perlata*.

Rhynchopsitta pachyrhyncha [Thick-billed Parrot]

- × *Rhynchopsitta terrisi* [Maroon-fronted Parrot] ONHR (n Mexico)? Intermediate birds have been reported from Coahuila, but their diagnosis as hybrids has been disputed. Ely 1962 (p. 35); Hardy and Dickerman 1955; Snyder et al. 1999.

Trichoglossus sp. See: *Glossopsitta* sp.

Trichoglossus chlorolepidotus [Scaly-breasted Lorikeet]

See also: *Glossopsitta concinna*; *G. porphyrocephala*.

- × *Trichoglossus flavoviridis* [Yellow-and-Green Lorikeet] CHR. BRO: Sanana Island? IZY 1974.

- × *Trichoglossus haematodus* (↔) [Rainbow Lorikeet] CAONHR. Common in captivity. BRO: e coast of Australia. HPF Anonymous 1959; *Avicultural Magazine* 1963 (p. 92), 1969 (p. 35); Cannon 1984; Delacour 1949b; IZY 1968, 1971, 1972; Leggett and Woodall 1987; Longden 1994; Neff 1994; Prestwich 1950–1952 (p. 22); Rothschild 1913, Worthy 1982. Internet: KCBB, SCAL, UNSW.

- × *Trichoglossus ornatus* (♂) [Ornate Lorikeet] CHR. DRS. Cayley 1938; Gautschi 1902; Hopkinson 1926, 1938c (p. 301); Neff 1994; Prestwich 1950–1952 (pp. 6–7, 22). Internet: SCAL.

Trichoglossus euteles [Olive-headed Lorikeet]
See: *Psitteuteles goldiei*.

Trichoglossus flavoviridis [Yellow-and-Green Lorikeet] See: *Trichoglossus chlorolepidotus*.

Trichoglossus haematodus [Rainbow Lorikeet]
See also: *Eos bornea*; *E. squamata*; *Chalcopsitta scintilla*; *Glossopsitta concinna*; *Lorius garrulus*; *Pseudeos fuscata*; *Trichoglossus chlorolepidotus*.

- × *Trichoglossus ornatus* (♂) [Ornate Lorikeet] CAENHI. BRO: islands between Sulawesi and the s Moluccas. A population of the s Moluccas (*haematodus*), usually treated as a race of *T. haematodus*, is geographically and morphologically intermediate and, thus, a PHP of this cross. IZY 1981, 1989; Prestwich 1950–1951; Taibel 1937[†], 1945.

- × *Trichoglossus rubritorquis* (↔?) [Red-Collared Lorikeet] CAENHR. HPF? F₁ egg fertility is about 50%. Hybridization occurs in the sw Cape York Peninsula (Queensland, Australia). Due to hybridization, these birds are sometimes lumped. Anderson 1963; *Bird Notes* 1917; Cayley 1938; Harding 1912; Hopkinson 1926, 1930, 1941; IZY 1960; Milsom 1913; Page 1914b; Prestwich 1947, 1950–1951; Seth-Smith 1917; Yealland 1957. Internet: DIGI, KCBB.

Trichoglossus ornatus [Ornate Lorikeet]

See also: *Eos* sp., *Eos bornea*; *Lorius garrulus*; *Trichoglossus chlorolepidotus*; *T. haematodus*.

- × *Trichoglossus rubritorquus* (♀) [Red-collared Lorikeet] CHR. DRS. Paget 1923; Prestwich 1950–1951.

Trichoglossus rubritorquus [Red-collared

Lorikeet] See: *Lorius domicella*; *Psittuteutes versicolor*; *Trichoglossus haematodus*; *T. ornatus*.

Cockatoos**Family *Cacatuidae***

Note: According to Low (1993, p. 79), “virtually the only barrier against hybridization when two *Cacatua* species are kept together is size difference.”

Cacatua alba [White Cockatoo]

- × *Cacatua galerita* [Sulphur-crested Cockatoo] CHR. BRO: Halmahera Sea? *IZY* 1986.

- × *Cacatua leadbeateri* (↔ usu. ♀) [Major Mitchell’s Cockatoo]. CHR. DRS. One hybrid is said to have lived more than 100 years. Greene notes that a White Cockatoo “flying at liberty, in the woods round Northrepps Hall, mated with a hen Leadbeater, and the pair produced a couple of fine hybrids.” See *Cacatua galerita* × *C. leadbeateri*. Cayley 1938; Greene 1884–1887 (vol. 1, p. 10); Hopkinson 1926, 1941; Neunzig 1921; Prestwich 1950–1952 (pp. 41, 44).

- × *Cacatua moluccensis* [Moluccan Cockatoo] CHR. DRS. Anonymous 1978a; Low 1993 (p. 79). Internet: BII, ZIAN.

Note: Two populations (*fitzroyi*, *galerita*), sometimes treated as races of *Cacatua galerita*, hybridize along the lower Nicholson R. (nw Queensland). Forshaw 1981.

Cacatua galerita [Sulphur-crested Cockatoo]

See also: *Cacatua alba*.

- × *Cacatua leadbeateri* (↔) [Major Mitchell’s Cockatoo] NHR. BRO: se Australia. Prestwich (p. 38) says Buxton’s account of natural hybrids may refer to *C. galerita*, not *C. alba* as some have suggested. Hybrids have red-orange crests, otherwise white. Buxton 1868; Higgins 1999 (p. 173); Prestwich 1950–1952. Internet: SULF

- × *Cacatua roseicapillus* (↔) [Galah] CHR. BRO: n and e Australia. Anonymous 1961; *Avicultural Magazine* 1949 (p. 111), 1961 (p. 110); Brooksbank 1949; Cayley 1938 (pp. 94, 110); Cosgrave 1912; Higgins 1999 (p. 173); Hopkinson 1926, 1941; Jewell 1928; Lendon 1950; Prestwich 1949a, 1950–1952 (pp. 39, 44, 49). Internet: UNSW.

- × *Cacatua sanguinea* [Little (Short-billed) Corella] CANHR. BRO: Australia. Hybridization occurs on the Mornington Penin., Victoria. Anonymous 1959; *Avicultural Magazine* 1959 (p. 183); Higgins 1999 (p. 173); *IZY* 1997; Wakefield 2004. Internet: AVIN, BWLD, ZIBY.

- × *Cacatua sulphurea* [Lesser Sulphur-crested Cockatoo] CHR. BRO: Lesser Sunda? *IZY* 1994. Internet: BII.

- × *Cacatua tenuirostris* [Long-billed Corella] CANHR. Few F₁ eggs hatch. Hybrids occur in w Victoria. *Cacatua galerita* occurs throughout the range of *C. tenuirostris* (se Australia). Higgins 1999 (p. 173); Kentish and Brennan 2004; Prestwich 1950–1952; Warren 1914 (p. 7)[†], 1915 (p. 505).

Cacatua goffini [Tanimbar Cockatoo]

- × *Cacatua roseicapillus* [Galah] CHR. BRO: s New Guinea? Wrocław Zoo (Poland) had a hybrid in 1961. *IZY* 1961.

Cacatua haematuropygia [Philippine Cockatoo]

- × *Cacatua leadbeateri* [Major Mitchell’s Cockatoo] CHR. DRS. *IZY* 1974.

Cacatua leadbeateri [Major Mitchell’s

Cockatoo]
See also: *Cacatua alba*; *C. galerita*; *C. haematuropygia*.

- × *Cacatua roseicapillus* [Galah] CAONHR. HPF. BRO: Australia (w coast through interior to foothills of s Blue Mts.). Fergensbauer-Kimmel 1986; Higgins 1999 (p. 161); *IZY* 1971, 1972, 1973; Lendon 1950; Panov 1989; Prestwich 1950–1952 (p. 49); Rowley and Chapman 1986; Tarr 1962. Internet: UNSW.

- × *Cacatua sanguinea* [Little (Short-billed) Corella] CHR. BRO: Australian interior. Finch 1961. Internet: ZIBY.

× *Cacatua sulphurea* (♀) [Lesser Sulphur-crested Cockatoo] CHR. DRS. Anonymous 1963; *Avicultural Magazine* 1964 (p. 26); Higgins 1999 (p. 161); IZY 1979.

Cacatua moluccensis [Moluccan Cockatoo]

See: *Cacatua alba*.

Cacatua pastinator [Western Corella]

× *Cacatua sanguinea* [Little (Short-billed) Corella] ENHR (w Australia). Early reports suggested that this cross occurred only rarely in a natural setting, but more recent data indicates that a population (*derbyi*) is geographically and morphologically intermediate. It is thus a PHP of this cross. Interbreeding with *C. sanguinea* is now considered a threat to the Western Corella. Due to hybridization, these birds have sometimes been lumped. Ford 1985b; Higgins 1999 (p. 144); Schodde et al. 1979. Internet: PRTH.

Note: Three populations, *albiceps*, *kuhli*, and *roseicapillus*, treated as races of *Cacatua roseicapillus*, hybridize where they meet; *kuhli* is intermediate in morphology and range, and thus, a PHP of crossing between the other two. Ford 1987 (p. 173); Hall and Frith 1974; Higgins et al. 2001 (pp. 124–125).

Cacatua roseicapillus [Galah]

See also: *Cacatua galerita*; *C. goffini*; *C. leadbeateri*; *Platycercus eximius*.

× *Cacatua sanguinea* (♀) [Little (Short-billed) Corella] CANHR. BRO: Australia. Anonymous 1960; Gray 1958; Lukaszewicz 1957a, 1957b; Purdon 1993. Internet: UNSW, ZIBY.

× *Cacatua sulphurea* (↔) [Lesser Sulphur-crested Cockatoo] CHR. DRS. Brooksbank 1949 (p. 176); Chapman 2005; Gray 1958; Hopkinson 1926, 1933a, 1940b, 1941; IZY 1969, 1970, 1972, 1976; Prestwich 1950–1952 (pp. 40, 49); Seth-Smith 1918.

× *Cacatua tenuirostris* (♀) [Long-billed Corella] CANHR. BRO: se Australia. *Avicultural Magazine* 1950 (p. 139), 1967 (p. 21); Bush 1950; Prestwich 1950–1952 (p. 46). Internet: BIWA, BWLD, UNSW.

× *Callocephalon fimbriatum* (♀) [Gang-gang Cockatoo] CHR. BRO: se Australia (Victoria, se New South Wales). Anonymous 1941; Higgins 1999 (p. 102); Prestwich 1950–1952 (p. 48). Internet: BRDN, PARR, UNSW.

Cacatua sanguinea [Little (Short-billed) Corella]

See also: *Cacatua galerita*; *C. leadbeateri*; *C. pastinator*; *C. roseicapillus*.

× *Cacatua sulphurea* [Lesser Sulphur-crested Cockatoo] CHR. DRS. Cincinnati Zoo (U.S.) had a hybrid in 1975. IZY 1977. Internet: AVIN.

× *Cacatua tenuirostris* [Long-billed Corella] CHR (se Australia). BRO: along a line extending e from Adelaide. IZY 1976. Internet: ZIBY.

× *Callocephalon fimbriatum* [Gang-gang Cockatoo] CANHR (e Australia). Appleton et al. 1988; Higgins 1999 (p. 102). Internet: BRDN, UNSW.

Cacatua sulphurea [Lesser Sulphur-crested Cockatoo] See: *Cacatua galerita*; *C. leadbeateri*; *C. roseicapillus*; *C. sanguinea*.

Cacatua tenuirostris [Long-billed Corella]

See: *C. galerita*; *C. roseicapillus*; *C. sanguinea*.

Callocephalon fimbriatum [Gang-gang Cockatoo] See: *Cacatua roseicapillus*; *C. sanguinea*.

Calyptorhynchus banksii [Red-tailed Black-Cockatoo] Two populations (*banksii*, *macrorhynchus*), usually treated as races of this bird, have a hybrid zone in Australia (Queensland, N. Territory). Ford 1980b; Higgins 1999 (p. 50).

Calyptorhynchus baudinii [White-tailed Black-Cockatoo]

× *Calyptorhynchus latirostris* [Slender-billed Black-Cockatoo] PCZ in extreme sw Western Australia. *C. latirostris* occupies more xeric habitats than *C. baudinii*. No hybrids as yet reported. These birds are usually lumped. Ford 1987; Juniper and Parr 1998 (pp. 264, 267); Saunders 1979.

Calyptorhynchus funereus [Yellow-tailed Black-Cockatoo]

× *Calyptorhynchus xanthanotus* [Yellow-tinted Black-Cockatoo] ENHR (Australia). A wide hybrid zone exists in Victoria. Higgins notes that all birds collected between Cressy and East Gippsland were hybrids. These birds are sometimes treated as conspecific. Higgins 1999 (p. 77); Saunders 1979.

Calyptorhynchus latirostris [Slender-billed Black-Cockatoo] See: *Calyptorhynchus baudinii*.

Calyptorhynchus xanthanotus [Yellow-tinted Black-Cockatoo] See: *Calyptorhynchus funereus*.

Swifts

Family Apodidae

Note: The unobliging habits and slight plumage differences of swifts mean hybridization may be underreported in these birds.

Apus apus [Common Swift] Two populations (*apus*, *pekinensis*), treated as races of this bird, hybridize from Iran to Lake Baikal. Chantler 2000 (p. 224).

Note: Hybridization apparently occurs between two populations (*fuscobrunneus*, *horus*), now treated as races of *Apus horus*, but formerly as separate species (Horus Swift and Loanda Swift). Chantler 2000 (p. 244, Figure 60).

Apus horus [Horus Swift]

× *Apus toulsoni* [Toulson's Swift] ONHR (sw Zimbabwe, near Esigodini). These birds are sometimes lumped. Chantler 2000 (p. 245); Prigogine 1985.

Collocalia esculenta [Glossy Swiftlet] Two populations (*esculenta*, *nitens*), treated as races of this bird, hybridize in New Guinea (ACZ at ~2,000 m, *esculenta* occurs above *nitens*). Size varies clinally across the contact zone. Salomonsen 1983.

Collocalia leucophaeus [Tahiti Swiftlet]

× *Collocalia ocista* [Marquesan Swiftlet] NHR (Tahiti). These birds are sometimes lumped. The Smithsonian has a hybrid. Chantler 2000 (p. 148).

Collocalia maxima [Black-nest Swiftlet] Two populations, *lowi* and *maxima*, treated as races of this bird, hybridize in w Java. Both were treated as species, *Collocalia lowi* (Low's

Swiftlet) and *C. maxima* (Robinson's Swiftlet). Four hybrids are in the British Museum (Natural History). Medway (Lord) 1962.

Collocalia ocista [Marquesan Swiftlet]

See: *Collocalia leucophaeus*.

Collocalia orientalis [Mayr's Swiftlet] This bird, known from three specimens, is either very rare or a hybrid of unknown parentage. Chantler 2000 (p. 139)

Neafrapus boehmi [Bat-like Spinetail] Two populations, *boehmi* and *sheppardi*, treated as races of this bird hybridize in the upper Zambezi basin. *Sheppardi* differs from *boehmi* in its upper breast being evenly gray, and its underparts, more streaked. Benson et al. 1971 (p. 148); Chantler 2000 (p. 171).

Schoutedenapus schoutedeni [Schouteden's Swift] Chantler (2000, p. 155) says this bird "has never been recorded in the field."

Known from just five specimens from e Zaire (Bukavu), it is listed as vulnerable by Bird Life International. There has been no assertion of its hybridity, but by its very rarity, it is likely a hybrid. Specimens came from flocks of Scarce Swifts (*Schoutedenapus myoptilus*).

Streptoprocne zonaris [White-collared Swift]

Two populations (*bouchelli*, *mexicana*), treated as races of this bird, probably hybridize in Belize. Chantler 2000 (p. 116); Parkes 1993.

Tachymarptis aequatorialis [Mottled Swift]

Two populations (*aequatorialis*, *gelidus*), treated as races of this bird, hybridize in Zimbabwe at 32°30'E. Chantler 2000 (p. 218).

Tachymarptis melba [Alpine Swift] Two populations treated as races of this bird, the gray-brown *melba* and olive-brown *tuneti*, hybridize in the Middle East. Chantler 2000 (p. 216).

Crested-Swifts

Family Hemiprocnidae

Hemiprocne mystacea [Moustached Treewif] Probable hybrids between two populations treated as races of this bird (*aeroplanes*, *macrura*) occur on Rambutya I. (Admiralty Islands). Chantler 2000 (p. 254).

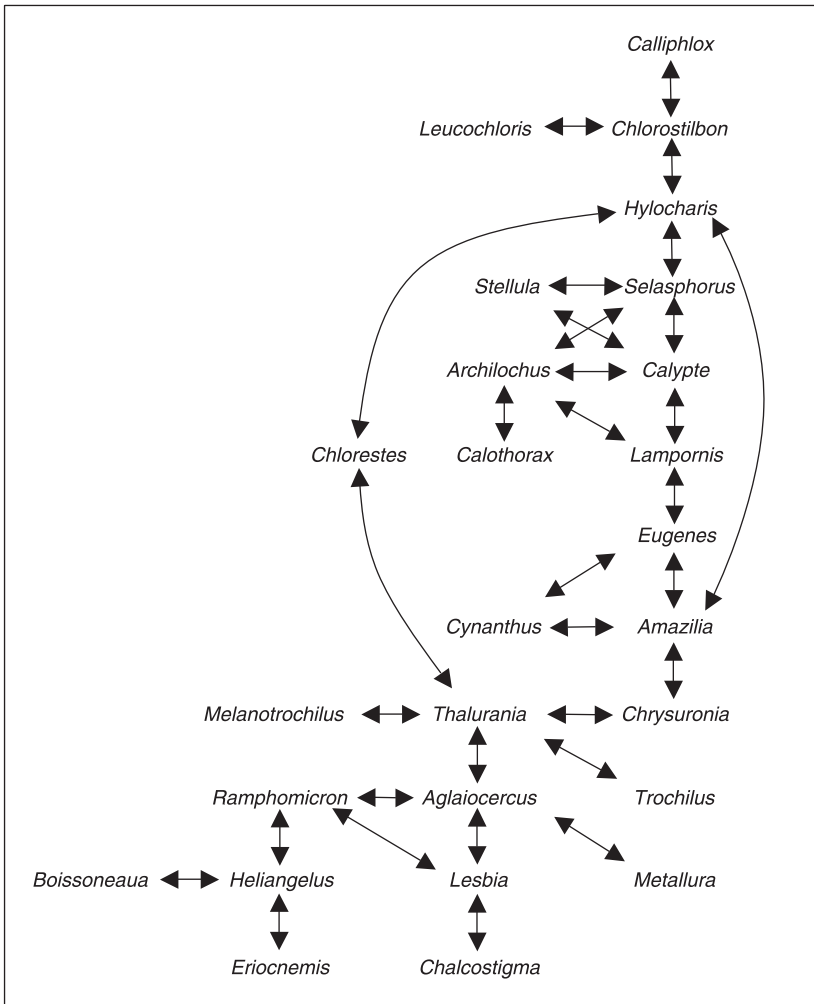


Figure 6. Hybridizing hummingbird genera. Arrows indicate reported hybridization.

Hummingbirds

Family Trochilidae

Note: Hybridizing hummingbird genera are summarized in Figure 6.

Acestrura decorata [Gould's Woodstar]

See: *Acestrura heliodor* × *A. mulsant*.

Acestrura harterti [Hartert's Woodstar] Known from a single Colombian specimen, this bird is probably a hybrid of unknown parentage. Sibley and Monroe 1990.

Acestrura heliodor [Gorgeted Woodstar]

× *Acestrura mulsant* [White-bellied Woodstar] NHR (Bogota, Colombia). Gould's Woodstar (*Acestrura decorata*), based on one specimen, is now considered to be this hybrid. Graves 1997b; Meyer de Schauensee 1966; Schuchmann 1999; Sibley and Monroe 1990 (p. 165).

Acestrura mulsant [White-bellied Woodstar]

See also: *Acestrura heliodor*.

× *Philodice mitchellii* [Purple-throated Woodstar] NHR. BRO: Colombia. The Museum Alexander Koenig has a specimen. Graves 2003b.

Aglaeactis castelnaudii [White-tufted Sunbeam] See: *Aglaeactis cupripennis*.

Aglaeactis cupripennis [Shining Sunbeam]

× *Aglaeactis castelnaudii* [White-tufted Sunbeam] ONHR (Cuzco, Peru). See *Aglaeactis cupripennis* × *A. pamela*. Fjeldså and Krabbe 1990; Williamson 2001. Internet: DIGI.

× *Aglaeactis pamela* [Black-hooded Sunbeam] NHR? BRO: s Peru. Fjeldså and Krabbe suggest that the White-tufted Sunbeam (*Aglaeactis castelnaudii*) may have arisen as a hybrid population derived from this cross. Fjeldså and Krabbe 1990.

Aglaeactis pamela [Black-hooded Sunbeam] See: *Aglaeactis cupripennis*.

Aglaiocercus berlepschi [Venezuelan Sylph]

× *Aglaiocercus kingi* [Long-tailed Sylph] ONHR (ne Venezuela). Schuchmann 1999.

Aglaiocercus coelestis [Violet-tailed Sylph]

× *Aglaiocercus kingi* [Long-tailed Sylph] ONHR. BRO: Pacific slope of Andes in Ecuador and Colombia. A population, *berlepschi*, is alternately treated as a race of *A. kingi* or of *A. coelestis*, a history of treatment that suggests *berlepschi* as a PHP of this cross. Fjeldså and Krabbe 1990; Schuchmann 1999.

Aglaiocercus kingi [Long-tailed Sylph]

See also: *Aglaiocercus berlepschi*; *A. coelestis*.

× *Lesbia victoriae* [Black-tailed Trainbearer] NHR (Ecuador, Colombia). The Purple-tailed Thornbill (*Chalcostigma purpureicauda*), based on one specimen (from Bogota dealers), and the Chillo Valley Comet (*Zodalia thaumasta*), based a specimen from Ilallo, Ecuador, are both thought to be this hybrid. Fjeldså and Krabbe 1990; Meyer de Schauensee 1966; Schuchmann 1999; Sibley and Monroe 1990. Internet: DIGI, REM.

× *Metallura tyrianthina* [Tyrian Metaltail] NHR (Andes, n S. America). Graves 1998b.

× *Ramphomicron microrhynchum* [Purple-backed Thornbill] NHR (Colombia). Nehr Korn's Sylph (*Neolesbia nehrkorni*) is

deemed this hybrid (or *A. kingi* × *Thalurania* sp.). Berlioz 1927, 1929a, 1929b; Hinkelmann et al. 1991; Meyer de Schauensee 1966; Sibley and Monroe 1990; Stresemann 1930. Internet: REM.

× *Thalurania* sp. NHR (Bogota, Colombia). Nehr Korn's Sylph (*Neolesbia nehrkorni*) is thought to be this hybrid (or *A. kingi* × *Ramphomicron microrhynchum*).

The *Thalurania* parents are thought to be either *T. colombica* or *T. furcata*. Berlioz 1927, 1929a, 1929b; Hinkelmann et al. 1991; Meyer de Schauensee 1966; Sibley and Monroe 1990. Internet: REM.

Amazilia alticola [Loja Hummingbird]

× *Amazilia amazilia* [Amazilia Hummingbird] PCZ (Casanga Valley, cen. Loja, Ecuador). No hybrids as yet reported. These birds were lumped by Sibley and Monroe (1990), but Schuchmann treated them as separate species. Schuchmann 1999.

Amazilia amabilis [Blue-chested Hummingbird]

× *Amazilia tzacatl* [Rieffer's Hummingbird] NHR. BRO: Colombia, w Ecuador. Butler 1932.

Amazilia amazilia [Amazilia Hummingbird]

See: *Amazilia alticola*.

Amazilia bangsi [Bang's Hummingbird]

See: *Amazilia rutila* × *A. tzacatl*.

Amazilia beryllina [Berylline Hummingbird]

× *Amazilia cyanocephala* [Azure-crowned Hummingbird] NHR. BRO: Central America. Berlioz 1932.

× *Amazilia cyanura* [Blue-tailed Hummingbird] ENHR (cen.

Guatemala, El Salvador). Peters 1945; Howell and Webb 1995; Williamson 2001. Internet: DIGI.

× *Eugenes fulgens* [Magnificent Hummingbird] NHR. BRO: Mexico. These hybrids have been sighted in se Arizona. Williamson 2001.

Amazilia cyaneotincta [Blue-spotted

Hummingbird] This taxon is based on two specimens, from Bogota, Colombia, which are usually considered either aberrant individuals of *A. fimbriata* (or *A. amabilis*) or

hybrids of unknown parentage.

Schuchmann 1999. Internet: DIGI, REM.

Amazilia cyanifrons [Indigo-capped Hummingbird]

× **Amazilia franciae** [Andean Emerald] NHR (Bogota, Colombia). Berlioz says an intermediate specimen might have been the product of this cross, but he expresses some doubt about the diagnosis. Berlioz 1937.

× **Amazilia saucerrottei** [Steely-vented Hummingbird] A bird formerly listed as a race (*alfaroana*) of *A. cyanifrons*, based on a single specimen from Volcán de Miravalles, Costa Rica, is now argued to be either this hybrid or a separate species. Banks et al. 2002; Schuchmann 1999. Internet: DIGI.

Amazilia cyanocephala [Azure-crowned Hummingbird] See: *Amazilia beryllina*. Two populations (*chlorostephana*, *cyanocephala*), treated as races of *A. cyanocephala*, hybridize in n Cen. America. Williamson 2001.

Amazilia cyanura [Blue-tailed Hummingbird] See: *Amazilia beryllina*.

Amazilia distans [Tachira Emerald] See:

Amazilia fimbriata × *Hylocharis cyanus*.

Amazilia edward [Edward's Hummingbird]

× **Amazilia niveoventer** [Snowy-breasted Hummingbird] ENHR (w cen. Panama). Due to hybridization, these birds are usually treated as conspecific. Sibley and Monroe 1990.

Amazilia fimbriata [Glittering-throated Emerald]

× **Hylocharis cyanus** [White-chinned Sapphire] NHR (Tachira, w Venezuela). The Tachira Emerald (*Amazilia distans*) is now thought to be this hybrid. Graves 1998a, Weller and Schuchmann 1997. Internet: REM, ZERO.

Amazilia franciae [Andean Emerald] See: *Amazilia cyanifrons*.

Amazilia handleyi [Escudo Hummingbird]

× **Amazilia tzacatl** [Rufous-tailed Hummingbird] ENHR (nw Panama, Bocas del Toro). Due to hybridization, these birds are now often lumped. Schuchmann 1999.

Amazilia neglecta See: *Amazilia versicolor* × *Hylocharis cyanus*.

Amazilia niveoventer [Snowy-breasted Hummingbird] See: *Amazilia edward*.

Amazilia rutila [Cinnamon Hummingbird]

× **Amazilia tzacatl** [Rufous-tailed Hummingbird] NHR (Costa Rica). *Amazilia bangsi*, formerly recognized as a species, is the product of this cross. Graves 2003c; Schuchmann 1999; Panov 1989; Williamson 2001.

Amazilia salvini [Salvin's Hummingbird]

See: *Amazilia violiceps* × *Cyananthus latirostris*.

Amazilia saucerrottei [Steely-vented Hummingbird] See: *Amazilia cyanifrons*.

Amazilia tzacatl [Rufous-tailed Hummingbird]

See: *Amazilia amabilis*; *A. handleyi*; *A. rutila*.

Amazilia versicolor [Versicolored Emerald]

× **Chrysuronia oenone** [Golden-tailed Sapphire] NHR. Berlioz 1929a, 1929b; Simon 1910.

× **Hylocharis cyanis** [White-chinned Sapphire] NHR? BRO: n S. America. The taxon *Amazilia neglecta* may represent this hybrid. Berlioz 1929b; Peters 1945.

Amazilia violiceps [Violet-crowned Hummingbird]

× **Amazilia viridifrons** [Green-fronted Hummingbird] ENHI. A population (*wagneri*) in s Mexico is a PHP of this cross. Binford 1989 (pp. 148–149); Phillips 1964 (p. 222).

× **Cyananthus latirostris** [Broad-billed Hummingbird] NHR. BRO: nw and cen. Mexico. Salvin's Hummingbird (*Amazilia salvini* = *Cyanomyia salvini*) based on a bird from Nacosari, Sonora, is now deemed this hybrid. Bent 1940; Bishop 1906; Brewster 1893; Graves 2003a; Griscom 1934 (p. 378); Phillips 1964; Schuchmann 1999; Williamson 2001.

× **Eugenes fulgens** [Magnificent Hummingbird] NHR? From a photograph, Williamson identified this bird as a hybrid. BRO: Mexico. Williamson 2001.

Amazilia viridifrons [Green-fronted Hummingbird] See: *Amazilia violiceps*.

Anthracothorax nigricollis [Black-throated Mango]

× **Chrysolampis mosquitus** [Ruby-topaz Hummingbird] NHR. BRO: n S. America.

This hybrid, known from a specimen from New Granada, was treated as a species, Elliot's Topaz (*Chrysolampis chlorolaemus*). Berlioz 1927, 1929a, 1929b; Peters 1945; Simon 1910; Stresemann 1930a.

Archilochus alexandri [Black-chinned Hummingbird]

× *Archilochus colubris* [Ruby-throated Hummingbird] NHR (U.S.). PCZ (Texas, s Oklahoma). Baumgartner and Baumgartner 1992; Mayr and Short 1970; Pulich 1988 (p. 191); Vacin 1969; Williamson 2001.

× *Calothorax lucifer* [Lucifer Hummingbird] NHR. BRO: n Mexico, s Texas. In May 1986, a probable ♂ hybrid was repeatedly observed in Big Bend National Park, where both parents breed. Its gorget, tail, and bill were intermediate. Scott 1994 (p. 4); Williamson 2001.

× *Calypte anna* [Anna's Hummingbird] NHR. California (U.S.), nw Mexico. This hybrid has been treated as a species, the Violet-throated Hummingbird (*Troichus violajugulum*, *Archilochus violajugulum*). Berlioz 1929a, 1929b, 1930; Banks and Johnson 1961; Grinnell and Miller 1944 (p. 569); Jeffries 1888; Ridgway 1901–1950 (Part 4); Sibley and Monroe 1990; Simon 1910; Taylor 1909 (p. 293); Thayer and Bangs 1907 (p. 313); Williamson 2001. Internet: HOME, REDS.

× *Calypte costae* [Costa's Hummingbird] NHR. BRO: California. Short and Phillips describe both a ♂ and a ♀ hybrid. Berlioz 1929a, 1929b, 1930; Fisher 1893; Short and Phillips 1966; Sibley and Monroe 1990; Simon 1910; Taylor 1909 (p. 293); Thayer and Bangs 1907 (p. 313); Williamson 2002.

× *Lampornis clemenciae* (♂) [Blue-throated Hummingbird] NHR (California, U.S.). A ♂ Blue-throated was seen making cloacal contact with a ♀ Black-chinned in the Chiricahua Mts., Arizona. Baldrige et al. 1983; Williamson 2000, 2001.

× *Selasphorus platycercus* [Broad-tailed Hummingbird] NHR. BRO: mts of w U.S., n Mexico. Banks and Johnson 1961; Williamson 2001.

× *Selasphorus sasin* [Allen's Hummingbird] NHR (California, U.S.). Lynch and Ames 1970.

× *Stellula calliope* [Calliope Hummingbird] ONHR (Idaho). BRO: nw U.S. Probable hybrids are reported from Power, Valley and Twin Falls counties. Internet: TROC†.

Archilochus colubris [Ruby-throated Hummingbird] See: *Archilochus alexandri*.

Archilochus violajugulum [Violet-throated Hummingbird] See: *Archilochus alexandri* × *Calypte anna*.

Augasma chlorophana Peters suggested that the type specimen of this bird, taken in Bahia, Brazil, is a hybrid of unknown parentage. Peters 1945.

Augasma cyaneoberyllina [Berlioz's Woodnymph] This taxon was based on two specimens from Bahia, Brazil, usually deemed hybrids of unknown parentage. Meyer de Schauensee 1970; Sibley and Monroe 1990. Internet: DIGI, REM.

Augasma smaragdinea [Gould's Woodnymph] This taxon is based six specimens from Nova Friburgo, Rio de Janeiro, usually deemed hybrids of unknown parentage. Berlioz 1965; Peters 1945; Pinto 1938. Internet: DIGI, REM.

Boissonneaua flavescens [Buff-tailed Comet]

× *Heliangelus clarisse* [Longuemare's Sunangel] NHR. BRO: nw Venezuela, ne Colombia. Panov 1989.

Calliphlox amethystina [Amethyst Hummingbird]

× *Chlorostilbon aureoventris* [Glittering-bellied Emerald] NHR. The Iridescent Emerald (*Calliphlox iridescens*), based on a specimen from Nova Friburgo, Rio de Janeiro, Brazil, is now deemed this hybrid. It was also made the type of a genus (*Smaragdochrysis*). Berlioz 1932, 1938; Butler 1931; Graves 1999a; Peters 1945.

Calliphlox iridescens [Iridescent Emerald] See: *Calliphlox amethystina* × *Chlorostilbon aureoventris*.

Note: Baltoser and Scott (1996, p. 5) say *Calypte anna* is likely to hybridize with the Broad-billed hummingbird (*Cyananthus*

latirostris) and Xantus's Hummingbird (*Hylacharis xantusii*) because of breeding range overlap in Mexico.

Calothorax lucifer [Lucifer Hummingbird]

See: *Archilochus alexandri*.

Calypte anna [Anna's Hummingbird]

See also: *Archilochus alexandri*.

- × *Calypte costae* (♀) [Costa's Hummingbird] CAENHR. Hybrids are often reported in s California. BRO: nw Mexico, sw U.S. Vince Walkosak says that between 1994 and 2001, about 27 of these hybrids occurred in the hummingbird aviary of the Arizona-Sonora Desert Museum. In all cases, the ♂ parent was an Anna's, the ♀, a Costa's. Baltosser and Scott 1996 (p. 5); Schuchmann 1999; Walkosak 2004; Weathers 1983; Wells et al. 1978; Williamson 2001 (p. 208).
- × *Lampornis clemenciae* [Blue-throated Hummingbird] ONHR (nw Mexico). Baldrige et al. 1983; Schuchmann 1999.
- × *Selasphorus rufus* [Rufous Hummingbird] NHR. BRO: nw U.S., Canada (Pacific coast). Williamson says most reports of this hybrid probably refer to Anna's × Allen's. Banks and Johnson 1961; Berlioz 1929a, 1929b; Ridgway 1909; Simon 1910; Williamson 2001 (p. 225).
- × *Selasphorus sasin* [Allen's Hummingbird] ONHR. BRO: w U.S. (Oregon, Calif.). Most (all?) hybrids are ♂. Taylor (p. 292) says this hybrid "has the gorget and crown 'glowing metallic rose-red.' The brilliant crown is not so extensive as in *Calypte anna*, however, and there is a decided *Selasphorus*-like golden tinge to all the iridescent gorget and crown feathers. The feathers of breast, belly, and sides resemble *Calypte anna*, but there are some distinct traces of rufous." Williamson thought the rufous, seen in the tails of some supposedly pure Anna's hummingbirds, to be indicative of hybridization of this type. Hybrids are intermediate, not only in morphology, but also in dive display. Flores's Hummingbird (*Selasphorus floresii*), based on a bird taken in Bolanos, Oaxaca (Mexico), is deemed this hybrid. Banks and Johnson 1961; Berlioz 1930; Grinnell and Miller 1944 (p. 569); Ridgway 1909, 1911;

Sibley 1994; Taylor 1909; Thayer and Bangs 1907 (p. 313); Wells and Baptista 1979; Williamson 1957; Williamson 2001.

Internet: HOME, REDS.

× *Stellula calliope* [Calliope Hummingbird]

NHR. BRO: nw U.S., sw Canada.

Berlioz 1930; Graves and Newfield 1996; Prestel 1983.

Calypte costae [Costa's Hummingbird]

See also: *Archilochus alexandri*; *Calypte anna*.

× *Lampornis clemenciae* [Blue-throated Hummingbird] ONHR (nw Mexico).

Schuchmann 1999.

× *Selasphorus platycercus* [Broad-tailed Hummingbird] NHR (Arizona, U.S.).

PCZ in sw U.S. and n Mexico. Huey 1944.

× *Selasphorus sasin* [Allen's Hummingbird]

CHR. BRO: coastal s California. San Diego Zoo (U.S.) had a hybrid in 1981. IZY 1983.

× *Stellula calliope* [Calliope Hummingbird]

NHR (nw U.S.). Banks and Johnson 1961; Hartert 1900; Rothschild (Lord) 1927.

Campylopterus curvipennis [Curve-winged Sabrewing]

Sabrewing]

× *Campylopterus pampa* [Wedge-tailed Sabrewing] ONHR. BRO: s Mexico (ne Chiapas).

These birds are now often lumped. Internet: DIGI.

Chalcostigma herrani [Rainbow-bearded Thornbill]

Thornbill]

× *Lesbia victoriae* [Black-tailed Trainbearer]

NHR? BRO: Colombia, n Ecuador. The Purple-tailed Comet (*Zodalia glyceria*), known from Popayán, Colombia, is probably this hybrid. Graves 1999b.

Chalcostigma purpuricauda [Purple-tailed Thornbill]

See: *Aglaiocercus kingi* × *Lesbia victoriae*.

Chalybura melanorhoa [Black-vented Plumeleeter]

Plumeleeter]

× *Chalybura urochrysia* [Bronze-tailed Plumeleeter] ENHR (nw Panama).

These birds are now usually lumped due to hybridization, but differ morphologically (e.g., *melanorhoa* lacks *urochrysia*'s bronzy tail). A hybrid (USNM #608924) is in the Smithsonian. Eisenmann and Howell 1962; Meise 1975; Sibley and Monroe 1990.

Chlorestes notatus [Blue-chinned Sapphire]

× *Hylocharis cyanus* [White-chinned Sapphire] NHR (Brazil). The Blue-breasted Sapphire (*Eucephala hypocyanea*), based on a single specimen, is now thought probably to be this hybrid. Berlioz 1938; Peters 1945; Schuchmann 1999; Sibley and Monroe 1990.

× *Thalurania furcata* [Fork-tailed Woodnymph] NHR (French Guiana). The Black-bellied Woodnymph (*Eucephala scapulata*), based on one specimen, is now deemed this hybrid. Berlioz 1938; Peters 1945; Schuchmann 1999. Internet: REM.

× *Thalurania glaucopsis* [Violet-capped Woodnymph] NHR (ne Brazil). The Green-and-blue Sapphire (*Eucephala smaragdacaerulea*), drawn by John Gould, based on a specimen from Bahia, is now thought to be this hybrid. Panov 1989. Internet: DIGI.

Chlorostilbon alicae [Green-tailed Emerald]

× *Chlorostilbon poortmani* [Short-tailed Emerald] Schuchmann says Natterer's Emerald (*Ptochoptera iolaima*), based on a specimen from Ypanema, São Paulo, Brazil, might be this hybrid (so the locality might be wrong?). Schuchmann 1999.

× *Chlorostilbon stenurus* [Narrow-tailed Emerald] NHR. ENHI (nw Venezuela). Hybrids were treated as a race (*ignotus*) of *C. stenurus*. Schuchmann 1999.

Chlorostilbon aureoventris [Glittering-bellied Emerald]

See also: *Calliphlox amethystina*.

× *Hylocharis cyanus* [White-chinned Sapphire] NHR (Bahia, ne Brazil). The Flame-rumped Sapphire (*Hylocharis pyropygia*), based on five specimens and formerly treated as a species, is now thought probably to be this hybrid. Berlioz 1938; Meyer de Schauensee 1966, 1970; Schuchmann 1999; Sibley and Monroe 1990. Internet: DIGI, REM.

× *Leucochloris albicollis* [White-throated Hummingbird] NHR (Brazil). Reichenbach's Whitethroat (*Leucochloris malvina*), based on one specimen, is now thought to be this hybrid. Berlioz 1938; Schuchmann 1999.

Chlorostilbon poortmani [Short-tailed Emerald] See: *Chlorostilbon alicae*.

Chlorostilbon stenurus [Narrow-tailed Emerald] See: *Chlorostilbon alicae*.

Chrysolampis chlorolaemus [Elliot's Topaz] See: *Anthracothonax nigricollis* × *Chrysolampis mosquitus*.

Chrysolampis mosquitus [Ruby-topaz Hummingbird] See: *Anthracothonax nigricollis*.

Chrysuronia oenone [Golden-tailed Sapphire] See also: *Amazilia versicolor*.

× *Thalurania furcata* [Fork-tailed Woodnymph] NHR (Bogota, Colombia). Based on one specimen, Lerch's Woodnymph (*Thalurania lerchi*), is now deemed this hybrid. Berlioz 1937; Schuchmann 1999; Sibley and Monroe 1990. Internet: REM.

Coeligena bonapartei [Golden-bellied Starfrontlet]

× *Coeligena helianthea* [Blue-throated Starfrontlet] NHR (n Colombia). A number of old trade skins are intermediate. Fjeldså and Krabbe 1990.

× *Lafresnaya lafresnayi* [Mountain Velvetbreast] NHR (Bogota, Colombia). Berlioz 1937.

Coeligena coeligena [Bronzy Inca]

× *Coeligena prunellei* [Black Inca] NHR (Popayán, Colombia). The Purple Inca (*Coeligena purpurea*), based on two specimens, is now known to be this hybrid. Graves 2001; Meyer de Schauensee 1966; Peters 1945. Internet: REM.

Coeligena helianthea [Blue-throated Starfrontlet] See: *Coeligena bonapartei*.

Coeligena lutetiae [Buff-winged Starfrontlet]

× *Coeligena torquata* [Collared Inca] ONHR. BRO: Colombia, Peru, Ecuador (Andes). The Lilac-fronted Starfrontlet (*Coeligena travesii*), based on several Colombian specimens, is probably this hybrid. Berlioz 1927, 1929b; Fjeldså and Krabbe 1990; Legendre 1936; Meyer de Schauensee 1966; Schuchmann 1999; Sibley and Monroe 1990; Simon 1910; Stresemann 1930a. Internet: REM.

Coeligena prunellei [Black Inca]

See: *Coeligena coeligena*.

Coeligena purpurea [Purple Inca]

See: *Coeligena coeligena* × *C. prunellei*.

Coeligena torquata [Collared Inca]

See also: *Coeligena lutetiae*.

× ***Lafresnaya lafresnayi*** [Mountain

Velvetbreast] NHR (Andes; Venezuela, Colombia, Peru, Ecuador). Lawrence's Starfrontlet (*Coeligena lawrencei* = *Homophania lawrencei*), based on a specimen in the Paris Museum, is probably this hybrid. Berlioz 1929a, 1929b; Butler 1931; Meyer de Schauensee 1966. Internet: REM.

Coeligena travesii [Lilac-fronted Starfrontlet]

See: *Coeligena lutetiae* × *C. torquata*.

Colibri coruscans [Sparkling Violetear]× ***Colibri delphinae*** [Brown Violetear]

CHR. BRO: S. America. Elgar 1977.

× ***Colibri thalassinus*** [Green Violetear]

CHR. BRO: S. America. *Avicultural Magazine* 1980 (p. 117); Elgar 1979[†].

Colibri delphinae [Brown Violetear]

See also: *Colibri coruscans*.

× ***Colibri thalassinus*** [Green Violetear]

CHR. BRO: Cen. and S. America. *Avicultural Magazine* 1973 (p. 129).

Colibri thalassinus [Green Violetear] See:

Colibri coruscans; *C. delphinae*.

Cyananthus doubledayi [Doubledayi Hummingbird]× ***Cyananthus latirostris*** [Broad-billed

Hummingbird] ENHR. BRO: Mexico. A hybrid population (*toroi*) exists. Howell and Webb 1995; Schuchmann 1999.

Cyananthus latirostris [Broad-billed Hummingbird]

See also: *Amazilia violiceps*; *Cyananthus doubledayi*.

× ***Cyananthus sordidus*** [Dusky Hummingbird]

NHR? BRO: s Mexico. Friedmann et al. suggested that a specimen collected in nw Oaxaca is this hybrid (but see Binford). Binford 1985; Friedmann et al. 1950; Mayr and Short 1970; Williamson 2001.

× ***Eugenes fulgens*** [Magnificent Hummingbird]

NHR. BRO: cen. and Pacific Mexico. Short

and Phillips describe a ♂ hybrid. These birds differ markedly in both size and color. The hybrid is intermediate in both (crown, gorget, bill, tail, breast, and abdomen). Short and Phillips 1966.

Cyananthus sordidus [Dusky Hummingbird]

See: *Cyananthus latirostris*.

***Eriocnemis* sp.**

× ***Heliangelus* sp.** NHR (Colombia). Isaacson's Puffleg (*Eriocnemis isaacsonii*) has been proposed to be a hybrid of this type. The Glistening Sunangel (*Heliangelus luminosus* = *Iolaema luminosa*), the Green-throated Sunangel (*Heliangelus speciosus*), and Rothschild's Sunangel (*Heliangelus rothschildi*) are thought to be hybrids either of this type or perhaps derived from the cross *Ramphomicron microrhynchum* × *Heliangelus* sp. Meyer de Schauensee 1966 (pp. 184, 185); Sibley and Monroe 1990. Internet: REM.

Eriocnemis cupreiventris [Coppery-bellied Puffleg]

× ***Eriocnemis vestitus*** [Glowing Puffleg] NHR. BRO: Andes of nw S. America. Schuchmann et al. 2001.

× ***Heliangelus amethysticollis***

[Amethyst-throated Sunangel] NHR (Colombia). The Olive-throated Sunangel (*Heliangelus squamigularis*), known from Bogota and Antioquia, and two other taxa (*Heliotrypha barralli*, *Heliotrypha speciosa*), are now deemed hybrids, probably of this type. Graves 1990. Internet: DIGI.

Eriocnemis isaacsonii [Isaacson's Puffleg]

See: *Eriocnemis* sp. × *Heliangelus* sp.

Eriocnemis luciani [Sapphire-vented Puffleg]

× ***Eriocnemis nigrivestis*** [Black-breasted Puffleg] NHR (Ecuador). Soederstroem's Puffleg (*Eriocnemis soderstromi*), based on one specimen, is now deemed this hybrid. Fjeldså and Krabbe 1990; Graves 1996b. Internet: REM.

× ***Eriocnemis sapphiropygia*** [Coppery-naped Puffleg] ONHR. Hybrids occur in the high Andes of n Peru and s Ecuador. Schuchmann 1999.

Eriocnemis nigrivestis [Black-breasted Puffleg]
See: *Eriocnemis luciani*.

Eriocnemis sapphiropygia [Coppery-naped Puffleg] See: *Eriocnemis luciani*.

Eriocnemis soderstromi [Soederstroem's Puffleg]
See: *Eriocnemis luciani* × *E. nigrivestis*.

Eriocnemis vestitus [Glowing Puffleg] See:
Eriocnemis cupreovertris.

Eucephala chlorocephala [Green-headed Woodnymph] Unidentified hybrid? Based on one bird (s Brazil). Peters 1945. Internet REM.

Eucephala hypocyanea [Blue-breasted Sapphire]
See: *Chlorestes notatus* × *Hylocharis cyanus*.

Eucephala scapulata [Black-bellied Woodnymph] See: *Chlorestes notatus* × *Thalurania furcata*.

Eucephala smaragdocaerulea [Green-and-blue Sapphire] See: *Chlorestes notatus* × *Thalurania glaucopsis*.

Eugenes fulgens [Magnificent Hummingbird]
See also: *Amazilia beryllina*; *A. violiceps*; *Cyananthus latirostris*.

× ***Lampornis clemenciae*** [Blue-throated Hummingbird] NHR. BRO: Mexico. Williamson 2001.

Haplophaedia aureliae [Greenish Puffleg]
× ***Heliangelus exortis*** [Tourmaline Sunangel] NHR? Berlioz thought *Heliotrypha simoni* might be this hybrid. Berlioz 1936.

***Heliangelus* sp.**

See also: *Eriocnemis* sp.

× ***Ramphomicron microrhynchum*** [Purple-backed Thornbill] NHR (Colombia). The Glistening Sunangel (*Heliangelus luminosus*), the Green-throated Sunangel (*Heliangelus speciosus*), and Rothschild's Sunangel (*Heliangelus rothschildi*) are thought to be hybrids of this type (or perhaps *Eriocnemis* sp. × *Heliangelus* sp.). Berlioz 1927, 1929a, 1929b, 1936; Meyer de Schauensee 1966 (p. 184); Stresemann 1930a. Internet: REM.

Heliangelus amethysticollis [Amethyst-throated Sunangel]

See also: *Eriocnemis cupreovertris*.

× ***Heliodoxa leadbeateri*** [Violet-fronted Brilliant] NHR (n Colombia). The

Smithsonian has ♂ hybrid (USNM #392141) taken in Buenos Aires in Sept. (at 1,845 m). Graves and Zusi 1990[†].

Heliangelus clarisse [Longuemare's Sunangel]
See also: *Boissonneaua flavescens*.

× ***Heliodoxa leadbeateri*** [Violet-fronted Brilliant] NHR (cen. Colombia). Schuchmann 1999.

Heliangelus exortis [Tourmaline Sunangel]
See: *Haplophaedia aureliae*.

Heliangelus luminosus [Glistening Sunangel]
See: *Eriocnemis* sp.; *Heliangelus* sp.

Heliangelus rothschildi [Rothschild's Sunangel]
See: *Eriocnemis* sp.; *Heliangelus* sp.

Heliangelus speciosus [Green-throated Sunangel] See: *Eriocnemis* sp.; *Heliangelus* sp.

Heliangelus squamigularis [Olive-throated Sunangel]

See: *Eriocnemis cupreovertris* × *Heliangelus amethysticollis*.

Heliangelus zusii [Bogota Sunangel] Based on six specimens, this bird may be a hybrid of unknown parentage. Graves 1993c (p. 6).

Heliodoxa imperatrix [Empress Brilliant]

× ***Heliodoxa jacula*** [Green-crowned Brilliant] NHR (w Ecuador). Graves 2004; Hartert 1900.

Heliodoxa jacula [Green-crowned Brilliant]
See: *Heliodoxa imperatrix*.

Heliodoxa leadbeateri [Violet-fronted Brilliant]
See: *Heliangelus amethysticollis*; *H. clarisse*.

Heliomaster According to Schuchmann (1999), four members of this genus, *H. constantii* (Plain-capped Starthroat), *H. longirostris* (Long-billed Starthroat), *H. squamosus* (Stripe-breasted Starthroat), and *H. furcifer* (Blue-tufted Starthroat), are connected by characters that vary in a continuum from *H. furcifer* in the south (s Brazil, n Argentina) to *H. constantii* in the north (Cen. Amer., w Mexico), which suggests extensive gene flow.

Heliothyx aurita [Black-eared Fairy]

× ***Heliothyx barroti*** [Purple-crowned Fairy] PCZ. No hybrids as yet reported. Schuchmann 1999.

Heliotrypha barralli See: *Eriocnemis cupreovertris* × *Heliangelus amethysticollis*.

Heliotrypha speciosa See: *Eriocnemis cupreiventris* × *Helianthus amethysticollis*.

Hylocharis cyanus [White-chinned Sapphire]
See: *Amazilia fimbriata*; *A. versicolor*;
Chlorestes notatus; *Chlorostilbon aureoventris*.

Hylocharis leucotis [White-eared Hummingbird]

× *Selasphorus platycercus* [Broad-tailed Hummingbird] NHR. BRO: Mexico. Williamson 2001.

Hylocharis pyropygia [Flame-rumped Sapphire] See: *Chlorostilbon aureoventris* × *Hylocharis cyanus*.

Iolaema luminosa [Glistening Sunangel]
See: *Eriocnemis* sp.; *Ramphomicron microrhynchum*.

Lafresnaya lafresnayi [Mountain Velvetbreast]
See: *Coeligena bonapartei*; *C. torquata*.

Note: Due to ongoing hybridization, the following three birds (*L. calolaema*, *L. castaneiventris*, and *L. cinereicauda*) are now often lumped under *Lampornis castaneiventris* with the new English name Variable Mountain-gem. Stiles and Skutch 1989. Internet: DIGI, ORNIT.

Lampornis calolaema [Purple-throated Mountain-gem]

× *Lampornis castaneiventris* [White-throated Mountain-gem] ENHR (Panama). Where these birds meet, they form an altitudinal hybrid zone with *L. castaneiventris* at higher elevation. Tail color is intermediate in the zone of overlap. Sibley and Monroe 1990; Stiles and Skutch 1989.

× *Lampornis cinereicauda* [Grey-tailed Mountain-gem] ENHR (Costa Rica). Tail color is intermediate in the area of overlap. Sibley and Monroe 1990; Stiles and Skutch 1989.

Lampornis castaneiventris [White-throated Mountain-gem]

See also: *Lampornis calolaema*.

× *Lampornis cinereicauda* [Grey-tailed Mountain-gem] ENHR (Panama). Tail color is intermediate in the contact zone. Sibley and Monroe 1990; Stiles and Skutch 1989.

Lampornis cinereicauda [Grey-tailed Mountain-gem] See: *Lampornis calolaema*; *L. castaneiventris*.

Lampornis clemenciae [Blue-throated Hummingbird] See: *Archilochus alexandri*; *Calypte anna*; *C. costae*; *Eugenes fulgens*.

Lesbia nuna [Green-tailed Trainbearer]
× *Lesbia victoriae* [Black-tailed Trainbearer] NHR (Colombia). The taxon *Lesbia eucharis* was based on two ♂ specimens from the n Andes. It has been treated as a species and as a subspecies (of both *L. nuna* and *L. victoriae*). It is now thought to be this hybrid. Weller and Schuchmann 2004. Internet: REM.

Lesbia ortonii [Orton's Comet] See: *Lesbia victoriae* × *Ramphomicron microrhynchum*.

Lesbia victoriae [Black-tailed Trainbearer]
See also: *Aglaiocercus kingi*; *Chalcostigma herrani*; *Lesbia nuna*.

× *Ramphomicron microrhynchum* [Purple-backed Thornbill] NHR (w Ecuador). Orton's Comet (*Lesbia ortonii*) is now considered to be this hybrid. Graves 1997a. Internet: REM.

Leucochloris albicollis [White-throated Hummingbird]

See: *Chlorostilbon aureoventris*.

Leucochloris malvina [Reichenbach's Whitethroat]

See: *Chlorostilbon aureoventris* × *Leucochloris albicollis*.

Loddigesia mirabilis [Marvelous Spatuletail]

× *Myiurus family* [Purple-collared Woodstar]
This cross, listed in *Zoological Record*, does not appear in the paper cited (Ruschi 1967).

Lophornis chalybeus [Festive Coquette]

× *Lophornis stictolophus* [Spangled Coquette] NHR (Colombia). The Bearded Coquette (*Lophornis insignibarbis*), based on one specimen, is now thought to be this hybrid. Berlioz 1929a, 1929b; Schuchmann 1999. Internet: REM.

Lophornis insignibarbus [Bearded Coquette]
See: *Lophornis chalybeus* × *L. stictolophus*.

Melanotrochilus fuscus [Black Jacobin]

× *Thalauromia glaucopsis* (♂) [Violet-capped Woodnymph] ONHR. BRO: e Brazil. Ruschi 1944[†].

Metallura altricularis [Black-throated Metaltail]

× ***Metallura primolinus*** [Ecuadorian Metaltail] ENHR (Chimborazo, cen. Peru). Due to hybridization, these birds are now usually lumped. Graves 1980; Peters 1945; Schuchmann 1999; Wetmore 1970.

Metallura primolinus [Ecuadorian Metaltail] See: *Metallura altricularis*.

Metallura tyriantitha [Tyrian Metaltail] See: *Agelaiocercus kingi*.

Myrtis fanny [Purple-collared Woodstar] See: *Loddigesia mirabilis*.

Neolesbia nehrkorni [Nehrkorn's Sylph] See: *Aglaicercus kingi* × *Ramphomicron microrhynchum*.

Oreotrochilus estella [Andean Hillstar] × ***Oreotrochilus leucopleurus*** [White-sided Hillstar] ONHR (sw Bolivia, nw Argentina). Fjeldså and Krabbe 1990.

Phaethornis longuemareus [Little Hermit] × ***Phaethornis rupurumii*** [Streak-throated Hermit] NHR. BRO: e Venezuela, Guyana. This hybrid was described as a race (*imatatacae*) of *Phaethornis longuemareus*. Hinkelmann 1996; Schuchmann 1999.

Phaethornis malaris [Great-billed Hermit] × ***Phaethornis superciliosus*** [Eastern Long-tailed Hermit] NHR (Peru). Hinkelmann 1996; Schuchmann 1999.

Phaethornis ruber [Reddish Hermit] × ***Phaethornis rupurumii*** [Streak-throated Hermit] NHR. BRO: n Brazil, e Venezuela, Guyana. This hybrid was described as a race (*aethopyga*) of *Phaethornis longuemareus*. Hinkelmann 1996; Schuchmann 1999.

× ***Phaethornis stuarti*** [White-browed Hermit] NHR. BRO: Bolivia, Peru. These birds are sometimes lumped. Hinkelmann 1996; Schuchmann 1999.

Phaethornis rupurumii [Streak-throated Hermit] See: *Phaethornis longuemareus*; *P. ruber*.

Phaethornis stuarti [White-browed Hermit] See: *Phaethornis ruber*.

Phaethornis superciliosus [Eastern Long-tailed Hermit] See: *Phaethornis malaris*.

Philodice mitchellii [Purple-throated Woodstar] See: *Acestrura mulsant*.

Ptochoptera iolaima [Natterer's Emerald] See: *Chlorostilbon alice* × *C. poortmani*.

Ramphomicron microrhynchum [Purple-backed Thornbill] See: *Agelaiocercus kingi*; *Heliangelus* sp.; *Lesbia victoriae*.

Schistes albugularis [White-throated Wedgebill]

× ***Schistes geoffroyi*** [Geoffroy's Wedgebill] ENHR (w Ecuador). Due to hybridization, these birds are now usually lumped under Wedge-billed Hummingbird. Schuchmann 1999.

Selasphorus ardens [Glow-throated Hummingbird]

× ***Selasphorus scintilla*** [Scintillant Hummingbird] NHR. BRO: Panama. Panov 1989; Stiles 1983.

Selasphorus flammula [Volcano Hummingbird]

× ***Selasphorus scintilla*** [Scintillant Hummingbird] NHR. Underwood's Hummingbird (*Selasphorus underwoodi*), known from a single ♂ specimen in the British Museum, is now considered to be this hybrid. It was collected Feb. 20, 1896, in Costa Rica (Volcán Irazú). Its gorget is a pale purplish-red with a strong golden-orange sheen. Carriker 1910; Stiles 1983 (p. 321).

Selasphorus floresii [Flores's Hummingbird] See: *Calypte anna* × *Selasphorus sasin*.

Selasphorus platycercus [Broad-tailed Hummingbird] See also: *Archilochus alexandri*; *Calypte costae*; *Hylocharis leucotis*.

× ***Stellula calliope*** [Calliope Hummingbird] ONHR. BRO: w U.S., sw Canada. A probable hybrid banded by Waird (cited in Calder and Calder) had the tapered primaries ten and solid gorget of a Broad-tailed, but the shorter wings and differential elevation of gorget feathers characteristic of a Calliope. Berlioz 1929a, 1929b, 1930; Calder and Calder 1994 (p. 3); Simon 1910.

Selasphorus rufus [Rufous Hummingbird] See also: *Calypte anna*.

- × *Selasphorus sasin* [Allen's Hummingbird] NHR (nw U.S.). PCZ (sw Oregon). Estimates of hybridization rates for this cross vary from rare to common. Mitchell (p. 5) says "identification of Rufous × Allen's hybrids likely impossible in the field, but individuals performing dive display intermediate between parental species, as noted for other hummingbirds, might be expected." Hybrids between these similar types can be hard to identify. Colwell 2005; Hunn and Gerdts 1994; McKenzie and Robbins 1999; Mitchell 2000; Newfield 1983; Palmer-Ball and McNeely 2005; Sibley 1994 (p. 165).
- × *Stellula calliope* [Calliope Hummingbird] NHR. BRO: mts of nw U.S., sw Canada. Thayer and Bangs describe a hybrid in detail. Banks and Johnson 1961; Taylor 1909 (p. 293); Thayer and Bangs 1907; Williamson 2001. Internet: TROC⁷.
- Selasphorus sasin* [Allen's Hummingbird] See: *Archilochus alexandri*; *Calypte anna*; *C. costae*; *Selasphorus rufus*.
- Selasphorus scintilla* [Scintillant Hummingbird] See: *Selasphorus ardens*; *S. flammula*.
- Selasphorus underwoodi* [Underwood's Hummingbird] See: *Selasphorus flammula* × *S. scintilla*.
- Stellula calliope* [Calliope Hummingbird] See: *Archilochus alexandri*; *Calypte anna*; *C. costae*; *Selasphorus platycercus*; *S. rufus*.
- Thalurania sp.* See: *Agelaiocercus kingi*.
- Thalurania colombica* [Purple-crowned Woodnymph] See also: *Agelaiocercus kingi* × *Thalurania sp.*
- × *Thalurania fannyi* [Green-crowned Woodnymph] ONHR (nw Colombia). Due to hybridization, these birds are now usually lumped. Schuchmann 1999; Sibley and Monroe 1990.
- Thalurania furcata* [Fork-tailed Woodnymph] See: *Agelaiocercus kingi* × *Thalurania sp.*; *Chlorestes notatus*; *Chrysuronia oenone*.
- × *Thalurania glaucopsis* [Violet-capped Woodnymph] NHR. BRO: e Brazil, Paraguay, nw Argentina. Butler 1927.
- × *Trochilus scitulus* [Black-billed Streamertail] CHR. DRS. Krueger et al. 1982.
- Thalurania glaucopsis* [Violet-capped Woodnymph] See: *Chlorestes notatus*; *Melanotrochilus fuscus*; *Thalurania furcata*.
- Thalurania lerchi* [Lerch's Woodnymph] See: *Chrysuronia oenone* × *Thalurania furcata*.
- Threnetes leucurus* [Pale-tailed Barbthroat] × *Threnetes niger* [Sooty Barbthroat] ENHI. BRO: French Guiana. The Bronze-tailed Barbthroat (*Threnetes loehkeni*) is intermediate in morphology and range and therefore a PHP of this cross. These birds are sometimes lumped. Schuchmann 1999; Sibley and Monroe 1990.
- Threnetes loehkeni* [Bronze-tailed Barbthroat] See: *Threnetes leucurus* × *T. niger*.
- Threnetes niger* [Sooty Barbthroat] See: *Threnetes leucurus*.
- Trochilus polytmus* [Red-billed Streamertail] × *Trochilus scitulus* [Black-billed Streamertail] ENHR (e Jamaica, n and s of Blue Mtns). The hybrid zone is 5–15 km wide. Due to hybridization, these birds are sometimes lumped. The zone's position did not change in 27 years. Gill et al. 1973; MacColl and Lewis 2000. Internet: DIGI.
- Trochilus scitulus* [Black-billed Streamertail] See: *Thalurania furcata*; *Trochilus polytmus*.
- Trochilus violajugulum* [Violet-throated Hummingbird] See: *Archilochus alexandri* × *Calypte anna*.
- Urosticte benjamini* [Purple-bibbed Whitetip] × *Urosticte ruficrissa* [Rufous-vented Whitetip] ENHI. An intermediate population in ne Peru is a PHP of this cross. Because of these intermediates, these birds are sometimes lumped. Schuchmann 1999.
- Zodalia glyceria* [Purple-tailed Comet] See: *Chalcostigma herrani* × *Lesbia victoriae*.
- Zodalia thaumasta* [Chillo Valley Comet] See: *Agelaiocercus kingi* × *Lesbia victoriae*.

Turacos
Family Musophagidae

Musophaga porphyreolopha [Purple-crested Turaco]

- × **Tauraco erythrolophus** [Red-crested Turaco] CHR. BRO: s cen. Africa? Belo Horizonte Zoo (Brazil) had a ♀ hybrid in 1980. IZY 1982.

Musophaga violacea [Violet Turaco]

- × **Tauraco leucotis** (♂) [White-cheeked Turaco] CHR. DRS. *T. leucotis* may have breeding contact in se Sudan with Ross's Turaco (*Musophaga rossae*), which is often treated as a race of *M. violacea*. Hancock 2004.

Tauraco corythaix [Knysna Turaco]

See also: *Tauraco leucotis* × *T. persa*.

- × **Tauraco hartlaubi** (♂) [Hartlaub's Turaco] CHR. DRS. IZY 1989 (p. 294); Isenberg 1968.
- × **Tauraco livingstonii** (♀) [Livingstone's Turaco] CHR. BRO: e Africa? These birds are sometimes lumped. IZY 1973; Russell 1981.

Tauraco erythrolophus [Red-crested Turaco]

See: *Musophaga porphyreolopha*; *Tauraco hartlaubi* × *T. persa*.

Tauraco fischeri [Fischer's Turaco] See: *Tauraco hartlaubi* × *T. persa*.

Tauraco hartlaubi [Hartlaub's Turaco]

See also: *Tauraco corythaix*.

- × **Tauraco persa** (♀) [Guinea Turaco] CHR. DRS. HPF(♂&♀) A hybrid occurred at Parrot Island (British Columbia). The Guinea Turaco was of the Gold Coast variety. Since ♀ hybrids are partially fertile, Haldane's rule suggests that ♂ hybrids are likely to be so as well. Three-way hybrids have been produced with ♂♂ of both *Tauraco erythrolophus* and *Tauraco fischeri*. Hancock 2004.

Tauraco leucotis [White-cheeked Turaco]

See also: *Musophaga violacea*.

- × **Tauraco persa** (♀) [Guinea Turaco] CHR. DRS. Hancock says this hybrid looks exactly like a Knysna Turaco (*Tauraco corythaix*), with a similar white crest, not present in either parent. These birds have no breeding contact, but there is probable

contact in e Africa between *T. hartlaubi* and two birds sometimes lumped with *T. persa* (*T. schalowi* and *T. schuettii*).

Hancock 2004.

- × **Tauraco ruspolii** (♀) [Ruspoli's Turaco] CAENHR. BRO: s Ethiopia. Hybridization is considered a threat to *T. ruspolii*. *Avicultural Magazine* 2003 (p. 86); Borghesio et al. 2004; Lernould and Seitre 2002, 2004.
- × **Tauraco schalowi** [Schalow's Turaco] CHR. BRO: n Kenya. The Cleveland Zoo (U.S.) had a hybrid in 1978. IZY 1980.

Tauraco livingstonii [Livingstone's Turaco]
See: *Tauraco corythaix*.

Tauraco persa [Guinea Turaco]

See: *Tauraco hartlaubi*; *T. leucotis*.

Tauraco ruspolii [Ruspoli's Turaco]

See: *Tauraco leucotis*.

Tauraco schalowi [Schalow's Turaco]

See: *Tauraco leucotis*.

Barn Owls
Family Tytonidae

Asio clamator [Striped Owl]

- × **Tyto alba** (♂) [Barn Owl] CHR. Cen. and S. America. Flieg reported two fertile eggs. Flieg 1971. Internet: HBWC.

Asio flammeus [Short-eared Owl]

- × **Asio otus** [Long-eared Owl] NHI. BRO: Eurasia, N. America. This hybrid has a ring number, but there seems to be no published report. Internet: FOTO5.

Asio otus [Long-eared Owl] See: *Asio flammeus*.

Tyto alba [Barn Owl] See: *Asio clamator*.

A hybrid zone between two populations (*alba*, *guttata*), treated as races of *T. alba*, stretches from Turkey to n Spain. Georgiew 1998; Kasperek 1986; Zuberigoitia and Campos 1999.

Tyto novaehollandiae [Masked Owl] In ne

Australia (n of Rockhampton) a narrow hybrid zone, where an abrupt shift in size occurs, exists between two populations (*galei*, *novaehollandiae*) usually treated as races of this bird. Ford 1986, 1987 (p. 174); Mason 1983.

Typical Owls**Family Strigidae**

Note: Hybridization is thought to be relatively rare in owls, but Marks et al. (2001, p. 76) note that within Strigidae, "similarities in plumage and morphology, coupled with a basic lack of information on the behaviour of many species, have led to considerable confusion regarding species and even generic limits." This confusion in the taxonomy makes identification of hybrids harder because the identification of even their parents can be difficult. Moreover, since these nocturnal, furtive birds are relatively poorly investigated, especially those haunting inaccessible habitats, any hybridization that might be occurring is less likely to be recognized than in other, better studied groups.

Aegolius arcadicus [Northern Saw-whet Owl]

× **Aegolius ridgwayi** [Unspotted Saw-whet Owl] ENHR (s Mexico). Two populations (*rostratus*, *tacuensis*), treated as races of *A. ridgwayi*, may be hybrid populations produced by this cross. Briggs 1954; Marks et al. 1999.

Athene brama [Spotted Owlet]

× **Athene noctua** [Little Owl] CHR. BRO: w Pakistan. Stocks 1996.

Athene noctua [Little Owl]

See also: *Athene brama*.

× **Speotyto cunicularia** [Burrowing Owl]

CHR. DRS. Stocks 1996.

Bubo africanus [Spotted Eagle-Owl]

× **Bubo cinerascens** [Greyish Owl] ENHR. BRO: Equatorial Africa. *B. cinerascens* has dark brown eyes, *B. africanus*, yellow ones. These birds are often treated as conspecific. Meinertzhagen 1954.

× **Bubo virginianus** [Great Horned Owl] CHR. DRS. Internet: RAPT[†].

Bubo ascalaphus [Pharaoh Eagle-Owl]

× **Bubo bubo** [European Eagle-Owl] CAENHR. HPF (♂ & ♀). Tel Aviv University has had many hybrids. Hybrids occur in Middle East and Atlas Mts. (nw Africa). *B. bubo* is larger and darker than *B. ascalaphus*. These birds

are sometimes lumped, but vocalizations and morphology are distinct. Duncan 2003; IZY 1965, 1970, 1971, 1973, 1974; Marks et al. 1999; Vaurie 1965a. Internet: HOLON.

× **Bubo capensis** [Cape Eagle-Owl] CHR. DRS. IZY 1971, 1973, 1975.

Bubo bubo [European Eagle-Owl]

See also: *Bubo ascalaphus*.

× **Bubo virginianus** [Great Horned Owl] CHR. BRO: Bering Strait. Risdon 1951a. Internet: HOLON.

× **Strix nebulosa** [Great Grey Owl] CHR. BRO: Canada, Alaska, nw U.S. Pyle 1997.

Bubo capensis [Cape Eagle-Owl]

See: *Bubo ascalaphus*.

Bubo cinerascens [Greyish Owl]

See: *Bubo africanus*.

Bubo virginianus [Great Horned Owl]

See: *Bubo africanus*; *B. bubo*.

Ninox boobook [Boobook]

× **Ninox novaeseelandiae** [Morepork] NHR? BRO: ne Queensland, Australia. These birds are sometimes lumped. Ford 1986, 1987 (p. 174); Mees 1964b; Schodde and Mason 1980.

Ninox connivens [Barking Owl] In ne Australia (Queensland) an abrupt shift in size and color occurs across a narrow hybrid zone between the small, pale *N. c. peninsularis* of the Cape York Penin. and the e coast *N. c. connivens*. The zone extends from Cooktown region to near Cloncurry. Ford 1986, 1987 (p. 174); Schodde and Mason 1980; Simpson and Day 1999 (p. 150).

Ninox novaeseelandiae [Morepork] See: *Ninox boobook*.

Ninox rufa [Rufous Owl] The large, dark *N. r. queenslandica* hybridizes in ne Australia (n of Cooktown) with *N. r. meesi*. Mason and Shodde 1980.

Otus asio [Eastern Screech-Owl]

× **Otus kennicottii** [Western Screech-Owl] ONHR. HPF Where they overlap (broadly in Colorado, Texas, and Mexico), each of these birds produces the vocalizations of the other. Marshall reports that half of 12 pairs studied along the Arkansas R. in Colorado were

mixed. These birds are sometimes treated as conspecific. Duncan 2003; Gehlbach 1981, 2003; Marshall 1999.

Otus kennicottii [Western Screech-Owl]

See also: *Otus asio*.

- × **Otus trichopsis** [Whiskered Screech-Owl] NHR (Arizona, U.S.). ACZ. *O. trichopsis* occurs at higher elevations than *O. kennicottii*. Duncan 2003.

Otus lempiji [Collared Scops-Owl]

- × **Otus semitorques** [Japanese Scops-Owl] ENHI (Ussuriland, se Siberia). A population (*ussuriensis*), usually treated as a race of *O. lempiji*, is geographically and morphologically intermediate and, thus, a PHP of this cross. These birds are often lumped. Marks et al. 1999.

Otus semitorques [Japanese Scops-Owl]

See: *Otus lempiji*.

Otus trichopsis [Whiskered Screech-Owl]

See: *Otus kennicottii*.

Speotyto cunicularia [Burrowing Owl]

See: *Athene noctua*.

Strix aluco [Tawny Owl]

- × **Strix uralensis** (♂) [Ural Owl] CHR. HPF These birds overlap in Scandinavia (s Finland and Sweden) and in a broad band stretching e across Eurasia. The Ural Owl occurs further north than the Tawny. Vocalizations of the hybrids are more varied than those of either parent. The Ural Owl is far larger than the Tawny Owl (more than twice as heavy). Duncan 2003; Scherzinger 1982.

Strix huhula [Black-banded Owl]

- × **Strix nigrolineata** [Black-and-white Owl] ONHR (Ecuador, and se Colombia). HPF (♂ & ♀). These birds are sometimes lumped, but they differ in size, voice, and plumage. A pair of apparent hybrids raised two broods. On the Internet, the hybrid is known as the San Isidro Mystery Owl. Sibley and Monroe 1993. Internet: SFEC[†].

Strix hylophila [Rusty-barred Owl]

- × **Strix rufipes** [Rufous-legged Owl] CHR. Two hybrids were produced in the Berlin Zoo in 1993. IZY 1994.

Strix nebulosa [Great Grey Owl]

See: *Bubo bubo*.

Strix nigrolineata [Black-and-white Owl]

See: *Strix huhula*.

- Note:** Two populations (*caurina*, *occidentalis*), treated as races of *Strix occidentalis*, have a narrow hybrid zone in a region of low population density in n cen. California. Barrowclough et al. 2005.

Strix occidentalis [Spotted Owl]

- × **Strix varia** (♀) [Barred Owl] ENHR. BRO: Washington and Oregon (U.S.), California, Mexico. HPF(♂ & ♀). Hybridization is considered a threat to the protected Spotted Owl. Of late, many more hybrids are being found in Oregon and Washington and the range of the Barred Owl is expanding southward into California, where hybridization has also been reported. Hybrids are nicknamed Sparred Owls. Markings on their nape and head are similar to those of the Barred Owl, but their breasts are similar to a Spotted Owl's, as are their tail bars (although the bars are farther apart). Facial coloration is intermediate. An F₁ looks like a large, pale Spotted Owl, with heavy white barring on the head, but with the facial features and tail bars of *S. varia*; brown breast streaking creates a checkerboard of white patches. Kelly and Forsman say molecular techniques may be necessary to distinguish later-generation hybrids from parental types. These birds have sometimes been treated as conspecific, but there is a significant difference in size and vocalizations. Dark et al. 1998; Duncan 2003; Gilligan et al. 1994; Gutiérrez et al. 1995 (p. 3); Haig et al. 2004; Hamer et al. 1994[†]; Herter and Hicks 2000; Johnsgard 2002 (p. 184); Kelly and Forsman 2004; Kelly et al. 2003; Levy 2004; Marks et al. 2001; Seamans et al. 2004; Taylor and Forsman 1976.

Strix rufipes [Rufous-legged Owl]

See: *Strix hylophila*.

Strix uralensis [Ural Owl]

See: *Strix aluco*.

Strix varia [Barred Owl]

See: *Strix occidentalis*.

Nightjars, Frogmouths, and Nighthawks

Families Aegothelidae, Caprimulgidae

Note: Hybridization is often said to be rare in caprimulgids, but these are furtive nocturnal birds and many types treated as separate species are similar (Holyoak 2001). Both these factors would make it harder to identify any natural hybrids that might exist. Moreover, captive hybrids are unlikely because, with the exception of the Tawny Frogmouth (*Podarus strigoides*), these birds are rarely bred in captivity.

Caprimulgus arizonae [Stephen's Whip-poor-will]

× *Caprimulgus vociferus* [Eastern Whip-poor-will] NHR. BRO: Mexico. These birds are usually lumped, but their vocalizations differ. Cink 2002 (p. 4); Howell and Webb 1995 (p. 390); Ridgway 1901–1950 (Part 5, p. 520).

Caprimulgus guttifer [Usambara Nightjar]

× *Caprimulgus poliocephalus* [Abyssinian Nightjar] ENHI (Ruwenzori Mts., Africa). The Ruwenzori Nightjar (*Caprimulgus ruwenzorii*), sometimes treated as a species, is intermediate in morphology, range, and song, and, thus, a PHP of this cross; the beginning of its whistle is like the Usambara's, but the end is like an Abyssinian's. Dowsett and Dowsett-Lemaire 1993 (p. 341).

Caprimulgus poliocephalus [Abyssinian Nightjar] See: *Caprimulgus guttifer*.

Caprimulgus ruwenzorii [Ruwenzori Nightjar] See: *Caprimulgus guttifer* × *C. poliocephalus*.

Caprimulgus vociferus [Eastern Whip-poor-will] See: *Caprimulgus arizonae*.

Chordeiles gundlachi [Antillean Nighthawk]

× *Chordeiles minor* [Common Nighthawk] BRO: ext. s Florida. No hybrids as yet reported, but Guzy suggests that variability in plumage or vocalizations in *C. gundlachi* may be due to hybridization with the *C. minor*. Guzy 2002.

Podargus strigoides [Tawny Frogmouth]

Three populations usually treated as races

of this bird, *brachypterus*, *phalaenoides*, and *strigoides*, hybridize extensively. *Brachypterus* hybridizes with *strigoides* in e Australia, and *strigoides* hybridizes with *phalaenoides* in ne Queensland. *Strigoides* is dark, the other two, smaller, with *brachypterus* paler, and *phalaenoides* silvery-gray. Ford 1986, 1987 (pp. 165, 174).

Pigeons and Doves

Family Columbidae

Caloenas nicobarica [Nicobar Pigeon]

× *Otidiphaps nobilis* (♀) [Pheasant Pigeon] CHR. BRO: Indonesia. Delacour 1937a.

Chalcophaps indica [Indian Emerald-Dove]

× *Chalcophaps chrysochlora* [Pacific Emerald-Dove] CHR. BRO: Strait of Malacca. These birds are now usually lumped. Page 1914b (p. 33).

Columba albitorques [White-collared Pigeon]

× *Columba livia* [Domestic Pigeon/Rock Dove] CHR. HPF(♂♂). BRO: Horn of Africa. Mainardi says ♀♀ are not even able to lay eggs, but that a pair of hybrids incubated two Domestic Pigeon eggs. They reared the resulting chicks, feeding them with pigeon milk and grain. Mainardi 1958.

Columba cayennensis [Pale-vented Pigeon]

× *Columba livia* (♀) [Domestic Pigeon/Rock Dove] CHR. BRO: Cen. and S. America. HPF(♂♂). Taibel 1947.

× *Streptopelia risoria* [Ring Dove] CHR? *Bird Notes* 1910.

Columba chiriquensis [Chiriqui Pigeon]

See: *Columba nigrirostris* × *C. subvinacea*.

Columba corensis [Bare-eyed Pigeon]

× *Columba maculosa* [Spot-winged Pigeon] CHR. Old report of a hybrid in London Zoo. Ackermann 1898 (p. 32); Przibram 1910 (p. 87).

× *Columba oenas* [Stock Dove] CHR. Old report of a hybrid in London Zoo. Ackermann 1898 (p. 32).

Columba eversmanni [Pale-backed Pigeon]

× *Columba livia* [Domestic Pigeon/Rock Dove] NHR. BRO: sw Asia. Suchetet 1897a (p. 628).

Columba fasciata [Band-tailed Pigeon]

- × *Columba livia* [Domestic Pigeon/Rock Dove] CHR. BRO: N. and S. America. Miller 1956.

Columba guinea (↔) [Speckled Pigeon]

- × *Columba livia* [Domestic Pigeon/Rock Dove] CANHR. HPF. BRO: sub-Saharan Africa. Few fertile eggs. HPF(♂♂). More ♂ hybrids than ♀♀. Fertility increases in backcrosses. BRO: sub-Saharan Africa. Bryan and Irwin 1960; Bryan and Miller 1951; Cole 1939; Fraser and McMahon 1990; Ghigi 1932c, 1934a; Herremans 1994; Hopkinson 1933a; Irwin 1938; Irwin et al. 1936; Irwin and Cumley 1943b; Levi 1945; Miller 1951, 1953; Miller and Bryan 1951; Stimpfling and Irwin 1960; Taibel 1934, 1949a[†]; Taibell 1932b; Whitman et al. 1919.

- × *Columba picazuro* [Picazuro Pigeon] CHR. HPF(♂♂). Ackermann 1898; Cavazza 1931a; Hertwig 1936.

- × *Streptopelia capicola* (♀) [Ring-necked Dove] CHR. BRO: e sub-Saharan Africa. Brickell 1989 (p. 232).

- × *Streptopelia decipiens* (♀) [Mourning Collared-Dove] CHR. BRO: sub-Saharan Africa. Brickell 1989 (p. 232).

- × *Streptopelia semitorquata* (♀) [Red-eyed Dove] CHR. BRO: sub-Saharan Africa. Brickell 1989 (p. 232).

Columba leuconota [Snow Pigeon]

- × *Columba livia* (↔) [Domestic Pigeon/Rock Dove] CHR. HPF(♂♂). BRO: Asia. *Avicultural Magazine* 1965 (pp. 13, 174[†]), 1966 (p. 133[†]); Cavazza 1931a, 1931b, 1931c; Cole 1939; Ghigi 1920[†]; Gray 1958; Hertwig 1936; Naether 1966b; Staples-Browne 1923; Taibel 1934; Whitman et al. 1919.

Note: In the *Origin of Species*, Darwin suggests that the various breeds of Domestic Pigeon (*Columba livia*) descend from a single ancestral stock and that each must have been obtained by subtle and long-applied artificial selection by breeders. But Darwin seems to have had little actual knowledge of the history of pigeon breeding and his personal experience was minimal. He first gained an interest in pigeons in the summer

of 1855, and within 3 years had dropped bird breeding entirely (Desmond and Moore 1991, pp. 427, 459). During this period, Darwin says he kept every breed which he “could purchase or obtain” (Darwin 1871, vol. 1, p. 20). Such an approach is more that of a collector or enthusiast than of a dedicated breeder. Actual knowledge of pigeon breed origins is available in older works. For example, John Moore, in his *Columbarium* (1735), says one of the pigeon breeds Darwin discusses, the Pouter, was first obtained by crossing two other breeds, the Dutch Cropper and the Horseman.

Note: The Rock Dove hybridizes so frequently with feral domestic pigeons that the two are, from a genetic standpoint, much the same entity (Johnston et al. 1988).

Columba livia [Domestic Pigeon/Rock Dove]

See also: *Columba albitorques*; *C. cayennensis*; *C. eversmanni*; *C. fasciata*; *C. guinea*; *C. leuconota*.

- × *Columba oenas* (↔ usu. ♂) [Stock Dove] CHR. HPF(♂♂). Male hybrids are more common than ♀. Most hybrids die about 10 days after hatching. Ackermann 1898; Bond 1939[†]; Cole 1939; Gray 1958; Hopkinson 1934; IZY 1979; Levi 1945; Miller 1956; Poll 1921; Service 1903; Silver 1934, 1940c, 1941; Staples-Browne 1923; Suchetet 1897a; Tomek 1958[†]; Whitman et al. 1919.
- × *Columba palumbus* (↔) [Wood Pigeon] CHR. HPF(♂♂). Few F₁ eggs are fertile and very few hatch. Ackermann 1898; Cummings 1955; Darwin 1883; Dušek 1877; Goodwin 1954; Gray 1958; Hertwig 1936; Hopkinson 1926 (p. 231); IZY 1968, 1969; Keep 1949; McDermott 1949; Ricketts 1949; Whitman et al. 1919.
- × *Columba picazuro* (♀) [Picazuro Pigeon] CHR. HPF(♂♂). Ghigi 1932c; Taibel 1934, 1935[†], 1947.
- × *Columba rupestris* [Hill Pigeon] ENHR. Hybrid zone stretches from s Siberia (w of Lake Baikal) to n India (Ladakh). Beryozovikov and Shcherbakov 1990; Nadler 1985; Nadler and Ansorge 1982; Nadler and Gebauer 1985;

- Panov 1989; Ripley 1981. Internet: POPRZ.
- × *Geopelia placida* [Peaceful Dove] CHR. The hybrid is more like the Peaceful Dove than the Rock Dove. BRO: Indonesia, Australia. Carthew 1956.
 - × *Leucosarcia melanoleuca* (♂) [Wonga Pigeon] CHR. BRO: e Australia. Hopkinson 1939a (p. 22); Smith 1912a, 1912b.
 - × *Streptopelia decaocto* [Eurasian Collared-Dove] NHR. BRO: Eurasia. Bohlken 1965.
 - × *Streptopelia orientalis* (♂) [Oriental Turtle-Dove] CHR. HPF(♂♂). Marquess Hachisuka says ♂ F₁ hybrid resembles *C. livia*. Carr 1919; Charleton 1909; Hachisuka (Marquess) 1928; Hopkinson 1933a; Whitman 1904; Whitman et al. 1919.
 - × *Streptopelia risoria* [Ring Dove] CHR. LFH. Male pigeon × ♀ dove yields 98% ♂ offspring, but the reciprocal cross gives as many ♀♀ as ♂♂. Ackermann 1898; Cavazza 1931a, 1931b; Cole and Hollander 1950[†]; Cole and Painter 1932; Cole et al. 1928a, 1928b; Darwin 1883; Guyer 1900; Gray 1958; Hertwig 1936; IZY 1965; Irwin 1932a, 1932b; Irwin and Cole 1936b; Irwin and Cumley 1942b, 1943a; LaBar and Irwin 1967; Miller 1954, 1956; Painter and Cole 1943; Riddle 1925a, 1925b; Taibel 1934; Vale 1900; Whitman et al. 1919. Internet: RING.
 - × *Streptopelia semitorquata* [Red-eyed Dove] CHR. Hybrids are similar to the Stock Dove. Finn 1929.
 - × *Streptopelia turtur* (♀) [European Turtle-Dove] CHR. HPF(♂♂). Few F₁ eggs hatch. Most (all?) hybrids are ♂. Ackermann 1898; Bonizzi 1875; Darwin 1883; Guyer 1908; Hertwig 1936; Hopkinson 1933a; Poll 1910 (p. 39), 1921; Vigiúé 1906; Williams 1894.
 - × *Zenaidura macroura* [Mourning Dove] CHR. Most (all?) hybrids are ♂. Hertwig 1936.
- Columba maculosa*** [Spot-winged Pigeon]
See also: *Columba corensis*.
- × *Columba speciosa* (♂) [Scaled Pigeon] CHR. LFH. *Avicultural Magazine* 1918; Delacour 1916, 1920, 1927; Hopkinson 1926 (p. 231).
- Columba nigrirostris*** [Short-billed Pigeon]
× *Columba subvinacea* [Ruddy Pigeon] NHI??
Goodwin suggests that *Columba chiriquensis*, a taxon based on one specimen, is either an aberrant specimen or a hybrid of *C. subvinacea* and some other bird. However, Wetmore suggested that it was *C. nigrirostris*. This history of treatment suggests *C. chiriquensis* as a PHP of this cross. Goodwin 1970 (p. 54); Wetmore 1968 (p. 15).
- Columba oenas*** [Stock Dove]
See also: *Columba corensis*; *C. livia*.
- × *Columba palumbus* (♀) [Wood Pigeon] CHR. Europe, w Asia. HPF(♂♂). Frank 1940; Meyer 1941.
 - × *Streptopelia risoria* (prob. ♂) [Ring Dove] CHR. Braune 1910a; IZY 1965; Möller 1877.
 - × *Streptopelia turtur* [European Turtle-Dove] CHR. BRO: Europe, w Asia, nw Africa. IZY 1966.
- Columba palumbus*** [Wood Pigeon]
See also: *Columba livia*; *C. oenas*.
- × *Streptopelia decaocto* [Eurasian Collared-Dove] BRO: s Europe, Middle East. Natural mixed matings occur, but no hybrids are reported. Gale 1994.
- Columba picazuro*** [Picazuro Pigeon]
See: *Columba guinea*; *C. livia*.
- Columba rupestris*** [Hill Pigeon]
See: *Columba livia*.
- Columba speciosa*** [Scaled Pigeon]
See: *Columba maculosa*.
- Columba subvinacea*** [Ruddy Pigeon]
See: *Columba nigrirostris*.
- Columbina sp.***
- × *Columbina talpacoti* (♀) [Ruddy Ground-Dove] CHR. The ♂ parent of two hybrids was believed to be either *C. minuta* (Plain-breasted Ground-Dove) or *C. passerina* (Common Ground-Dove). Hopkinson 1937.
- Note:** *Columbina passerina* has a western and an eastern form, differing in color saturation (*pallescens*, *passerina*). Many hybrids occur. Internet: SIB.

- Columbina passerina* [Common Ground-Dove]
 × *Columbina talpacoti* [Ruddy Ground-Dove]
 CHR. BRO: Cen. and S. America. Pyle 1997.
- Columbina picui* [Picui Dove]
 × *Geopelia striata* (↔ usu. ♂) [Zebra Dove]
 CHR. DRS. Glas 1906.
- Columbina talpacoti* [Ruddy Ground-Dove]
 See also: *Columbina* sp.; *C. passerina*.
- × *Metriopelia melanoptera* (♀) [Black-winged Ground-Dove] CHR. BRO: possibly se Colombia (but these birds are probably separated by altitude). Hopkinson 1937, 1939a (p. 20).
- Ducula bicolor* [Pied Imperial-Pigeon]
 × *Ducula spilorrhoa* [Torres Imperial-Pigeon]
 CHR. BRO: nw New Guinea. Five hybrids were produced at Wassenaar Wildlife Breeding Center (Holland) in 1966. IZY 1967, 1968.
- Ectopistes migratoria* [Passenger Pigeon] (extinct)
 × *Streptopelia risoria* (♀) [Ring Dove] CHR. LFH. Most (all?) hybrids are ♂. Carr 1919; Darwin 1883; Hertwig 1936; Mitchell 1849; *Proceedings of the Zoological Society of London* 1849 (p. 172); Taibel 1934; Taibell 1930b; Whitman et al. 1919.
- Gallicolumba criniger* [Mindanao Bleeding-heart]
 × *Gallicolumba luzonica* (♀) [Luzon Bleeding-heart] CHR. HPF BRO: Philippines. Hopkinson 1939a (p. 21); Wehner 1981.
- Gallicolumba jobiensis* [White-bibbed Ground-Dove]
 × *Gallicolumba xanthonura* (♂) [White-throated Ground-Dove] CHR. ENHI. Gifford says the hybrid is indistinguishable from the Caroline Islands Ground-Dove (*Gallicolumba kubaryi*), whose range lies between those of the White-throated (Marianas Islands) and White-bibbed (New Guinea, Joby Island, Dampier Island, Solomon Islands) ground-doves. *G. kubaryi* is therefore a PHP of this cross. Gifford 1928.
- Gallicolumba kubaryi* [Caroline Islands Ground-Dove]
 × *Gallicolumba rubescens* [Marquesas Ground-Dove] CHR. BRO: DRS. See *Gallicolumba jobiensis* × *G. xanthonura*. Delacour 1937a.
- Gallicolumba luzonica* [Luzon Bleeding-heart]
 See also: *Gallicolumba criniger*.
- × *Streptopelia risoria* [Ring Dove] CHR. Naether 1979.
- Gallicolumba rubescens* [Marquesas Ground-Dove] See: *Gallicolumba kubaryi*.
- Gallicolumba xanthonura* [White-throated Ground-Dove] See: *Gallicolumba jobiensis*.
- Geopelia cuneata* [Diamond Dove]
 × *Geopelia placida* [Peaceful Dove] CHR. BRO: Australia. Carter 1914.
- × *Geopelia striata* (♂) [Zebra Dove] CANHR. BRO: Maylasia, Indonesia, and Australia. Carter 1914; Yamashina 1941a[†].
- × *Streptopelia chinensis* [Spotted Dove] A Diamond Dove nested with a ♂ Spotted Dove and produced several clutches, but no fertile eggs. Angst 1976.
- Geopelia humeralis* [Bar-shouldered Dove]
 × *Geophaps smithii* [Partridge Pigeon] NHR (Northern Territory, Australia)? BRO: ne Western Australia (Kimberleys), nw Northern Territory. Probable hybrids at Jabiru in Kakadu N. P. had heads like Partridge Pigeons (they had red facial skin bordered by thin white lines), but the bronze necks with the usual black scalloping of Bar-shouldered. The rest of the plumage is mostly that of a Bar-shouldered Dove. Chapman 2004; Shingleton 2004a, 2004b.
- Geopelia placida* [Peaceful Dove] See: *Columba livia*; *Geopelia cuneata*.
- Geopelia striata* [Zebra Dove]
 See: *Columbina picui*; *Geopelia cuneata*.
- Geophaps ferruginea* [Red-plumed Pigeon]
 × *Geophaps plumifera* [Spinifex Pigeon] CAENHR (nw Australia). HPF(vh). The ranges of these birds are largely separated by the Great Sandy Desert. A population (*mungi*), which Ford (p. 173) says “has all the credentials of a hybrid population,” occurs in the sw Kimberley Ranges (Hamersley-Pilbara area). It is morphologically intermediate, but is currently separated from *G. ferruginea* by the Great Sandy Desert, and from *G. plumifera* by 90 km of

unsuitable habitat. Crome et al. produced hybrids between *G. ferruginea* and *G. plumifera* that resembled *mungi*. These birds are often lumped. Crome et al. 1980; Ford 1987; Frith and Barker 1975; Goodwin 1983; Hall 1974; Higgins and Davies 1996; Johnstone 1981.

Geophaps peninsulæ [Southern Squatter-Pigeon]

× ***Geophaps scripta*** [Northern Squatter-Pigeon] ENHR (ne Australia). Hybrid zone extends along s slopes of Einasleigh Uplands and Burdekin-Lynd Divide, thence through the Burdekin Barrier (ne Queensland). Ford 1986, 1987.

Geophaps plumifera [Spinifex Pigeon]

See: *Geophaps ferruginea*.

Geophaps scripta [Northern Squatter-Pigeon]

See: *Geophaps peninsulæ*.

Geophaps smithii [Partridge Pigeon]

See: *Geopelia humeralis*.

Goura cristata [Western Crowned-Pigeon]

× ***Goura scheepmakeri*** [Southern Crowned-Pigeon] CHR. BRO: New Guinea. Common in captivity. IZY 1967, 1974, 1977, 1979, 1981.

× ***Goura victoria*** (↔) [Victoria Crowned-Pigeon] CAONHR. Hybridization occurs along the Siriwo River (nw New Guinea). Common in captivity. Ackermann 1898; *Avicultural Magazine* 1918 (p. 251); Bolle 1856; Darwin 1883; IZY 1972, 1976; 1977, 1981, 1990; Manfield 1946; McMorris 1976; Mitchell 1849; Sibley and Monroe 1990 (p. 215). Internet: DIGI, IDOVE.

Goura scheepmakeri [Southern Crowned-Pigeon] See: *Goura cristata*; *G. victoria*.

Goura victoria [Victoria Crowned-Pigeon]

See also: *Goura cristata*.

× ***Goura scheepmakeri*** [Southern Crowned-Pigeon] PCZ in e New Guinea. No hybrids as yet reported.

Leucosarcia melanoleuca [Wonga Pigeon]

See: *Columba livia*.

Macropygia amboinensis [Slender-billed Cuckoo-Dove]

× ***Macropygia phasianella*** [Brown Cuckoo-Dove] ENHI (ne Australia). A population in n Queensland is geographically and

morphologically intermediate and, thus, a PHP of this cross. Schodde 1988 (p. 119).

Metriopelia melanoptera [Black-winged Ground-Dove] See: *Columbina talpacoti*.

Oena capensis [Namaqua Dove]

× ***Streptopelia chinensis*** (prob. ♀) [Spotted Dove] CHR? DRS. Old records. Braune 1910a (p. 92); Hauth 1897.

× ***Streptopelia senegalensis*** (♀) [Laughing Dove] CHR. BRO: Africa, Arabian Penin. Brickell 1989 (p. 232).

× ***Turtur tympanistris*** (♂) [Tambourine Dove] CHR. BRO: sub-Saharan Africa. Brickell 1989 (p. 232); Naether 1985.

Otidiphaps nobilis [Pheasant Pigeon]

See: *Caloenas nicobarica*.

Petrophassa albipennis [White-quilled Rock-Pigeon]

× ***Petrophassa rufipennis*** [Chestnut-quilled Rock-Pigeon] ENHI (Australia). A population in the Victoria R. region (N. Territory) is geographically and morphologically intermediate and, thus, a PHP of this cross. Goodwin 1969.

Phaps chalcoptera [Common Bronzewing]

× ***Phaps elegans*** [Brush Bronzewing] CHR. HPF(♂ & ♀). BRO: Australia. Hopkinson 1930, 1933a; Miller 1956.

Streptopelia bitorquata [Island Collared-Dove]

× ***Streptopelia decaocto*** (♀) [Eurasian Collared-Dove] CHR. DRS. Hopkinson 1939a; Kuroda 1935†.

× ***Streptopelia risoria*** (↔) [Ring Dove] CHR. Miller 1956.

Streptopelia capicola [Ring-necked Dove]

See also: *Columba guinea*.

× ***Streptopelia risoria*** (↔) [Ring Dove] CHR. BRO: s Africa. Cole et al. 1928a; Whitman et al. 1919.

× ***Streptopelia semitorquata*** (♂) [Red-eyed Dove] CHR. BRO: e sub-Saharan Africa. Brickell 1989 (p. 232).

× ***Streptopelia senegalensis*** (♀) [Laughing Dove] CHR. BRO: sub-Saharan Africa. Brickell 1989 (p. 232); Miller 1956.

× ***Streptopelia vinacea*** [Vinaceous Dove] ENHR (nw Uganda). Although there is little variation in the calls of either parental type outside the hybrid zone, the calls of birds

within the zone are intermediate.

A population (*dryas*) is geographically and morphologically intermediate and, thus, a PHP of this cross. These birds are often lumped. De Kort, den Hartog et al. 2002; de Kort, Selvino et al. 2002; Goodwin 1983; Prigogine 1984.

Note: Two populations (*chinensis*, *suratensis*) treated as races of *Streptopelia chinensis* hybridize in Myanmar.

Internet: DIGI, IDOVE.

Streptopelia chinensis [Spotted Dove]

See also: *Geopelia cuneata*; *Oena capensis*.

× ***Streptopelia decaocto*** (↔) [Eurasian Collared-Dove] CHR. HPF(♂ & ♀).

BRO: India, se Asia. Internet: TURI.

× ***Streptopelia orientalis*** [Oriental Turtle-Dove] CHR. DRS. Miller 1956.

× ***Streptopelia risoria*** (↔) [Ring Dove] CHR. DRS. HPF(♂♂). Most F₁ eggs hatch, and most are ♂. Cole 1930, 1932; Cole et al. 1928a; Cumley and Irwin 1940, 1941a, 1941b[†], 1942a, 1942b, 1952; Dalgliesh 1902; Hopkinson 1926 (p. 235), 1931a; Irwin 1932a, 1932b, 1934, 1935, 1938, 1939, 1947, 1949; Irwin and Cole 1936a, 1937, 1940; Irwin and Cumley 1942a, 1943a, 1945; Irwin and Hill 1936; Miller 1956; Mueller et al. 1962; Page 1914b; Palm and Irwin 1962; Shrigley 1938, 1940; Stimpfling and Irwin 1960; Whitman et al. 1919.

× ***Streptopelia senegalensis*** (♀?) [Laughing Dove] CHR. HPF(♂ & ♀). DRS. *Bird Notes* 1916 (p. 78); Cumley and Irwin 1952; Cumley et al. 1942; Hopkinson 1926 (p. 234); Irwin and Cole 1940; Newman 1904[†]; Page 1914b (p. 33); Shore-Baily 1917 (p. 14), 1919a. Internet: GEOC, TURI.

× ***Streptopelia turtur*** (♀) [European Turtle-Dove] CHR. HPF(♂ & ♀). Ackermann 1898; Taibel 1934.

Streptopelia decaocto [Eurasian Collared-Dove]

See also: *Columba livia*; *C. oenas*; *C. palumbus*; *Streptopelia bitorquata*; *S. chinensis*.

× ***Streptopelia orientalis*** (♂) [Oriental Turtle-Dove] CHR. HPF(♂♂). Yamashina 1941a[†].

× ***Streptopelia risoria*** (↔) [Ring Dove] CAENHR. HPF(♂ & ♀). BRO: Arabian Penin. Whitman et al. (1919) reported that three of 15 eggs hatched. Mainardi and Schreiber reported a natural hybrid. Jennings notes the occurrence of hybrids in cen. Arabia. Probable natural hybrids have also been reported in California (U.S.), where these birds are introduced. The Ring Dove is thought to be a domesticated variety of the African Collared-Dove (*S. roseogrisea*), so the wild hybrids mentioned here really refer to the latter. Carr 1919; Garrett and Wilson 2003; IZY 1971; Jennings 1989; Mainardi and Schreiber 1962–1963; Riddle 1925b; Steinbacher 1953; Taibel et al. 1973; Whitman et al. 1919.

× ***Streptopelia semitorquata*** [Red-eyed Dove] CHR. BRO: DRS. Hopkinson 1926.

× ***Streptopelia senegalensis*** [Laughing Dove] CHR. HPF(♂ & ♀). Gray 1958; Taibel 1934, 1949b; Taibell 1930a[†].

× ***Streptopelia turtur*** (↔) [European Turtle-Dove] CANHR. HPF(♂♂). BRO: Europe, middle East. Barbagli et al. 1995; Darwin 1883; Dijkstra 1970; Harrop 1996; Hertwig 1936; Hongell and Saari 1983; IZY 1965, 1966; Lambert 1987; Taibel 1934, 1949b; Taibell 1930a[†], 1930b, 1931, 1932a; Voous 1963.

× ***Streptopelia vinacea*** (↔) [Vinaceous Dove] CHR. HPF(♂♂). Hybrids are usually (exclusively?) ♂. Taibel 1934, 1949b; Taibell 1939[†].

× ***Zenaidura macroura*** (♂) [Mourning Dove] CHR. DRS (but contact occurs in N. America, where *S. decaocto* is introduced). IZY 1966; Riddle 1932; Riddle and Johnson 1939.

Streptopelia decipiens [Mourning Collared-Dove]

See also: *Columba guinea*.

× ***Streptopelia risoria*** [Ring Dove] CHR. HPF Newman 1910; Taibel 1969; Taibel et al. 1973.

× ***Streptopelia semitorquata*** (♂) [Red-eyed Dove] CHR. BRO: sub-Saharan Africa. Brickell 1989 (p. 232).

× *Streptopelia senegalensis* [Laughing Dove] NHR. BRO: sub-Saharan Africa. Heritage and Heritage 1991.

Streptopelia orientalis [Oriental Turtle-Dove]
See also: *Columba livia*; *Streptopelia chinensis*; *S. decaocto*.

× *Streptopelia risoria* (↔) [Ring Dove] CHR. DRS. HPF. Makino et al. 1956; Miller 1956; Riddle 1925b; Stimpfling and Irwin 1960; Whitman et al. 1919.

× *Streptopelia semitorquata* [Red-eyed Dove] CHR. DRS. Miller 1956.

× *Streptopelia turtur* (♂) [European Turtle-Dove] CHR. HPF (♂ & ♀). BRO: w Russia, e Kazakhstan, w China. Guyer 1900 (p. 44); Whitman et al. 1919.

Note: *Streptopelia risoria* is no longer listed as a species by most modern authors because it is deemed a domestic variety of *S. roseogrisea*. However, it seemed that it would cause undue confusion to list under *S. roseogrisea* crosses previously listed under *S. risoria*. Reports for *S. risoria* are mostly for captive crosses.

Streptopelia risoria [Ring Dove]

See also: *Columba cayennensis*; *C. livia*; *C. oenas*; *Ectopistes migratoria*; *Gallicolumba luzonica*; *Streptopelia bitorquata*; *S. capicola*; *S. chinensis*; *S. decaocto*; *S. decipiens*; *S. orientalis*.

× *Streptopelia semitorquata* [Red-eyed Dove] CHR. Miller 1956; Taibel et al. 1973.

× *Streptopelia senegalensis* (♀) [Laughing Dove] CHR. HPF (♂ & ♀). Males more fertile than ♀♀. Boehm and Irwin 1970; *Bird Notes* 1917 (p. 272); Cumley et al. 1943; Hopkinson 1926 (p. 233); Irwin 1947, 1949; Irwin and Cole 1945; Irwin and Cumley 1947; Miller 1956; Riddle 1925b; Stimpfling and Irwin 1960. Internet: RING.

× *Streptopelia tranquebarica* (♂) [Red-collared Dove] CHR. HPF (♂ & ♀). DRS. Hopkinson 1926; Miller 1956, 1964; Miller and Weber 1969; Riddle 1925b; Strong 1902; Whitman et al. 1919.

× *Streptopelia turtur* (↔) [European Turtle-Dove] CANHR. DRS. HPF (♂♂). Natural hybrids occur in California where these

birds are introduced. *Bird Notes* 1910 (p. 70), 1911 (pp. 123, 125), 1913 (p. 365), 1923 (p. 4); Browne 1942; Causton 1955, 1956; Cavazza 1931a, 1931b; Cole 1930; Garrett and Wilson 2003 (p. 28); Gray 1958; Hopkinson 1926 (p. 232); IZY 1965, 1966; Jex 1868; L'Hermitte 1911a; Lowe 1955, 1956; Meyer 1868; Murta Neves 1983; Oustalet 1901; Sprankling 1923; Whitman et al. 1919; Williams 1894; ZSL 1945, 1951.

× *Zenaidura asiatica* [White-winged Dove] CHR. DRS. Miller 1956; Whitman et al. 1919.

× *Zenaidura macroura* (♂) [Mourning Dove] CHR. DRS. LFH. Most hybrids are ♂. Carr 1919; Cavazza 1931a, 1931b; Hertwig 1936; Miller 1956; Naether 1971; Riddle 1925b, 1932; Whitman et al. 1919.

Streptopelia semitorquata [Red-eyed Dove]

See also: *Columba guinea*; *C. livia*; *Streptopelia capicola*; *S. decaocto*; *S. decipiens*; *S. orientalis*; *S. risoria*.

× *Streptopelia senegalensis* (♂) [Laughing Dove] CHR. BRO: sub-Saharan Africa, Arabian Peninsula. Brickell 1989 (p. 232).

× *Streptopelia turtur* (♀) [European Turtle-Dove] CHR. DRS. *Bird Notes* 1911 (pp. 261–263).

Streptopelia senegalensis [Laughing Dove]

See also: *Oena capensis*; *Streptopelia capicola*; *S. chinensis*; *S. decaocto*; *S. decipiens*; *S. risoria*; *S. semitorquata*.

× *Streptopelia turtur* (↔) [European Turtle-Dove] CHR. HPF (♂ & ♀). Ackermann 1898; Chawner 1910; Darwin 1883; Hopkinson 1926 (p. 234); Taibel 1934, 1949b; Taibell 1930a¹.

× *Streptopelia vinacea* (↔) [Vinaceous Dove] CHR. All F₁ hybrids are ♂. Taibel 1934, 1949b; Taibell 1939¹.

× *Turtur chalcospilos* (↔) [Emerald-spotted Wood-Dove] CHR. BRO: e sub-Saharan Africa. Brickell 1989 (p. 232).

Streptopelia tranquebarica [Red-collared Dove] See: *Streptopelia risoria*.

Streptopelia turtur [European Turtle-Dove]

See also: *Columba livia*; *C. oenas*; *Streptopelia chinensis*; *S. decaocto*; *S. orientalis*; *S. risoria*; *S. semitorquata*; *S. senegalensis*.

- × *Streptopelia vinacea* (♂) [Vinaceous Dove]
CHR. DRS. *Bird Notes* 1921 (pp. 172, 180);
Hopkinson 1926 (p. 233);
Williams 1920, 1921.

Streptopelia vinacea [Vinaceous Dove]

See: *Streptopelia capicola*; *S. decacocto*; *S. senegalensis*; *S. turtur*.

- Treron calva*** [African Green-Pigeon] Two populations treated as races of this bird, but once as separate species, *orientalis* (Zambezi Green-Pigeon) and *schalowi* (Schalow's Green-Pigeon), hybridize in Zambia (E. Prov. plateau, on the Luangwa R., and middle Zambezi, w to Kariba). Benson et al. 1971 (p. 124).

Turtur afer [Blue-spotted Wood-Dove]

- × *Turtur chalcospilos* (♂) [Emerald-spotted Wood-Dove] CHR. BRO: e sub-Saharan Africa. Brickell 1989 (p. 232).
× *Turtur tympanistria* (♂) [Tambourine Dove] CHR. BRO: sub-Saharan Africa. LFH. Brickell 1989 (p. 232); L'Hermite 1911a.

Turtur chalcospilos [Emerald-spotted Wood-Dove]

See also: *Streptopelia senegalensis*; *Turtur afer*.

- × *Turtur tympanistria* (♂) [Tambourine Dove] CHR. BRO: e and s sub-Saharan Africa. Brickell 1989 (p. 232).

Turtur tympanistria [Tambourine Dove]

See: *Oena capensis*; *Turtur afer*; *T. chalcospilos*.

Zenaida asiatica [White-winged Dove]

See: *Streptopelia risoria*.

Zenaida aurita [Zenaida Dove]

- × *Zenaidura macroura* [Mourning Dove] CANHR. HPF (♂ & ♀). BRO: Mexico, Caribbean. The Smithsonian has a hybrid (USNM #039325) taken in the Yucatan (Merida) in April. It was treated as a species (*Zenaidura yucatanensis*). A three-way hybrid (F₁ ♂ × *Streptopelia decacocto*) is known. Riddle 1925b; Riddle and Johnson 1939; Riddle et al. 1932.

Zenaida graysoni [Socorro Dove]

- × *Zenaidura macroura* [Mourning Dove] CHR. The Socorro Dove is probably extinct in the wild. Baptista et al. 1983 (p. 917).

Zenaidura macroura [Mourning Dove]

See: *Columba livia*; *Streptopelia decacocto*; *S. risoria*; *Z. aurita*; *Z. graysoni*.

Bustards

Family Otididae

Eupodotis afra [Black Bustard]

- × *Eupodotis afroaoides* [White-quilled Bustard] ENHR (S. Africa). Hybrid zone is near Craddock. These birds are often lumped. Crowe et al. 1994.

Eupodotis afroaoides [White-quilled Bustard]

See: *Eupodotis afra*.

Eupodotis gindiana [Buff-crested Bustard]

- × *Eupodotis savilei* [Savile's Bustard] PCZ in s Sudan? No hybrids as yet reported. Internet: SCRI.

Eupodotis rueppellii [Rueppell's Bustard]

- × *Eupodotis vigorsii* [Karoo Bustard] NHR (s Africa). BRO: sw Namibia. Clancey 1986.

Eupodotis savilei [Savile's Bustard]

See: *Eupodotis gindiana*.

Eupodotis vigorsii [Karoo Bustard]

See: *Eupodotis rueppellii*.

Cranes

Family Gruidae

Balearica pavonina [Black Crowned-Crane]

- × *Balearica regulorum* (♂) [Grey Crowned-Crane] CHR. BRO: n Kenya, n Uganda. *Avicultural Magazine* 1937 (p. 347); Gray 1958; IZY 1979, 1988, 1989, 1993, 1994, 1998. Internet: USGS.

Balearica regulorum [Grey Crowned-Crane]

See also: *Balearica pavonina*.

- × *Grus paradisea* (♂) [Blue Crane] CHR. BRO: S. Africa, n Namibia. A hybrid survived at least 16 months. Johnsgard 1983a (p. 59); *South African Digest*, July 11, 1975 (p. 16).

Grus americana [Whooping Crane]

- × *Grus canadensis* [Sandhill Crane] CANHR. In this case hybridization was not entirely natural. It occurred after Whooping Crane eggs were put in natural nests of Sandhills by conservationists hoping Sandhills would foster Whooper young and lead them on migration. Instead, the young Whoopers imprinted on Sandhills and, as adults, wanted only Sandhill mates. They made no attempt to mate with their own kind.

Hybrids have also been obtained by artificial insemination. Derrickson 1980; Johnsgard 1983a (p. 59); Matthiessen 2001 (p. 240).

Grus antigone [Sarus Crane]

- × ~~*Grus grus*~~ [Eurasian Crane] Some authors list this cross and cite Gray or Bedford. Captive copulation was reported (Sarus ♂ × Eurasian ♀), but no hatched hybrids. Bedford (Duchess of) 1909; Gray 1958 (p. 119).
- × *Grus rubicunda* (♂) [Brolga Crane] CAENHR. BRO: ne Australia. HPF Archibald suggests that the Australian Sarus (*Grus antigone gilli*) may be the product of hybridization between the Sarus and the Brolga (see Matthiessen, pp. 224–225). Archibald 1981; Archibald and Swengel 1987; *Avicultural Magazine* 1936 (p. 4); Delacour 1934, 1935, 1936d; Gray 1958; Hopkinson 1939a; Johnsgard 1983b; Matthiessen 2001; Rutgers and Norris 1970 (p. 252). Internet: USGS.

Note: The Greater Sandhill Crane (*G. c. tabida*) and Lesser Sandhill Crane (*G. c. canadensis*) have a broad hybrid zone in cen. Canada. The breeding range of the Lesser is to the n of that of the Greater (Sibley 2000, p. 157). In addition, *canadensis* contains various populations once treated as separate species. A population in cen. Canada (*rowani*) is intermediate between the northern *canadensis*, and the southern populations (*nescotes*, *pratensis*, *pulla*).

Grus canadensis [Sandhill Crane]

See also: *Grus americana*.

- × *Grus carunculatus* (♀) [Wattled Crane] CHR. DRS. Cosgrave 1911^r; Johnsgard 1983a (p. 59); Rutgers and Norris 1970 (p. 253).
- × *Grus grus* [Eurasian Crane] ONHR. BRO: ne Russia? Burgiel et al. 2001 (p. 152). Internet: USGS, UQUE.
- × *Grus japonensis* (♀) [Red-crowned Crane] CHR. DRS. Seth-Smith 1914b.
- × *Grus leucogeranus* [Siberian Crane] CHR? DRS. Maksudov and Panchenko 2002 (p. 314).
- × *Grus vipio* (♀) [White-naped Crane] CHR. DRS. Seth-Smith 1914b.

Grus carunculatus [Wattled Crane]

See also: *Grus canadensis*.

- × *Grus paradisea* [Blue Crane] NHR. BRO: e South Africa, n Namibia (Etosha Pan). Johnson 1985; Matthiessen 2001 (p. 240). Internet: USGS.
- Grus grus*** [Eurasian Crane]
See also: *Grus antigone*; *G. canadensis*.
- × *Grus japonensis* (♀) [Red-crowned Crane] CHR. BRO: w Manchuria. Hopkinson 1939a. Internet: USGS.
- × *Grus leucogeranus* [Siberian Crane] NHR. BRO: n Russia. A hybrid was observed in Turkey (Murrat Valley). Davidson 1983. Internet: USGS.
- × *Grus monacha* (♀) [Hooded Crane] ENHR. HPF BRO: se Siberia, w Manchuria. In Izumi, Japan, a mixed pair nested together for 7 years and produced seven hybrid offspring. Migrant and wintering hybrids occur regularly in Korea and Japan. Andreev 1974; Degtyaryev and Antonov 1990; Jo and Won 1989; Matthiessen 2001 (p. 80); Nishida 1981, 1982. Internet: BKOR, BKOR2, BQST, SCRI, USGS.
- × *Grus vipio* (♀) [White-naped Crane] CHR. BRO: w Mongolia, adj. Russia. Hopkinson 1934 (p. 322); Low 1929; ZSL 1927. Internet: USGS.
- × *Grus virgo* [Demoselle Crane] CHR. Ostravo Zoo (Czech. Rep.) had three hybrids in 1978 and 1979. IZY 1980, 1981.
- Grus japonensis*** [Red-crowned Crane]
See also: *Grus canadensis*; *G. grus*.
- × *Grus vipio* (♀) [White-naped Crane] CHR. NHR?? BRO: ne China. *Grus nigricollis* (Black-necked Crane) was based on a bird taken in Feb. 1917 in what is today S. Korea (Kapyung). It has been alleged to be this hybrid. Ge et al. 2004; Hachisuka (Marquess) 1928; Johnsgard 1983a (p. 59). Internet: USGS.
- Grus leucogeranus*** [Siberian Crane]
See also: *Grus canadensis*; *G. grus*.
- × *Grus vipio* (♀) [White-naped Crane] CHR. DRS. Maksudov and Panchenko obtained this hybrid using artificial insemination.

At 1 year of age it was larger than either parent. Maksudov and Panchenko 2002.

Grus monacha [Hooded Crane]

See also: *Grus grus*.

- × ***Grus nigricollis*** [Black-necked Crane] An Italian website says these birds hybridize “where their ranges meet.” However, their ranges are widely disjunct. Internet: SCRI.

Grus nigricollis [Black-necked Crane]

See: *Grus japonensis* × *G. vipio*.

Grus paradisea [Blue Crane]

See also: *Balearica regulorum*; *Grus carunculatus*.

- × ***Grus vipio*** (♀) [White-naped Crane] CHR. DRS. The Duchess of Bedford bred this hybrid at Woburn Abbey. *Avicultural Magazine* 1920 (p. 167).
- × ***Grus virgo*** (♂) [Demoiselle Crane] CHR. DRS. This hybrid occurred at the Berlin Zoo in 1873. *Bulletin de la Société Nationale de France* 1873 (p. 94).

Grus rubicunda [Brolga Crane]

See: *Grus antigone*.

Grus vipio [White-naped Crane]

See also: *Grus canadensis*; *G. grus*; *G. japonensis*; *G. leucogeranus*; *G. paradisea*.

- × ***Grus virgo*** [Demoiselle Crane] CHR? BRO: cen. Asia? Rutgers and Norris list this cross, but cite no report. Rutgers and Norris 1970 (p. 254).

Grus virgo [Demoiselle Crane]

See: *Grus grus*; *G. paradisea*; *G. vipio*.

Rails

Family Rallidae

Note: Family Rallidae is an assemblage of small to large, terrestrial, marsh and aquatic birds. Many are flightless island endemics and thus lack contact with close relatives with which they might plausibly hybridize.

Aramides cajanea [Grey-necked Wood-Rail]

- × ***Aramides ypecaha*** (♂) [Giant Wood-Rail] CHR. BRO: S. America. Fertile eggs reported, but no hatched hybrids. *Avicultural Magazine* 1926 (p. 306).

Fulica americana [American Coot]

- × ***Fulica ardesiaca*** [Slate-colored Coot] ENHR.

A wide hybrid zone stretches from sw Colombia to s Peru. Due to hybridization, these birds are sometimes lumped. Fjeldså 1982; Fjeldså and Krabbe 1990; Gill 1964; Hilty and Brown 1986 (p. 145); Sibley and Monroe 1990.

- × ***Fulica caribaea*** [Caribbean Coot] ONHR.

BRO: s U.S. and n Caribbean. Although American Coots have red bills, Sibley notes that individuals with swollen white frontal shields resembling the Caribbean Coot are found throughout the range of the *F. americana*, especially in the southern part of its range, which adjoins that of the Caribbean Coot. These birds are sometimes treated as conspecific. Payne and Masters 1983; Sibley 2000 (p. 151).

- × ***Gallinula chloropus*** [Common Moorhen]

CAONHR. BRO: U.S. (Midwest and Florida). McIlhenny says a hybrid had the red beak of *G. chloropus*, which it also resembled in the color of its eyes, legs, and back plumage. In general, though, its body was like *F. americana* in coloration and build, as were its partially webbed feet. It was much smaller than a coot. Brinkley 2001 (p. 137); McIlhenny 1937; Schmitz 1988; Thiede 1995.

Fulica ardesiaca [Slate-colored Coot]

See: *Fulica americana*.

- Note:** Dittberner and Dittberner (1992)

report a case of a Common Coot laying eggs in the nest of a Red-necked Grebe (*Podiceps grisegena*).

Fulica atra [Common Coot]

- × ***Gallinula chloropus*** [Common Moorhen] ONHR (Germany, Netherlands). Hybrids have traits both of Common Coot (size and lack of white on flank) and of Common Moorhen (white undertail and green legs). In 2000, a hybrid was seen pairing with a Common Coot; two clutches (with eggs closely resembling those of Common Coot) were laid and incubated for more than a month but no young hatched. Wall found Common Moorhen eggs in Common Coot nests on 12 different occasions. Desmet

- 1983; Flower 1983; Foschi 1979; Furrington 1994; Holzinger 1995; Moore and Piotrowski 1983; Suchetet 1897a; Thiede 1995; van Balen et al. 2001; Wall 2005. Internet: DBD4, HOHE.
- × *Gallinula ventralis* (♂) [Black-tailed Native-hen] CHR. BRO: Australia. Dunn 1990.
- Fulica caribaea* [Caribbean Coot] See: *Fulica americana*.
- Fulica cornuta* [Horned Coot]
- × *Fulica gigantea* [Giant Coot] PCZ (n Chile, sw Bolivia). No hybrids as yet reported. The Horned Coot is similar to the Giant Coot in size, shape, and voice. However, it differs strikingly in the color of its bare parts and the protuberances on its forecrown. Ripley 1977 (p. 317, Map 17).
- Fulica gigantea* [Giant Coot]
See: *Fulica cornuta*.
- Gallinula chloropus* [Common Moorhen]
See: *Fulica americana*; *F. atra*.
- Gallinula ventralis* [Black-tailed Native-hen]
See: *Fulica atra*.
- Gallirallus australis* [Weka]
- × *Gallirallus troglodytes* [Black Weka] NHR. These birds are rarely split. Anonymous 1904; Hopkinson 1926; Seth-Smith 1904b; Taylor 1998.
- Laterallus jamaicensis* [Black Rail]
Hybrids between two populations (*coturniculus*, *jamaicensis*), treated as races of this bird, occur in Belize. Russell 1966.
- Porphyrio madagascariensis* [African Swamp-hen]
- × *Porphyrio poliocephalus* [Indian Swamp-hen] CHR. DRS. These birds are sometimes lumped. IZY 1962; Yealland 1956.
- Porphyrio poliocephalus* [Indian Swamp-hen]
See also: *Porphyrio madagascariensis*.
- × *Porphyrio porphyrio* [Purple Swamp-hen] CHR. DRS. IZY 1972.
- Porphyrio porphyrio* [Purple Swamp-hen]
See: *Porphyrio poliocephalus*.

- Rallus elegans* [King Rail]
- × *Rallus longirostris* [Clapper Rail] ENHR (e U.S.). These birds are sometimes lumped. There is a hybrid zone in Delaware and Maryland. Hybrids occur along coast as far s as Louisiana. Sibley says e coast hybrids “appear very similar to Gulf Coast Clapper Rails.” Hybrids between these similar birds are hard to identify. A population in Mexico (*tenuirostris*) is morphologically intermediate. Bent 1926; Bledsoe 1988b; Meanley 1965, 1969, 1989; Meanley and Wetherbee 1962; Olson 1997; Ripley 1977 (p. 125); Sibley 2000 (p. 152); Stevenson and Anderson 1994 (p. 193). Internet: FWIE, USGS.
- Rallus longirostris* [Clapper Rail]
See: *Rallus elegans*.
- Rallus tenuirostris* [Highland Rail]
See: *Rallus elegans* × *R. longirostris*.

Sandgrouses

Family Pteroclididae

- Pterocles arabicus* [Close-barred Sandgrouse]
See: *Pterocles indicus* × *P. lichtensteinii*.
- Pterocles bicinctus* [Double-banded Sandgrouse] Two populations (*bicinctus*, *usherii*), treated as races of this bird, hybridize along the Zambezi downstream of Chirundu (s Zambia, n Zimbabwe). Benson et al. 1971 (p. 119).
- Pterocles indicus* [Painted Sandgrouse]
- × *Pterocles lichtensteinii* [Lichtenstein's Sandgrouse] ENH? A population in sw Asia (s Arabia, s Iran, s Afghanistan, s Pakistan), *arabicus*, is geographically intermediate and has been treated as a race of both these birds, and is therefore a PHP of this cross. Sibley and Monroe 1990 (p. 233).
- Pterocles lichtensteinii* [Lichtenstein's Sandgrouse] See: *Pterocles indicus*.
- Syrnhaptes paradoxus* [Pallas's Sandgrouse]
- × *Syrnhaptes tibetanus* [Tibetan Sandgrouse] PCZ (mts of cen. Asia). No hybrids as yet reported. Harrison 1982 (p. 163).

Plovers, Sandpipers, and Their Allies

Family Scolopaciidae

Calidris acuminata [Sharp-tailed Sandpiper]

- × *Calidris ferruginea* [Curlew Sandpiper]
ONHR. BRO: n Russia (arctic coast).
Cooper's Sandpiper, described as
a species (*Calidris cooperi*) by Baird
on the basis of a specimen taken in 1833,
is probably this hybrid. Higgins and
Davies mention a second possible
sighting in 1981. Cox 1989, 1990;
Hayman et al. 1986; Higgins and
Davies 1996 (pp. 307–306); Lane et al.
1981; Parker 1982. Internet: DIGI.
 - × ~~*Philomachus pugnax* [Ruff]~~ This cross, listed
by some, has apparently not been reported.
Stepanyan did hypothesize this cross as the
source of Cox's Sandpiper, but the actual
cross was *Calidris ferruginea* × *C. melanotos*.
Stepanyan 1990.
- #### *Calidris alba* [Sanderling]
- × *Calidris alpina* [Dunlin] NHR (Scotland,
Solway Firth). BRO: e Greenland, Russia
(arctic coast). Clark 1987. Internet: FSNET.
- #### *Calidris alpina* [Dunlin]
- See also: *Calidris alba*.
- × *Calidris ferruginea* [Curlew Sandpiper]
NHR (Denmark). BRO: Arctic.
Andersen 2000.
 - × *Calidris fuscicollis* [White-rumped
Sandpiper] NHR. BRO: n Canada
(arctic coast). McLaughlin and
Wormington 2000.
 - × *Calidris maritima* [Purple Sandpiper] NHR.
BRO: n Europe, Iceland, s Novaya Zemlya.
Millington 1994.
- #### *Calidris bairdii* [Baird's Sandpiper]
- × *Tryngites subruficollis* [Buff-breasted
Sandpiper] NHR. BRO: arctic coast of
N. America. Laux 1994.
- #### *Calidris canutus* [Red Knot]
- × *Limosa lapponica* [Bar-tailed Godwit] NHI.
BRO: n Atlantic. This hybrid has a ring
number, but there seems to be no published
report. Internet: FOTO5.

Calidris ferruginea [Curlew Sandpiper]

See also: *Calidris acuminata*; *C. alpina*.

- × *Calidris fuscicollis* [White-rumped
Sandpiper] NHR (s Australia). DRS, but
vagrant contact in Europe, N. America.
Gantlett and Grant 1989; Golley 1990;
Paulson 2005 (p. 10⁷).
 - × *Calidris melanotos* [Pectoral Sandpiper]
NHR (s Australia). Cox's Sandpiper, treated
as a species (*C. paramelanotos*), is now
known to be the hybrid of *C. melanotos* and
C. ferruginea (confirmed by DNA analysis).
Higgins and Davies say there have been
“numerous” reports of this hybrid in s and e
Australia “but few have been published and
none have been submitted to the RAC.”
They give a list of published reports and a
list of sites of unpublished sightings.
Christidis et al. 1996; Cox 1989, 1990;
Higgins and Davies 1996 (pp. 307–308);
Paulson 2005 (p. 10⁷); Stepanyan 1990;
Ujihara 2002. Internet: DIGI, OCNW.
 - × ~~*Philomachus pugnax* [Ruff]~~ This cross, listed
by some, has apparently not been reported.
Stepanyan did hypothesize this cross as the
source of Cox's Sandpiper, but the actual
cross was *Calidris ferruginea* × *C. melanotos*.
Stepanyan 1990.
- #### *Calidris fuscicollis* [White-rumped Sandpiper]
- See also: *Calidris alpina*; *Calidris ferruginea*.
- × *Calidris melanotos* [Pectoral Sandpiper]
NHR? BRO: n N. America. Paulson
2005 (p. 10).
 - × *Tryngites subruficollis* [Buff-breasted
Sandpiper] NHR (e Canada). A probable
hybrid was photographed in
November at Bear Cove, Avalon
Peninsula, Newfoundland. Mactavish
and Knowles 2004[†].
- #### *Calidris maritima* [Purple Sandpiper]
- See: *Calidris alpina*.
- #### *Calidris melanotos* [Pectoral Sandpiper]
- See: *Calidris ferruginea*; *C. fuscicollis*.
- #### *Calidris minuta* [Little Stint]
- × *Calidris temminckii* [Temminck's Stint]
NHR. BRO: n Russia (arctic coast).
Jonsson 1996.

Calidris paramelanotos [Cox's Sandpiper]

See: *Calidris ferruginea* × *C. melanotos*.

Calidris ptilocnemis [Rock Sandpiper] Many

intermediates between two populations (*couesi*, *ptilocnemis*), treated as races of *C. ptilocnemis*, occur along the n Pacific coast of N. America. Sibley 2000 (p. 180).

Calidris temminckii [Temminck's Stint]

See: *Calidris minuta*.

Charadrius hiaticula [Common Ringed Plover]

× *Charadrius semipalmatus* [Semipalmated Plover] ONHR. BRO: Alaska (St. Lawrence I.), n Canada. Smith reported hybrids on Baffin Island. Bock 1958; Meyer de Schauensee 1966 (p. 87); Smith 1969; Piersma 1996 (p. 425).

Charadrius novaeseelandiae [Shore Plover]

× *Vanellus miles* [Masked Lapwing] NHR. Braithwaite and van Tets 1975.

Charadrius semipalmatus [Semipalmated Plover] See: *Charadrius hiaticula*.

Gallinago gallinago [Common Snipe]

× *Gallinago media* [Great Snipe] NHR? Old records. Ackermann 1898; Gray 1958; Gurney 1894; Suchetet 1897a.

Limosa lapponica [Bar-tailed Godwit]

See: *Calidris canutus*.

Numenius arquata [Eurasian Curlew]

× *Numenius tenuirostris* [Slender-billed Curlew] NHR?? Old reports. Ackermann 1898; Suchetet 1897a.

Numenius phaeopus [Whimbrel]

× *Numenius tenuirostris* [Slender-billed Curlew] NHR?? Old report. Suchetet 1897a.

Numenius tenuirostris [Slender-billed Curlew]

See: *Numenius arquata*; *N. phaeopus*.

Phalaropus fulicaria [Red Phalarope]

× *Phalaropus lobatus* [Red-necked Phalarope] NHI. BRO: arctic coasts (ne Russia, nw N. America). This hybrid has a ring number, but there seems to be no published report. Internet: FOTO5.

Philomachus pugnax [Ruff]

See also: *Calidris acuminata*; *C. ferruginea*.

× *Vanellus coronatus* [Crowned Lapwing] CHR. DRS. Antonius 1933.

Pluvialis apricaria [European Golden-Plover]

× *Pluvialis fulva* [Pacific Golden-Plover] NHR. BRO: nw Russia (arctic coast, e of Gulf of Ob). Borg 1976; Eenshuistra 1994; Golley and Stoddart 1991; Popham 1900; Pym 1982; Stout 1967.

× *Pluvialis squatarola* [Grey Plover] NHR. BRO: nw Russia (arctic). Kusters 1991.

Pluvialis dominica [American Golden-Plover]

× *Pluvialis fulva* [Pacific Golden-Plover] ONHR? PCZ w Alaska. Though he says many intermediates occur, Connors (1983) argues they represent overlap in variation within *P. dominica* and *P. fulva*, not hybrids. *P. fulva* and *P. dominica* are sometimes lumped. Connors 1983; Fjeldså and Krabbe 1990; Gabrielson and Lincoln 1959; Johnson and Johnson 2005; Vaurie 1964.

Pluvialis fulva [Pacific Golden-Plover]

See: *Pluvialis apricaria*; *P. dominica*.

Pluvialis squatarola [Grey Plover]

See: *Pluvialis apricaria*.

Tringa brevipes [Grey-tailed Tattler]

× *Tringa incana* [Wandering Tattler] NHR. BRO: e Russian. Gill et al. 2002.

Tringa erythropus [Spotted Redshank]

× *Tringa totanus* [Common Redshank] NHI. BRO: n Eurasia. This hybrid has a ring number, but there seems to be no published report. Internet: FOTO5.

Tringa hypoleucos [Common Sandpiper]

× *Tringa macularia* [Spotted Sandpiper] In w Yorkshire, U.K., Lawrence observed a vagrant *T. macularia* ♂ display to and copulate with a *T. hypoleucos* ♀ (in June). No hybrids as yet reported. DRS. Lawrence 1993.

× *Tringa ochropus* [Green Sandpiper] NHR? BRO: Europe. Christensen 1995.

Tringa incana [Wandering Tattler]

See: *Tringa brevipes*.

Tringa macularia [Spotted Sandpiper]

See: *Tringa hypoleucos*.

Tringa ochropus [Green Sandpiper]

See: *Tringa hypoleucos*.

- Tringa totanus* [Common Redshank]
See: *Tringa erythropus*. Higgins and Davies (p. 135) say populations treated as races of *Tringa totanus* "interbreed in several hybrid zones covering large parts of their breeding range, in which adults have incomplete breeding plumage." Hale 1971, 1974; Higgins and Davies 1996.
- Tryngites subruficollis* [Buff-breasted Sandpiper] See: *Calidris bairdii*; *C. fuscicollis*.
- Vanellus armatus* [Blacksmith Lapwing]
× *Vanellus spinosus* [Spur-winged Lapwing] NHR. BRO: e Africa. Hybrids are like Spur-winged, but have a black mantle and upperparts buffy gray (not sandy brown). Pearson 1983.
Note: Here *Vanellus cayennensis* includes *lampronotus*.
- Vanellus cayennensis* [Cayenne Lapwing]
× *Vanellus chilensis* [Southern Lapwing] ONHR. BRO: n Argentina. Fjeldså and Krabbe 1990 (p. 160); Navas 1986; Piersma 1996 (p. 420).
- Vanellus chilensis* [Southern Lapwing]
See: *Vanellus cayennensis*.
- Vanellus coronatus* [Crowned Lapwing]
See: *Philomachus pugnax*.
- Vanellus crassirostris* [Long-toed Lapwing]
Two populations (*crassirostris*, *leucopterus*), treated as races of this bird, hybridize in Tanzania, se Zaire, n Malawi. Their hybrids have also been treated as a race (*hybrida*). Piersma 1996.
- Vanellus miles* [Masked Lapwing]
See also: *Charadrius novaeseelandiae*.
- × *Vanellus novaehollandiae* [Australian Lapwing] ENHR (Australia). HPF(vh). Hybrid zone is in n Queensland near Townsville. Due to hybridization, these birds are now often treated as conspecific. Ford 1987; Hayman et al. 1986; Marchant and Higgins 1993 (pp. 955–956⁺); Simpson and Day 1999 (p. 348); van Tets et al. 1967.
- Vanellus novaehollandiae* [Australian Lapwing]
See: *Vanellus miles*.

- Vanellus senegallus* [Wattled Lapwing]
× *Vanellus tricolor* [Banded Lapwing] CHR. DRS. The Amsterdam Zoo (Netherlands) had two hybrids in 1975. IZY 1977.
- Vanellus spinosus* [Spur-winged Lapwing]
See: *Vanellus armatus*.
- Vanellus tricolor* [Banded Lapwing]
See: *Vanellus senegallus*.

Jacanas

Family Jacanidae

- Jacana jacana* [Wattled Jacana]
× *Jacana spinosa* [Northern Jacana] ONHR (w Panama, Costa Rica). Betts 1973; Sibley and Monroe 1990 (p. 243); Stiles and Skutch 1989; Wetmore 1965.

Oystercatchers

Family Haematopodidae

- Note:** Hybridization occurs between most members of *Haematopus* in varying degrees where ranges overlap. Internet: SACC.
- Haematopus ater* [Blackish Oystercatcher]
× *Haematopus leucopodus* [Magellanic Oystercatcher] NHR (Argentina, Santa Cruz Province). Jehl 1978.
- × *Haematopus palliatus* [American Oystercatcher] NHR (Argentina). Jehl 1978; Miller and Baker 1980.
- Haematopus bachmani* [Black Oystercatcher]
× *Haematopus palliatus* [American Oystercatcher] ENHR (w Mexico). Hybrids are common in the contact zone (Pacific coast, Baja California) and are often seen even in s California (U.S.). A population, *frazari*, treated as a race of *A. palliatus*, shows signs of hybridization with *H. bachmani*. Hybridization probably occurs also in California's Channel Islands. Bancroft 1927 (pp. 51–53); DeBenedictis 1990; Garrett and Wilson 2003; Humphrey 1994; Jehl 1985. Internet: DIGI, SRF6.
- Haematopus fuliginosus* [Sooty Oystercatcher]
× *Haematopus longirostris* [Pied Oystercatcher] ONHR. According to the Birds Australia Rarities Committee, there are several reliable,

but unpublished reports of this hybrid occurring in Australia. Collins 1999.
Internet: BAUS, DIGI.

- × *Haematopus ophthalmicus* [Spectacled Oystercatcher] ENHR (W. Australia). These birds, now often lumped, have a hybrid zone between Shark Bay and Point Cloates. Hartert 1927; McKean 1978; Storr 1985.

Haematopus leucopodus [Magellanic Oystercatcher] See: *Haematopus ater*.

Haematopus longirostris [Pied Oystercatcher] See: *Haematopus fuliginosus*.

Haematopus ophthalmicus [Spectacled Oystercatcher] See: *Haematopus fuliginosus*.

Haematopus reischeki [Northern Oystercatcher]

- × *Haematopus unicolor* [Variable Oystercatcher] ENHR (New Zealand). Here, *H. unicolor* refers to the pied-type birds, and *H. reischeki* to the black ones. Due to hybridization, these taxa are usually lumped. Baker 1975.

Haematopus palliatus [American Oystercatcher] See: *Haematopus ater*; *H. bachmani*.

Haematopus unicolor [Variable Oystercatcher] See: *Haematopus reischeki*.

Stilts and Avocets

Family *Recurvirostridae*

Himantopus himantopus [Black-winged Stilt]

- × *Himantopus leucocephalus* [White-headed Stilt] NHR. An apparent hybrid was sighted (Korea). DRS. These birds are sometimes lumped. Internet: BKOR2.

- × *Himantopus mexicanus* (♀) [Black-necked Stilt] CANHR. DRS. In Holland, hybridization occurred between an extralimital (probably escaped) Black-necked ♀ and a Black-winged ♂. Copenhagen Zoo had hybrids in 1963. These birds are sometimes lumped. IZY 1965; Meininger 1993.

- × *Recurvirostra americana* [American Avocet] CHR. DRS. Wuppertal Zoo (Germany) had six hybrids in 1984. IZY 1986.

Himantopus leucocephalus [White-headed Stilt]

See also: *Himantopus himantopus*.

- × *Himantopus novaezelandiae* [Black Stilt] ENHR. BRO: New Zealand. HPF(vh). Hybridization threatens the endangered Black Stilt. Hybrids have varying amounts of black on forehead, crown, nape, and mantle. Some show black only on the nape, others, over the entire body, except some white on the belly or undertail. Tarsal length decreases with increasing black in plumage. In one mixed population, 3% of birds were Black Stilts, of which 24% were paired with hybrids and 6% with White-headed Stilts. Greene 1999; Hayman et al. 1986; MacAvoy and Chambers 1999a, 1999b; Pierce 1982, 1984, 1996; Reed et al. 1993. Internet: BHAW2.

Himantopus melanurus [White-backed Stilt]

- × *Himantopus mexicanus* (♀) [Black-necked Stilt] CAENHR. BRO: Peru. These birds are sometimes lumped. Hayman et al. 1986; Lint 1959b[†].

Himantopus mexicanus [Black-necked Stilt]

See also: *Himantopus himantopus*; *H. melanurus*.

- × *Recurvirostra americana* [American Avocet] CAONHR. BRO: N. America. A probable ♂ hybrid resembled, in summer, a winter-plumaged avocet. But bill was somewhat shorter and straighter; gray pattern on neck like black pattern on stilt; eye larger than avocets and intermediate in color; degree of webbing on feet intermediate. IZY 1973; Principe 1977[†]; Sibley 1994; Sordahl 2001.

Himantopus novaezelandiae [Black Stilt] See: *Himantopus leucocephalus*.

Recurvirostra americana [American Avocet] See: *Himantopus himantopus*; *H. mexicanus*.

Pratincoles

Family *Glareolidae*

Glareola liberiae [Rufous-collared Pratincole]

- × *Glareola nuchalis* [White-collared Pratincole] NHR (w Cameroon). These birds are often lumped. Sibley and Monroe 1990 (p. 253).

Glareola maldivarum [Oriental Pratincole]

× *Glareola pratincola* (♂) [Collared Pratincole]
NHR. BRO: Eurasia. Conway (W. G.) 1965.

Glareola nordmanni [Black-winged Pratincole]

× *Glareola pratincola* (♀) [Collared Pratincole]
NHR. BRO: e Ukraine, sw Russia. Gray
1958; Schitkow 1897; Walmsley 1970.

Glareola nuchalis [White-collared Pratincole]

See: *Glareola liberiae*.

Glareola pratincola [Collared Pratincole]

See: *Glareola maldivarum*; *G. nordmanni*.

Jaegers and Skuas

Family Laridae

Catharacta antarctica [Southern Skua]

× *Catharacta chilensis* [Chilean Skua]
ONHR (s Argentina). Devillers 1978;
Harrison 1983; Reinhardt et al. 1997;
Shirihai 2002 (p. 212).

× *Catharacta lonnbergi* [Brown Skua] NHR?
ENHI. BRO: Falkland Is., Tierra del Fuego.
Shirihai says hybridization may occur. These
birds are often lumped. Shirihai (p. 213)
says a population (*hamiltoni*) of Tristan
da Cunha and Gough I. is “generally
intermediate” between *C. antarctica* and
C. lonnbergi. Shirihai 2002 (pp. 213, 215).

Catharacta chilensis [Chilean Skua]

See also: *Catharacta antarctica*.

× *Catharacta lonnbergi* [Brown Skua] NHR??
BRO: s S. America. Shirihai says hybridiza-
tion may occur. Shirihai 2002 (p. 215).

× *Catharacta maccormicki* [South Polar Skua]
NHR (S. Shetland Is.). Reinhardt et al. 1997.
Internet: NZBDS.

Catharacta lonnbergi [Brown Skua]

See also: *Catharacta antarctica*; *C. chilensis*.

× *Catharacta maccormicki* [South Polar Skua]
ENHR (Antarctic Peninsula, S. Shetlands,
and S. Orkneys). HPF(vh). In most regions
of contact, 5–10% of the population com-
prises mixed pairs and hybrids. A range of
intermediates occur. The number of mixed
pairs has been increasing on King George I.,
where they now form 10–16% of the total
skua population. Furse 1987; Hahn et al.
1998; Hahn et al. 2003; Hemmings 1984;

Higgins and Davies 1996; Jiguet et al. 1999;
Olsen and Larsson 1997; Parmelee 1988;
Parmelee and Rimmer 1984; Peter et al.
1990, 1994; Pietz 1985; Shirihai 2002 (Plate
16⁺ and p. 217).

Catharacta maccormicki [South Polar Skua]

See also: *Catharacta chilensis*; *C. lonnbergi*.

× *Catharacta skua* [North Atlantic
Great Skua] NHR. Rare hybrids
result from vagrant breeding
contact. Millington 2000.

Catharacta skua [North Atlantic Great Skua]

See also: *Catharacta maccormicki*.

× *Stercorarius pomarinus* [Pomarine Jaeger]
ENHR. BRO: holarctic. HPF. *S. pomarinus*
is *Catharacta*-like in its mitochondrial
DNA, but *Stercorarius*-like in its morphology.
This evidence suggests either (1) that
mtDNA has been passed from *C. skua* into
S. pomarinus via hybridization, or (2) that
S. pomarinus itself had its origin in
hybridization between the Parasitic
Jaeger (*S. parasiticus*) and *C. skua*.
Both of these scenarios imply the
occurrence of partially fertile hybrids.
Andersson 1999a, 1999b; Cohen et al.
1997. Internet: DEEB.

Stercorarius parasiticus [Parasitic Jaeger]

See also: *Catharacta skua* × *Stercorarius
pomarinus*.

× *Stercorarius pomarinus* [Pomarine Jaeger]
NHR. BRO: coasts of Arctic Ocean.
Andersson 1999b; Colin 1982b; Götmark
et al. 1981.

Stercorarius pomarinus [Pomarine Jaeger]

See: *Catharacta skua*; *Stercorarius
parasiticus*.

Gulls, Terns, and Noddies

Family Laridae

Anous minutus [Black Noddy]

× *Anous tenuirostris* [Lesser Noddy] NHR.
Ashmore Reef, Timor Sea. Bourne 1997;
Stokes and Hinchey 1990.

Chlidonias hybridus [Whiskered Tern]

× *Chlidonias leucopterus* [White-winged Black
Tern] NHR. BRO: Eurasia. Panov 1989.

Chlidonias leucopterus [White-winged Black Tern]

See also: *Chlidonias hybridus*.

- × *Chlidonias niger* (♂) [Black Tern] NHR. BRO: w Eurasia. Alexandersson 1979; Bennett 1986; Mazzocchi and Muller 1992; Mel'nikov 1985; Panov 1989; Scharringa and Osieck 1981; van Ijzendoorn 1980.

Chlidonias niger [Black Tern]

See: *Chlidonias leucopterus*.

Gygis alba [Common White-Tern]

- × *Gygis microrhyncha* [Little White-Tern] ENHR (Marquesas Islands).

Intermediate populations occur on Hatutu and Motane. Baker 1951; Holyoak and Thibault 1976; Niethammer and Patrick 1998; Pratt et al. 1987.

Note: Here, *Larus argentatus* includes three groups that have been treated as separate species: *argentatus* (Herring Gull), *heuglini* (Heuglin's Gull), and *vegae* (Vega Gull). Sibley and Monroe (1993, p. 39) say all three hybridize where their ranges meet.

Larus argentatus [Herring Gull]

- × *Larus cachinnans* (♂) [Yellow-legged Gull] ENHR. BRO: Europe. HPF: In the Netherlands, a ♀ that produced hybrids for more than a decade was shown by DNA-analysis to be hybrid herself. She looked like a pure Yellow-leg, but had Herring Gull mtDNA (in many zones producing fertile hybrids, obvious F₁ hybrids are rare in comparison with later-generation hybrids, not only in birds, but also in a broad range of organisms). Probable hybrids also occur in N. America, since Sibley says "all characteristics [of Yellow-legged Gull] overlap with rare individual Herring Gulls." Mierauskas et al. say the race *omissus* (Yellow-legged Herring Gull) is a PHP of this cross. Cottaar 2004; Eigenhuis 1986; Géroudet 1986; Gloe 1993; Gosselin et al. 1986; Haupt and Kaminski 1995; Hopkinson 1926; Kilpy and Hario 1986; Lönnberg 1926; Marion et al. 1985; Mierauskas et al. 1994; Monzиков and Panov 1996a, 1996b; Page 1914b; Sibley 2000 (p. 207); Teyssèdre 1984; Voipio 1981;

Vercrujssse 1995; Vercrujssse et al. 2002; Yesou 1991. Internet: SRF7[†].

- × *Larus californicus* [California Gull] NHR (w N. America). Chase 1984; Winkler 1996 (p. 4).
- × *Larus dominicanus* [Kelp Gull] CAENHR (Louisiana, s U.S.). HPF: Hybrids are known to breed on the Chandeleur Islands. Dittman and Cardiff 1998; IZY 1969, 1970, 1971, 1972; *North American Birds* 2003 (p. 285); Lehman 1999; Sibley 2000.
- × *Larus fuscus* [Lesser Black-backed Gull] CAONHR (Britain, Ireland). HPF. BRO: w Europe. These birds are sometimes lumped. Barth 1968; Dathe 1950b; Filchagov et al. 1992; Hansen 1960; Harris 1970; Harris et al. 1978; Hillis 1975; Hopkinson 1926, 1939a; IZY 1969, 1977, 1982, 1983; Monzиков and Panov 1996a, 1996b; Page 1914b; Rytman et al. 1981; Sibley 2000 (pp. 204[†], 207); Tinbergen 1929[†], 1953; Voous 1946, 1960; Yealland (J.) 1953; Yealland 1954; Yesou 1991. Internet: SRF7.
- × *Larus glaucescens* [Glaucous-winged Gull] ENHR. BRO: se Alaska and w Canada. HPF(vh). Hybrids are common, outnumbering parental types in some areas. Merilees 1974; Patten 1980; Patten and Weisbrod 1974; Sibley 1994[†], 2000 (p. 204[†]); Strang 1977; Tinbergen 1929; Verbeek 1993 (p. 2); Williamson and Peyton 1963[†]. Internet: FLDG.
- × *Larus glaucooides* [Iceland Gull] NHR? BRO: ne Canada. Sibley (p. 204) says this hybrid "never" occurs. Davies 1978; Sibley 2000.
- × *Larus hyperboreus* [Glaucous Gull] CAENHR HPF (♂ & ♀). BRO: holarctic. Glaucous hybridizes with *L. a. smithsonianus* in N. America and *L. a. argentatus* in Iceland and at Bear I., Barents Sea. Hybrids are fairly common on the arctic breeding grounds, but less so further south. Also common in Newfoundland in winter. Mixed pairs in Norway. Compared to Herring Gulls, hybrids have paler primaries and tail band, tertials more barred, less black along the feather shaft in the scapulars, fainter facial

mask, and often paler bill base. Toward the n, hybrids become more like Glaucous.

Nelson's Gull (*Larus nelsoni*) is now known to be this hybrid. Rogers and Jaramillo (p. 25) say a bird photographed in California was thought to be this hybrid or a Slaty-backed Gull (*Larus schistisagus*). Adriaens and Mactavish 2004; Andriele 1980; Bent 1921 (p. 76); Brauning 1984; Burke 1995; Clifton 1995; Davies 1978; Dubois 1997; Dwight 1925; Ferguson-Lees 1977; Filchagov 1998; Garner and McGeehan 1997; Gehlert 2002; Gibson and Kessel 1997; Gilchrist 2001; Goethe 1982; Hume 1978; Ingolfsson 1970, 1987, 1993; *IZY* 1960, 1973; Jehl 1971, 1987; Jehl and Frohling 1965; Lippens 1970; Madge 1978; McGeehan and Garner 1997a; Montgomerie et al. 1983; Neve de Mevergnies 1989; Osborn 1993; Pennington 1997; Rogers and Jaramillo 2002; Schütt 1989; Sibley 2000 (p. 205[†]); Snell 1991; Spear 1987; Sutherland 1983; Svingen and Eckert 1994. Internet: BNOR (July, 2002; Dec. 2002, Feb., 2003[†]; Dec., 2003), CYB[†].

- × *Larus marinus* (♂) [Great Black-backed Gull] CANHR. HPF(♂ & ♀). BRO: n Europe, n Canada. Hybrids occur on both sides of the Atlantic. Zoo de L'Orangerie (France) has had many (also three-way hybrids with *L. cachinnans*). Andriele 1972, 1973; Foxall 1979; Godfrey 1973; Hansen 1960; Heinroth 1905, 1907; *IZY* 1972, 1973, 1974, 1977, 1986, 1987, 1988, 1989; Jehl 1960[†]; Rooke 1961; Schiött 1904; Sibley 2000 (p. 204); Viet and Petersen 1993.
- × *Larus ridibundus* (♂) [Black-headed Gull] NHR. Hopkinson 1926; Melville and Chalmers 1979; Page 1914b.
- × *Larus schistisagus* [Slaty-backed Gull] ONHR (Bering Sea). King and Carey 1999; Panov 1989.
- × *Larus thayeri* [Thayer's Gull] NHR (subarctic Canada, Southampton and Baffin Is.). Forbes et al. 1992; Manning et al. 1956.

Larus atricilla [Laughing Gull]

- × *Larus canus* [Mew Gull] CHR. DRS. Berlin Zoo had a hybrid in 1985. *IZY* 1987.

- × *Larus cirrocephalus* [Grey-headed Gull] NHR (Senegal). BRO: nw S. America. Cramp and Simmons 1980; Erard et al. 1984.
 - × *Larus delawarensis* [Ring-billed Gull] CANHR (Great Lakes). BRO: N. America. Granlund 2005; Henshaw 1992; *IZY* 1969, 1970; Sibley 1994[†].
 - × *Larus novaehollandiae* [Silver Gull] CHR. DRS. The National Zoo (Washington, D.C.) had hybrids in 1978. *IZY* 1980.
 - × *Larus ridibundus* [Black-headed Gull] ONHR. BRO: Canada (Atlantic coast). McKearman 1999; Sibley 2000 (p. 204).
- Larus brunnicephalus*** [Brown-headed Gull]
- × *Larus ichthyaetus* [Great Black-headed Gull] NHR (cen. Asia). BRO: n China? Vaurie 1962.
 - × *Larus ridibundus* [Black-headed Gull] NHR. BRO: n China. Stegmann 1935.
- Larus bulleri*** [Black-billed Gull]
- × *Larus novaehollandiae* (♀) [Silver Gull] ONHR (New Zealand). HPF Mixed-matings and hybrids occur at Sulphur Point, Rotorua. Gurr 1967.
- Larus cachinnans*** [Yellow-legged Gull]
- See also: *Larus argentatus*; *L. argentatus* × *L. marinus*.
- × *Larus fuscus* (♀) [Lesser Black-backed Gull] ENHR (Europe). Many mixed pairs have produced hybrid young at Ijmuiden, Holland. Some of the hybrids return to breed, always pairing with Lesser Black-backed Gulls. Cottaar 2004; Cottaar and Verbeek 1994; Eigenhuis 1986; Garnier 1983; Lefèvre 1998; Monzikov and Panov 1996a, 1996b; Teyssèdre 1983, 1984; Yesou 1991. Internet: SRF7.
- Larus californicus*** [California Gull]
- See also: *Larus argentatus*.
- × *Larus canus* [Mew Gull] NHR. BRO: w N. America. Harrison 1983.
 - × *Larus delawarensis* [Ring-billed Gull] NHR. BRO: N. America. Harrison 1983.
- Larus canus*** [Mew Gull]
- See also: *Larus atricilla*; *L. californicus*.
- × *Larus delawarensis* [Ring-billed Gull] NHR. BRO: w Canada. Contact also occurs with vagrant Ring-bills in Britain and Ireland. Clasper observed a Ring-bill displaying to a

- Common. Sibley and Monroe (1990, p. 255) note that Andouin's Gull (*L. audouinii*) has characteristics of both these birds. Clasper 1989; Kehoe 1992; Olsen 2003. Internet: CMUS.
- × *Larus fuscus* [Lesser Black-backed Gull] NHR? BRO: nw Eurasia. Harrison 1965.
 - × *Larus glaucooides* [Iceland Gull] CHR? BRO: Faroe Islands. Heinroth 1907.
 - × *Larus kamtschatschensis* [Kamchatka Gull] ENHR (Russia, Lena R. region). Due to hybridization, these birds are usually lumped. Sibley and Monroe 1990.
 - × *Larus melanocephalus* [Mediterranean Gull] NHR. BRO: n Black Sea coast. Pullan and Martin discuss a hybrid that closely resembled a Franklin's Gull (*Larus pipixcan*). Oddie 1994; Pullan and Martin 2004.
 - × *Larus ridibundus* (↔) [Black-headed Gull] CANHR. BRO: Eurasia. A probable hybrid observed in France (Arcachon, Gironde) was like a Black-headed Gull, but had a longer, stouter, grayish, black-tipped bill, upperparts darker gray than *L. ridibundus*, and intermediate primary pattern. Hein 1994; IZY 1971; Jiguet and Defos du Rau 2003; Schumann 1930; Staav 1988.
- Larus cirrocephalus*** [Grey-headed Gull]
See also: *Larus atricilla*.
- × *Larus hartlaubi* (♀) [Hartlaub's Gull] ONHR (sw coast of Africa). Cramp and Simmons 1980; Harrison 1983; Sinclair 1977; Williams 1989; Zoutendyk and Feely 1953.
 - × *Larus pipixcan* (♂) [Franklin's Gull] ONHR. Vagrant Franklin's Gulls have been known to hybridize with Grey-headed Gulls in w Africa (Senegal). Borrow and Demey 2001; Cramp and Simmons 1980; Erard et al. 1984; Hockey et al. 1988.
- Larus crassirostris*** [Black-tailed Gull]
- × *Larus novaehollandiae* [Silver Gull] NHR. BRO: w Pacific. Kuroda 1941[†].
- Larus delawarensis*** [Ring-billed Gull]
See also: *Larus atricilla*; *L. californicus*; *L. canus*.
- × *Larus dominicanus* [Kelp Gull] CHR. DRS. O'Brien and Davis 2003 (p. 3).
 - × *Larus pipixcan* [Franklin's Gull] NHR (N. America). McKearnan 1999; Weseloh 1981.
 - × *Larus ridibundus* [Black-headed Gull] ONHR (e N. America). Sibley 2000 (p. 204); Weseloh and Mineau 1986.
- Larus dominicanus*** [Kelp Gull] See: *Larus argentatus*; *L. delawarensis*.
- Larus fuscus*** [Lesser Black-backed Gull]
See also: *Larus argentatus*; *L. cachinnans*; *L. canus*.
- × *Larus glaucooides* (♀) [Iceland Gull] CHR. BRO: Iceland. Adult hybrids had pink legs of mother, not yellowish legs of Black-backed. Plumage was intermediate and similar to Herring Gull's. Lönnberg 1919a[†], 1919b[†].
 - × *Larus hyperboreus* (♂) [Glaucous Gull] CHR. BRO: Iceland, nw Eurasia. Palmgren 1918.
 - × *Larus ridibundus* (♂) [Black-headed Gull] CHR?? Baudoin 1911.
- Larus genei*** [Slender-billed Gull]
- × *Larus ridibundus* [Black-headed Gull] NHR (Irkutsk, Russia). Fefelov 2004.
- Larus glaucescens*** [Glaucous-winged Gull]
See also: *Larus argentatus*.
- × *Larus hyperboreus* [Glaucous Gull] ENHR (w Alaska). Hybrids are fairly common in w Alaska, but less so further s along Pacific coast. Sibley 2000 (p. 205[†]); Strang 1977. Also see Ingolfsson 1970.
 - × *Larus occidentalis* [Western Gull] ENHR (nw U.S., se Canada). HPF(♂ & ♀). Where the ranges of the Western Gull and Glaucous-winged Gull meet, on the coast of N. America (Washington, n Oregon, se British Columbia) hybrids are common. In the large Sand I. colony at the mouth of the Colombia River, the ratio is about 1/3 each *L. glaucescens*, *L. occidentalis*, and hybrids. On Destruction I., Washington, most breeding birds are hybrid. The midpoint of the zone and the relative proportion of morphotypes has remained stable. Due to extensive backcrossing, hybrids are variably intermediate. In colonies within the zone, parental types and hybrids nest side by side. Hybrids are migratory, like Glaucous-winged, and winter as far as California. In many ways typical hybrids resemble Thayer's Gulls (*vide* Kaufmann). Western Gulls tend to remain

along the coast, but hybrids and Glaucous-winged Gulls regularly travel far inland; most birds nesting and wintering along the Colombia east of the Cascades are hybrids with some pure Glaucous-winged. Birds nesting at Willamette Falls in Oregon City were hybrids. Good et al. found that hybrids were actually reproductively superior in certain respects to parental types. Bell 1992, 1996, 1997; Dawson 1909; Fisk 1983; Good 1999, 2002; Good et al. 2000; Hoffman et al. 1978; Kaufmann 1990; Pearse 1946; Pierotti 1987; Pierotti and Annett 1995 (p. 3); Ratti 1984; Scott 1971; Sibley 2000 (p. 204[†]); Strang 1977; Swarth 1934; Verbeek 1993 (p. 2). Internet: MRTR.

× *Larus schistisagus* [Slaty-backed Gull] NHR. BRO: Alaska, Russia. King and Carey 1999.

Larus glaucoideus [Iceland Gull]
See also: *Larus argentatus*; *L. canus*; *L. fuscus*.

× *Larus hyperboreus* [Glaucous Gull] ONHR (see Alaska). Hybridization occurs in the Kashunk R. area and at Kokechik Bay. Hybrids winter s to California. Gilchrist 2001 (p. 5); Lönnberg 1919b; Strang 1976; Suchetet 1897a; Swarth 1934; Taverner 1933.

× *Larus thayeri* [Thayer's Gull] ENHR (high arctic Canada, Greenland). HPF *L. kumlieni* (Kumlien's Gull) is found in the geographic region between Thayer's and the Iceland Gull, separating the latter two birds. It is now known to be their hybrid. The fact that the ranges of Thayer's and the Iceland Gull do not overlap indicates that Kumlien's Gulls are later-generation hybrids (since the hybrids are numerous and the parental populations have little opportunity for direct contact and hybridization to produce F₁ hybrids). Kumlien's interbreeds with the Iceland Gull in mixed colonies on Baffin Island. There is an extreme degree of variation in Kumlien's Gull, another point indicating its hybrid origin (e.g., wing patterns are almost never the same in two different individuals). Thayer's and Iceland gulls show relatively little variation. Bent 1921 (p. 74); Bishop 1944 (p. 186); Garner and McGeehan 1998; Gaston and Decker 1985;

Gross 1937 (pp. 29–30); Hogg 1991; Kaufmann 1990; McGeehan and Garner 1997b; Millington 2005; Snell 1989, 2002; Sutton 1931b (p. 158); Taverner 1933; Weir et al. 2000. Internet: AVES.

Larus hartlaubi [Hartlaub's Gull]

See: *Larus cirrocephalus*.

Larus heuglini [Heuglin's Gull]

See: *Larus argentatus*.

Larus hyperboreus [Glaucous Gull]

See also: *Larus argentatus*; *L. fuscus*; *L. glaucescens*; *L. glaucoideus*.

× *Larus marinus* (♂) [Great Black-backed Gull] CANHR. HPF (♂ & ♀). BRO: n Labrador. Hybrids occur in Newfoundland, Greenland, Ireland and Scotland. Specimens in Zool. Mus. Copenhagen. Gilchrist 2001 (p. 5); Kay 1948[†]; Lönnberg 1919a[†], 1919b[†]; *Scottish Naturalist* 1942 (p. 222); Wilson 1951; Voous 1960.

Larus ichthyaetus [Great Black-headed Gull]

See: *Larus brunnicapillus*.

Larus kamtschatschensis [Kamchatka Gull]

See: *Larus canus*.

Larus kumlieni [Kumlien's Gull] See: *Larus glaucoideus* × *L. thayeri*.

Larus marinus [Great Black-backed Gull]

See also: *Larus argentatus*; *L. hyperboreus*.

× *Larus novaehollandiae* [Silver Gull] CHR? DRS. Old report. Page 1914b.

Larus melanocephalus [Mediterranean Gull]

See also: *Larus canus*.

× *Larus relictus* [Relict Gull] NHR. BRO:

w Asia. Potapov 1971.

× *Larus ridibundus* [Black-headed Gull]

ONHR. BRO: n coast of Black Sea. HPF De Waele 1979; Kohler et al. 1983; Larkin 2000; Leray et al. 1999; Pfeifer et al. 1997; Taverner 1970a, 1970b; Voous 1960.

Larus nelsoni [Nelson's Gull]

See: *Larus argentatus* × *L. hyperboreus*.

Larus novaehollandiae [Silver Gull]

See: *Larus atricilla*; *L. bulleri*; *L. crassirostris*; *L. marinus*.

Larus occidentalis [Western Gull]

See: *Larus glaucescens*.

Larus pipixcan [Franklin's Gull]

See: *Larus cirrocephalus*; *L. delawarensis*.

Note: Sibley and Monroe (1990, p. 258) say *Larus relictus* is often treated as a race of *L. melanocephalus* or as a hybrid.

Larus relictus [Relict Gull]

See also: *Larus melanocephalus*.

× *Larus ridibundus* [Black-headed Gull] CHR. BRO: e Asia. IZY 1997.

Larus ridibundus [Black-headed Gull] See:

Larus argentatus; *L. atricilla*; *L. argentatus*; *L. brunnicephalus*; *L. canus*; *L. delawarensis*; *L. fuscus*; *L. genei*; *L. melanocephalus*; *L. relictus*.

Larus schistisagus [Slaty-backed Gull]

See: *Larus argentatus*; *L. argentatus* × *L. hyperboreu*; *L. glaucescens*.

Larus thayeri [Thayer's Gull]

See: *Larus argentatus*; *L. glaucooides*.

Larus vegae [Vega Gull]

See: *Larus argentatus*.

Procelsterna albivitta [Grey Noddy]

× *Procelsterna cerulea* [Blue Noddy] ENHR. BRO: s Pacific, Tuamotu and Gambier Is. A population (*murphyi*) is intermediate in morphology and range and, thus, a PHP of this cross. These birds differ in size, color, breeding biology, egg dimensions, behavior, and diet, but because of this intermediate population, they are often lumped. Higgins and Davies 1996 (p. 824); Lacan and Mougín 1974; Mougín and de Naurois 1981.

Sterna albifrons [Little Tern]

× *Sterna antillarum* [Least Tern] NHR. *S. antillarum* is the New World counterpart of the eurasian *S. albifrons*. Vagrant contact occurs. These birds are sometimes lumped. Boyd and Thompson 1985.

× *Sterna hirundo* [Common Tern] NHR. BRO: Eurasia. Mel'nikov 1985; Ochagov and Nadler 1987; Panov 1989.

× *Sterna nereis* [Fairy Tern] ONHR. HPF. BRO: se Australia. Unlike *S. nereis*, hybrids' lores end closer to bill than eye; white of brow extends further above eye; bill tip black. Cox and Close 1977[†]; Higgins and Davies 1996; Ross et al. 1999; Sharland 1938[†].

Sterna antillarum [Least Tern]

See: *Sterna albifrons*.

Sterna bengalensis [Lesser Crested-Tern]

× *Sterna sandvicensis* [Sandwich Tern] ONHR (France). HPF. Most reports refer to vagrant *S. bengalensis* individuals breeding in Europe. A Lesser Crested-Tern returned for 14 years to the same Sandwich Tern colony (Farne Is.), producing hybrid offspring. Backcrosses to *S. sandvicensis* are like *S. sandvicensis* except for more yellow on bill tip and a yellow line along the lower border of upper mandible. Baxter 1996; Brichetti and Fosch 1987; Dies 2001; Dies and Dies 1998; Gillon and Stringer 1994; Hawkey 1991; Jiguet 1997; McGuigan 1990; Mel'nikov 1985; Petit 1976; Shealer 1999; Steele and McGuigan 1989; Verroken 1990.

Sterna dougallii [Roseate Tern]

× *Sterna hirundo* (♂) [Common Tern] ENHR (ne N. America, w Europe). HPF (♂ & ♀). Mixed pairs and hybrids are reported in Europe and all major N. American colonies. Because of backcrossing, many hybrids are difficult to distinguish from the parental types. In the case of obvious (F₁) individuals, hybrids are intermediate in most characters (e.g., size, length of tail feathers, bill color, darkness of plumage); the outermost tail feathers are usually white. Nisbet says these hybrids are very similar to *S. forsteri*. Bijersbergen 1988; Burggraave 1977; de Ruwe and de Smet 1997; de Waele 1979; Dennis and Harrop 1995; Gochfeld et al. 1998; Hays 1975; Kaufmann 1990; Ludwigs and Stöber 2001; Marples and Marples 1934; Mel'nikov 1985; Mullarney 1988; Nisbet 2002; Olsen and Larsson 1995; Robbins 1974; Walhout 1988; Whittam 1998; Zingo et al. 1994.

× *Sterna paradisaea* [Arctic Tern] NHR. BRO: British Isles, North Sea, Nova Scotia. Ewins 1987; Whittam 1998.

Sterna elegans [Elegant Tern]

× *Sterna eurygnatha* [Cayenne Tern] ENHR (Caribbean). These birds are sometimes lumped. Hybrids are reported from Curaçao and the Netherlands Antilles. They are common on Aruba (so-called Cayenne Terns with red/orange bills).

Ansingh et al. 1960; Shealer 1999; van Halewyn 1987.

- × *Sterna sandvicensis* (♀) [Sandwich Tern] ONHR. DRS (but occasional vagrant contact in Europe and N. America). Mixed pairs have been reported in s California since 1980. At least one such pair (at Bolsa Chica Ecological Reserve) produced hybrid offspring. Hybridization also occurs in Holland, France, and the U.K. There is a recent report of a mixed pair in Florida. Alström and Colstrom 1991; Collins 1997; Dubois 1994b; McCaskie and San Miguel 1999; Olsen and Larsson 1995; Patten et al. 1995; Paul et al. 2003; Rottenborn and Morlan 2000; Schaffner 1981; Shealer 1999.

Sterna eurygnatha [Cayenne Tern]

See also: *Sterna elegans*.

- × *Sterna sandvicensis* [Sandwich Tern] ENHR. HPF(vh). These birds are often lumped. Mixed breeding colonies occur over much of the Caribbean. At least 5% of birds were hybrid at two n Caribbean colonies: Dog Island (off St. Thomas, U.S. Virgin Islands) and Cayo Matojo, Puerto Rico. Frequencies reported for s Caribbean colonies (Aruba, Curaçao, Islas las Aves, Bonaire) range from 11% to 43%. Ansingh et al. 1960; Buckley and Buckley 1984; Escalante 1973; Hayes 2004[†]; Junge and Voous 1955; Norton 1984a, 1984b, 1985a, 1985b, 1986, 1987, 1988; Schaffner et al. 1986; Shealer 1999; Sick and Leão 1965; van der Werf et al. 1958; van Halewijn 1985, 1987; Voous 1983.

Sterna forsteri [Forster's Tern]

- × *Sterna hirundo* [Common Tern] NHR (Massachusetts, U.S.). Berry 2000; McNicholl et al. 2001 (p. 4).
- × *Sterna nilotica* [Gull-billed Tern] NHR. BRO: Atlantic coast of N. America? Mel'nikov 1985; Panov 1989.
- × *Sterna paradisaea* [Arctic Tern] NHR (California). BRO: ne U.S. Terrill et al. say an extralimital Arctic Tern returned 7 years running to Hayward Regional Shoreline Park, nesting with Forster's Terns. A hybrid young banded in 1999 returned to

Hayward in 2000. Roberson et al. 1999; Terrill et al. 2000.

Sterna hirundo [Common Tern]

See also: *Sterna albifrons*; *S. dougallii*; *S. forsteri*.

- × *Sterna paradisaea* (♀) [Arctic Tern] BRO: n Eurasia, n N. America. Natural mixed pairs have been observed, but apparently, no hybrids are known. Debout and Debout 1989; Kullenberg 1947 (pp. 76, 78); Panov 1989; Suchetet 1897a.

Sterna nereis [Fairy Tern] See: *Sterna albifrons*.

Sterna nilotica [Gull-billed Tern]

See: *Sterna forsteri*.

Sterna paradisaea [Arctic Tern] See: *Sterna dougallii*; *S. forsteri*; *S. hirundo*.

Sterna sandvicensis [Sandwich Tern]

See: *Sterna bengalensis*; *S. elegans*; *S. eurygnatha*.

Alcids

Family: Alcidae

Aethia pygmaea [Least Auklet] Two populations (*camtschatica*, *pygmaea*), both formerly treated as separate species, are connected in the Commander Is. by a geographically and morphologically intermediate population, a PHP of this cross. Bird and Williams 1993 (p. 2); Feinstein 1959.

Alca torda [Razorbill]

- × *Uria aalge* [Common Murre] NHR (Newfoundland, Canada). BRO: n Atlantic. Harris and Wanless 2001; Walsh 2003; Walsh et al. 2001; Wilhelm et al. 2001.

Brachyramphus brevirostris [Kittlitz's Murrelet]

- × *Brachyramphus marmorata* [Marbled Murrelet] ONHR. HPF BRO: n Pacific. These birds were recently split. Day and Nigro observed numerous mixed pairs in King William Sound, Alaska. Day and Nigro 2004; Pacheco et al. 2002.

Brachyramphus marmorata [Marbled Murrelet]

See also: *Brachyramphus brevirostris*.

- × *Brachyramphus perdix* [Long-billed Murrelet] Hybridization may occur in the

w Aleutians, but no hybrids are reported. Thompson et al. 2003 (p. 162).

Brachyramphus perdix [Long-billed Murrelet]

See: *Brachyramphus marmorata*.

Cepphus columba [Pigeon Guillemot]

- × *Cepphus grylle* [Black Guillemot] Black Guillemots occasionally summer in Pigeon Guillemot colonies in the Bering Sea and mixed copulations occur. No hybrids have as yet been reported. Ewins 1993; Konyukhov and Ewins 1992.

Cepphus grylle [Black Guillemot]

See also: *Cepphus columba*.

- × *Cepphus mandti* [Mandt's Guillemot] ENHR (ne Canada). Treated as separate species before 1910, these birds are now lumped. A population (*arcticus*) in n Labrador and w Greenland is intermediate in morphology and range and, thus, a PHP of this cross. Gross 1937 (pp. 33–34).

Cepphus mandti [Mandt's Guillemot]

See: *Cepphus grylle*.

Synthliboramphus hypoleucus [Xanthus's Murrelet]

- × *Synthliboramphus scrippsi* [Scripps's Murrelet] ENHR. Hybridization occurs on islands off s California (e.g., Santa Barbara I., San Benito I.). Although these birds differ in plumage, measurements, and voice, they are sometimes lumped. Drost and Lewis 1995 (p. 4); Jehl and Bond 1975.

Uria aalge [Common Murre]

See also: *Alca torda*.

- × *Uria lomvia* [Thick-billed Murre] ONHR. HPF (♂ & ♀). BRO: n Pacific, n Atlantic. In a survey, 120 birds with Common Murre phenotype sampled from the Gulf of Alaska and Aleutian Islands, six (5%) had Thick-billed mtDNA. Additional tests of nuclear loci showed these birds represent a mixture of F₁, F₂, and backcross hybrids. Hybrids occur, also in Newfoundland and Norway. Ackermann 1898 (p. 21); Birkhead 1986, 1993; Birkhead et al. 1985; Cairns 1983; Cairns and de Youngis 1981; Friesen et al. 1993; Friesen et al. 1999; Harris and Wanless 2001; Tschanz 1972; Tschanz and Wehrlin 1968.

Eagles, Hawks, and Old World Vultures

Family Accipitridae

Accipiter badius [Shikra]

- × *Accipiter brevipes* [Levant Sparrowhawk] NHR. PCZ nw Iran. Panov 1989; Yosef et al. 2001.

Accipiter bicolor [Bicolored Hawk]

- × *Accipiter chilensis* [Chilean Hawk] ENHI. A population (*guttifer*) of s Bolivia, n Argentina, and the Paraguayan Chaco has sometimes been treated as a race of *A. bicolor*; sometimes, of *A. chilensis*; and sometimes, too, as a separate species. These facts, together with its geographic and morphological intermediacy, suggest it as a PHP of this cross. Thiollay 1994 (p. 161).

Accipiter chilensis [Chilean Hawk]

See: *Accipiter bicolor*.

Accipiter brevipes [Levant Sparrowhawk]

See also: *Accipiter badius*.

- × *Accipiter nisus* [Sparrowhawk] NHR? Old record. BRO: se Europe, Middle East. Suchetet 1897a.

Accipiter chionogaster [White-breasted Hawk]

- × *Accipiter striatus* [Sharp-shinned Hawk] ENHI (Mexico). BRO: n U.S. A population (*madrensis*) in the Sierra Madres del Sur (Guerrero, w Oaxaca) is geographically and morphologically intermediate and, thus, a PHP of this cross. These birds are sometimes lumped. Storer 1952.

Accipiter cooperii [Cooper's Hawk]

- × *Accipiter gentilis* [Northern Goshawk] NHR?? Old record. BRO: n U.S. Suchetet relies on a letter from an M. Hardy of Brewer, Maine. Suchetet 1897a.

Accipiter erythropus [Red-thighed Sparrowhawk]

- × *Accipiter minullus* [African Little Sparrowhawk] ONHR. BRO: n Angola, s and e Dem. Rep. of Congo. Louette 2002.

Accipiter fasciatus [Brown Goshawk]

- × *Accipiter novaehollandiae* [Grey Goshawk] NHR. BRO: Tasmania, Australia, New Guinea, s Indonesia. Cupper 1976; Olsen and Olsen 1985.

Accipiter gentilis [Northern Goshawk]

See also: *Accipiter cooperii*.

- × *Buteo buteo* (♀) [Common Buzzard] CHR. BRO: Eurasia (55° to 60°N). A 4-year-old ♂ hybrid showed no signs of fertility. Gray 1958.

Accipiter minullus [African Little

Sparrowhawk] See: *Accipiter erythropus*.

Accipiter nisus [Sparrowhawk]

See: *Accipiter brevipes*.

Accipiter novaehollandiae [Grey Goshawk]

See: *Accipiter fasciatus*.

Accipiter striatus [Sharp-shinned Hawk]

See: *Accipiter chionogaster*.

Accipiter tachiro [African Goshawk]

- × *Accipiter toussenelii* [Red-chested Goshawk] NHR. BRO: Dem. Rep. of Congo. These birds have sometimes been lumped, but they differ in size and coloration. *A. toussenelii* also lacks the display flights of *A. tachiro*. Louette 2003; Prigogine 1984, 1985; Thiollay 1994 (p. 146).

Accipiter toussenelii [Red-chested Goshawk]

See: *Accipiter tachiro*.

Aegypius monachus [Cinereous Vulture]

- × *Gyps fulvus* (♂) [Griffon Vulture] CHR. LVH? BRO: sw Asia. Kleinschmidt 1940[†]; Kniesche 1925.

Aquila chrysaetos [Golden Eagle]

- × *Aquila heliaca* [Imperial Eagle] NHR (Spain). BRO: Europe. Corso and Forsman 1997 (p. 45).
- × *Aquila nipalensis* (♀) [Steppe Eagle] CHR. BRO: sw Russia, n Kazakhstan. Barnaby 2003. Internet: RAPT[†].
- × *Aquila pomarina* [Lesser Spotted Eagle] NHR (Spain). Corso and Forsman 1997.
- × *Aquila vindhiana* (♀) [Eurasian Tawny Eagle] CHR. BRO: s Asia. Barnaby 2003.

Aquila clanga [Greater Spotted Eagle]

- × *Aquila pomarina* (♂) [Lesser Spotted Eagle] ENHR. HPF? There is a broad hybrid zone in e Europe between the Baltic and Black seas. Dombrowski observed numerous mixed pairs and hybrids in Belarus and suggested that the ochre spots shown on nape and neck of Greater Spotted Eagles in many guides are a trait of hybrid origin. In nine

out of ten mixed pairs observed by Väli, the ♀ was *A. clanga*. Väli (2004b) says preliminary evidence suggests that hybrids are partially fertile. Bergmanis et al. 1997; Blockx 2002; Dombrowski 2002[†], 2005; Gutierrez and Villa 2002; Lohmus 1998; Lohmus and Väli 2001; Treinys 2005; Väli 2004a, 2004b; Väli and Lohmus 2001, 2004.

Aquila heliaca [Imperial Eagle]

See also: *Aquila chrysaetos*.

- × *Buteo buteo* (♂) [Common Buzzard] CHR. BRO: Europe. Fox 2003.

Aquila nipalensis [Steppe Eagle]

See also: *Aquila chrysaetos*.

- × *Aquila vindhiana* [Eurasian Tawny Eagle] ENHI. Grimmett et al. note that the Tawny Eagle is extremely variable in India and that the dark morph is similar to the Steppe Eagle. BRO: sw Siberia. Grimmett et al. 1998 (p. 540).

Aquila pomarina [Lesser Spotted Eagle]

See: *Aquila chrysaetos*; *A. clanga*.

Aquila vindhiana [Eurasian Tawny Eagle]

See: *Aquila chrysaetos*; *A. nipalensis*.

Note: Here, *Asturina nitida* includes *Asturina plagiata* of Sibley and Monroe (1990).

Asturina nitida [Grey Hawk]

- × *Buteo lineatus* (♀) [Red-shouldered Hawk] NHR (U.S.). PCZ: ext. s Texas and adjacent Mexico. A mixed pair produced hybrid young in Big Bend N. P. (near Castolon). Lasley and Sexton 1989 (p. 505).

Buteo augur [Augur Buzzard]

- × *Buteo rufofuscus* [Jackal Buzzard] PCZ (Africa). No hybrids as yet reported. Brooke 1975; Dowsett and Dowsett-Lemaire 1993 (p. 327).

Buteo buteo [Common Buzzard]

See also: *Accipiter gentilis*; *A. heliaca*.

- × *Buteo jamaicensis* (↔) [American Red-tailed Hawk] CANHR (*B. jamaicensis* escapee; Midlothian, Scotland). *Avicultural Magazine* 1972 (p. 67), 1977 (p. 169); *IZY* 1973, 1974; Murray 1970.
- × *Buteo lagopus* [Rough-legged Buzzard] NHR? These birds have a PCZ in s Scandinavia. Jonsson notes that dark

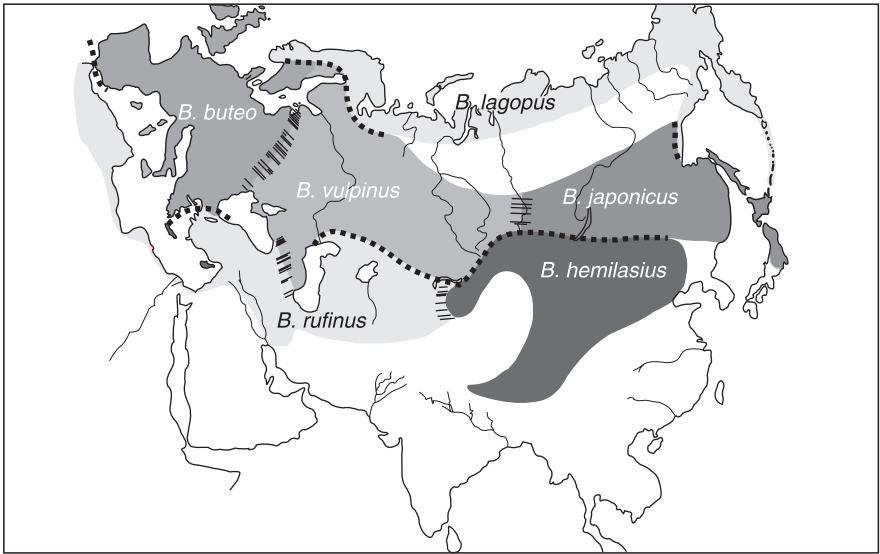


Figure 7. Contact zones between Eurasian buzzards (*Buteo*). Hybrid zones: hatched regions. PCZs: dotted lines.

“Rough-legged” ♂♂ sometimes resemble Common Buzzard. Jonsson 1993 (p. 140); Suchetot 1897a.

× *Buteo rufinus* [Long-legged Buzzard] PCZs in Turkey and at Strait of Gibraltar. No hybrids as yet reported. See Figure 7. Harrison 1982 (Map 118); Sibley and Monroe 1990.

× *Buteo vulpinus* [Steppe Buzzard] ENHR. The hybrid zone lies in n and e Europe. See: *B. buteo* × *B. lagopus*. Due to hybridization, these birds are now usually lumped. Sibley and Monroe 1990; Suchetot 1897a.

× *Milvus migrans* [Black Kite] NHR (Rome). BRO: Europe. Hybrids’ flight silhouette resembles Black Kites’, but wings are shorter and tail longer with no forked tip. Corso and Forsman 1997; Corso and Gildi 1998.

× *Pernis apivorus* [European Honey-Buzzard] NHR? Old report. BRO: Europe. Suchetot 1897a.

Buteo hemilasius [Upland Buzzard]

× *Buteo japonicus* [Japanese Buzzard] PCZ (s Siberia, ne China). No hybrids as yet reported. See Figure 7. Flint et al.

1984 (p. 62, 63); Harrison 1982 (Map 118); MacKinnon and Phillipps 2000 (Plate 53).

× *Buteo rufinus* [Long-legged Buzzard] ENHR (s Siberia, e Kazakhstan, Tarbagatai Mts.). PCZ/ACZ. *B. hemilasius* has sometimes been treated as a race of *B. rufinus*, but morphologically the two are quite distinct. See Figure 7. Pfander and Schmigalew 2001.

Buteo jamaicensis [American Red-tailed Hawk] See: *Buteo buteo*.

× *Parabuteo unicinctus* [Harris’s Hawk] CANHR. BRO: Mexico and ext. sw U.S. LVH. Parry-Jones 2003.

Buteo japonicus [Japanese Buzzard] See also: *Buteo hemilasius*.

× *Buteo lagopus* [Rough-legged Buzzard] PCZ in e Asia. No hybrids as yet reported. See Figure 7. Harrison 1982 (Map 118).

× *Buteo vulpinus* [Western Steppe-Buzzard] ENHR (Russia). Hybrid zone is in vicinity of Yenisei River. See Figure 7. These birds are now usually lumped. See: *B. buteo* × *B. lagopus*. Sibley and Monroe 1990 (p. 284).

Buteo lagopus [Rough-legged Buzzard] See also: *Buteo buteo*; *B. japonicus*.

× *Buteo swainsoni* (♀) [Swainson's Hawk] NHR. BRO: nw Canada. A probable hybrid was collected in Louisiana in November 1994. The female parent was a Swainson's on the basis of mtDNA. Clark and Witt 2004.

Buteo lineatus [Red-shouldered Hawk]

See: *Asturina nitida*.

Buteo menetriesi [Eastern Steppe-Buzzard]

See also: *Buteo buteo*; *Buteo rufinus* × *Buteo vulpinus*.

× *Buteo vulpinus* [Western Steppe-Buzzard] ENHR (Caucasus, s Russia). These birds are now usually lumped. Sibley and Monroe 1990 (p. 284).

Buteo polyosoma [Red-backed Hawk]

× *Buteo swainsoni* [Swainson's Hawk] NHR. BRO: S. America. Kingery 1989.

Buteo rufinus [Long-legged Buzzard]

See also: *Buteo buteo*; *B. hemilasius*.

× *Buteo vulpinus* [Western Steppe-Buzzard] ONHR. BRO: s Siberia. Wintering birds in India are commonly hybrid. Some so-called rufous Long-legged Buzzards are virtually identical to the "fox red morph" of the Steppe-Buzzard (rufous head and breast). *Buteo menetriesi* (Eastern Steppe-Buzzard) is geographically intermediate and, thus, a PHP of this cross. Grimmett 1998 et al. (p. 537); MacKinnon and Phillipps 2000 (Plate 53').

Buteo rufofuscus [Jackal Buzzard]

See: *Buteo augur*.

Buteo swainsoni [Swainson's Hawk]

See: *Buteo lagopus*; *B. polyosoma*.

Buteo vulpinus [Western Steppe-Buzzard]

See: *Buteo buteo*; *B. japonicus*; *B. menetriesi*; *B. rufinus*.

Buteogallus anthracinus [Common Black-Hawk]

× *Buteogallus subtilis* [Mangrove Black-Hawk] ENH? Where these birds meet in Panama, according to Thiollay, they are practically indistinguishable. No hybrid zone is as yet reported, but if Thiollay means the two approach each other morphologically in the vicinity of the contact zone, then extensive hybridization could be inferred. These birds are often lumped. Thiollay 1994 (p. 173).

Note: The following three groups are now often lumped due to hybridization. *Circaetus gallicus* and *C. beaudouini* are very similar in appearance. They seem to differ primarily in the fact that the former is migratory and the latter sedentary. These two differ markedly from *C. pectoralis*, whose range meets theirs in nw Kenya.

Circaetus beaudouini [Baudouin's Snake-Eagle]

× *Circaetus gallicus* [Short-toed Snake-Eagle] NHR (ne Africa). Brown 1974; Dowsett and Dowsett-Lemaire 1980, 1993 (p. 326); Sibley and Monroe 1990 (p. 272); Thiollay 1994 (p. 131).

× *Circaetus pectoralis* [Black-chested Snake-Eagle] NHR (ne Africa). Brown 1974; Dowsett and Dowsett-Lemaire 1980, 1993 (p. 326); Sibley and Monroe 1990 (p. 272); Thiollay 1994 (p. 131).

Circaetus gallicus [Short-toed Snake-Eagle]

See also: *Circaetus beaudouini*.

× *Circaetus pectoralis* [Black-chested Snake-Eagle] NHR (ne Africa). Brown 1974; Dowsett and Dowsett-Lemaire 1980, 1993 (p. 326); Sibley and Monroe 1990 (p. 272); Thiollay 1994 (p. 131).

Circaetus pectoralis [Black-chested Snake-Eagle] See: *Circaetus beaudouini*; *C. gallicus*.

Circus aeruginosus [Western Marsh-Harrier]

× *Circus approximans* [Swamp Harrier] NHR. BRO: w Siberia, Mongolia. Amadon 1978; Baker-Gabb 1979; Sibley and Monroe 1990 (p. 274); Vaurie 1965a (p. 205). Internet: BKOR2[†].

× *Circus spilonotus* [Eastern Marsh-Harrier] ENHR (ne Asia). These birds are sometimes lumped. Etherington 2001; Fefelov 2001. Internet: BKOR2[†].

Circus approximans [Swamp Harrier] See: *Circus aeruginosus*.

Circus cyaneus [Northern Harrier]

× *Circus macrourus* (♂) [Pallid Harrier] NHR (n Europe). BRO: n Kazakhstan, sw Russia. A mixed mating without issue occurred in the Orkneys. Fairclough 1995; Nieboer 1973.

Circus macrourus [Pallid Harrier]

See also: *Circus cyaneus*.

× *Circus pygargus* (♀) [Montagu's Harrier] NHR? BRO: sw Russia. Mixed mating is known and there is a sight record of an apparent hybrid in Holland (May 1995). In the case reported (from Finland), the Pallid Harrier was well outside its normal range. Forsman 1993, 1995b. Internet: EBN5.

Circus pygargus [Montagu's Harrier]
See: *Circus macrourus*.

Circus spilonotus [Eastern Marsh-Harrier]
See: *Circus aeruginosus*.

Note: Due to hybridization, the following three crane-hawks are now often lumped.

Geranospiza caerulescens [Grey Crane-Hawk]

× *Geranospiza gracilis* [Banded Crane-Hawk] ENHR (e Brazil). Sibley and Monroe 1990 (p. 280).

× *Geranospiza nigra* [Blackish Crane-Hawk] ENHR (nw S. America). Sibley and Monroe 1990 (p. 280).

Gyps africanus [African White-backed Vulture]

× *Gyps rueppellii* [Rueppell's Griffon] CHR. BRO: n sub-Saharan Africa (from equator to about 10°N). Hybrids are now at Whipsnade Zoo (Dunstable, U.K.). IZY 1984–1985; Parry-Jones 2003. Internet: UKRAP.

Gyps coprotheres [Cape Griffon]

× *Gyps rueppellii* [Rueppell's Griffon] NHR (Botswana). Borello 2001.

Gyps fulvus [Griffon Vulture]

See also: *Aegyptius monachus*.

× *Gyps rueppellii* [Rueppell's Griffon] CHR. DRS. Zoo de la Palmyre (France) had two hybrids in 1990. Antonius 1933; IZY 1991 (p. 292).

Gyps rueppellii [Rueppell's Griffon] See: *Gyps africanus*; *G. coprotheres*; *G. fulvus*.

Haliaeetus albicilla [White-tailed Eagle]

× *Haliaeetus leucocephalus* [Bald Eagle] BRO: Aleutian Islands (possibly also sw Greenland). No hybrids as yet reported, but Palmer (1962–1988, vol. 4, p. 194) says the Bald could probably cross with the closely related White-tailed.

Haliastur indus [Brambling Kite]

× *Haliastur sphenurus* (♂) [Whistling Kite] CHR. BRO: New Guinea, n Australia. *Avicultural Magazine* 1975 (p. 35).

Leucopternis kuhli [White-browed Hawk]

× *Leucopternis melanops* [Black-faced Hawk] NHR. Lengthy PCZ in n Brazil (Amazon R.). These birds are sometimes lumped. Intermediates have been reported from R. Trapajós. Sick 1993 (p. 175); Thiollay 1994 (p. 160).

Melierax metabates [Dark Chanting-Goshawk]

× *Melierax poliopterus* [Pale Chanting-Goshawk] NHR (Ethiopia). Dowsett and Dowsett-Lemaire 1993; Prigogine 1984; Sibley and Monroe 1990 (p. 275); Urban and Brown 1971.

Milvus lineatus [Black-eared Kite]

× *Milvus migrans* [Black Kite] ENHR. Hybrid zone stretches along China's border with India and Myanmar. Sibley and Monroe 1990 (p. 269).

Milvus migrans [Black Kite]

See also: *Buteo buteo*; *Milvus lineatus*.

× *Milvus milvus* [Red Kite] ENHR. HPF BRO: Europe, Africa, and Near East. Hybridization occurs in Cape Verde Is. (invaded by *M. migrans*), Sweden, and Germany. Bijlsma 1988; Christensen 1995; Corso and Forsman 1997 (p. 45); Corso and Palumbo 2001; Ortlieb 1988; Sylvén 1977; Thiollay 1994 (p. 118); Wobus and Creutz 1970.

Milvus milvus [Red Kite] See: *Milvus migrans*.

Parabuteo unicinctus [Harris's Hawk] See:

Buteo jamaicensis.

Pernis apivorus [European Honey-Buzzard]

See also: *Buteo buteo*.

× *Pernis ptilorhynchus* [Oriental Honey-Buzzard] ONHR (Russia). PCZ in sw Siberia (se of Novosibirsk in Salairsky Range, ~85°E, 54°N). Flint et al. 1984 (p. 55); Panov 1989; Sibley and Monroe 1990 (p. 267).

Falcons

Family Falconidae

Falco altaicus [Altai Falcon] See: *Falco cherrug* × *F. rusticolus*.

Falco berigora [Brown Falcon] A narrow hybrid zone exists between populations usually treated as races of this bird (Dividing Range, Australia). It occurs between the

eastern coastal *berigora* and the western *occidentalis-centralia* group. The size of birds changes abruptly as the zone is passed. Ford 1987.

Falco biarmicus [Lanner Falcon]

See also: *Falco cherrug* × *F. peregrinus*.

- × *Falco cherrug* (♀) [Saker Falcon] CHR. BRO: se Europe, Turkey. These birds are sometimes lumped. Barnaby 2003.
- × *Falco jugger* [Laggar Falcon] CHR. HPF. BRO: Iran. A three-way hybrid is known with *Falco peregrinus*. Barnaby 2003. Internet: AVBI.
- × *Falco pelegrinoides* (♂) [Barbary Falcon] CHR. BRO: n Africa. Barnaby 2003.
- × *Falco peregrinus* [Peregrine Falcon] CANHR. BRO: Eurasia, Africa. HPF(♂♂). Three-way hybrids (with Peregrine, Gyr, Saker, and Lanner) are known. A four-way hybrid is also known: (Barbary/Gyr) × (Peregrine/Lanner). Barnaby 2003; IZY 1984–1985, 1990; Parry-Jones 2003; Suchetet 1897a. Internet: UKRAP.
- × *Falco rusticolus* (♂) [Gyrfalcon] CHR. DRS. BRO: n Eurasia, n N. America. Barnaby 2003; IZY 1984–1985.

Falco cherrug [Saker Falcon]

See also: *Falco biarmicus*.

- × *Falco jugger* [Laggar Falcon] Long PCZ along s rim of Himalayas. No hybrids as yet reported. Harrison 1982 (Map 103).
- × *Falco pelegrinoides* (♂) [Barbary Falcon] CHR. BRO: Eurasia. Barnaby 2003.
- × *Falco peregrinus* (↔) [Peregrine Falcon] CANHR. BRO: Eurasia. HPF(♂ & ♀). Three-way hybrids are known with both *F. biarmicus* and *F. rusticolus*. *Avicultural Magazine* 1972 (p. 150); Barnaby 2003; Cade et al. 1977; Gantlett and Millington 1992[†]; IZY 1984–1985, 1989, 1990; Morris 1972; Morris and Stevens 1971; Palmer 1962–1988; Parry-Jones 2003; Saar et al. 1984. Internet: AVBI, UKRAP.
- × *Falco rusticolus* (♂) [Gyrfalcon] CANHR (Russia, Altai Range). ENHI. HPF(♂ & ♀). Fox and Potapov concluded the Altai Falcon (*Falco altaicus*) is the product of this cross (it has been treated as a race of both *F. cherrug* and *F. rusticolus*). Three-way hybrids are known with Peregrine, Prairie, and Merlin.

Barnaby 2003; D'Aloia and Eastham 2000; Fox and Potapov 2001; Moseikin and Ellis 2004; Parry-Jones 2003. Internet: AVBI, YARA[†].

Falco chicquera [Red-necked Falcon]

- × *Falco peregrinus* (♂) [Peregrine Falcon] CHR. BRO: Open country of sub-Saharan Africa. Barnaby 2003.

Falco columbarius [Merlin]

See also: *Falco mexicanus* × *F. peregrinus*.

- × *Falco pelegrinoides* (♂) [Barbary Falcon] CHR. DRS. HPF(♂♂). Barnaby 2003.
- × *Falco peregrinus* (♂) [Peregrine Falcon] CHR. Barnaby 2003; Palmer 1962–1988 (vol. 5, p. 329); Parry-Jones 2003; Sibley 1994. Internet: GLDE, UKRAP.
- × *Falco rusticolus* (♂) [Gyrfalcon] CHR. BRO: n Eurasia, n N. America. Barnaby 2003; Palmer 1962–1988 (vol. 5, p. 385); Parry-Jones 2003.
- × *Falco subbuteo* (♀) [Eurasian Hobby] CHR. BRO: n Eurasia. Barnaby 2003.
- × *Falco tinnunculus* (♀) [Common Kestrel] NHR? Old reports. BRO: Eurasia. Bewick listed a rare bird with the appearance of this hybrid, but treated it as a species, the Stone Falcon (*Falco lithofalco*). Bewick 1826; Suchetet 1897a.

Falco femoralis [Aplomado Falcon]

- × *Falco novaezeelandiae* [New Zealand Falcon] CHR. DRS. Fox 2003.

Falco jugger [Laggar Falcon]

See also: *Falco biarmicus*; *F. cherrug*.

- × *Falco peregrinus* (↔) [Peregrine Falcon] CHR. DRS. Barnaby 2003.
- × *Falco rusticolus* (♂) [Gyrfalcon] CHR. DRS. Barnaby 2003.

Falco lithofalco [Stone Falcon] *Falco columbarius* × *F. tinnunculus*.

Note: The karyotypes of *F. mexicanus* and *F. peregrinus* appear identical, but that of *F. rusticolus* has additional pairs of chromosomes and is similar to that of *F. biarmicus*. Schmutz and Oliphant 1987.

Falco mexicanus [Prairie Falcon]

- × *Falco pelegrinoides* (♂) [Barbary Falcon] CHR. DRS. Barnaby 2003.
- × *Falco peregrinus* (↔ usu. ♂) [Peregrine Falcon] CANHR (Canada, w U.S.). HPF BRO:

- N. America. Oliphant reports a wild mixed pair producing two ♂ hybrids in s Saskatchewan. Over a period of years, the Peregrine ♂ had several Prairie Falcon mates. Oliphant also mentions a case of natural hybridization in Utah. Hybrids are blue-backed with wide malar stripes, breasts more spotted than barred, and napes, a rich chestnut. Boyd produced three-way hybrids with *F. columbarius*. Wild Prairie Falcons have been used to foster Peregrines. Barnaby 2003; Boyd 1978; Boyd and Boyd 1975; Cade et al. 1977; Delogu et al. 1996; Hadaswick 1982; Hadaswick and Cade 1984; Oliphant 1985, 1991; Palmer 1962–1988 (vol. 5, pp. 328–329); Parks and Hadaswick 1987; Schmutz and Oliphant 1987; Sibley 1994; Spettigue 1987. Internet: AVBI, GLDE.
- × *Falco rusticolus* (♂) [Gyr Falcon] CHR. HPF(♂♂). Three-way hybrids have been produced with Saker. See: *Falco mexicanus* × *F. vespertinus*. Barnaby 2003; Gantlett and Millington 1992[†]; IZY 1987; Schmutz and Oliphant 1987. Internet: AVBI, GLDE.
- × *Falco vespertinus* [Red-footed Falcon] CHR. DRS. HPF(♂ & ♀). A three-way hybrid occurred with a ♂ *F. rusticolus*. Palmer 1962–1988 (vol. 5, p. 385).
- Falco naumanni*** [Lesser Kestrel]
- × *Falco tinnunculus* [Common Kestrel] NHR. BRO: s Europe, and sw Asia. Panov 1989.
- Falco novaeseelandiae*** [New Zealand Falcon]
- See also: *Falco femoralis*.
- × *Falco peregrinus* (♂) [Peregrine] CHR. DRS. Many fertile eggs do not complete development. Barnaby 2003; Fox 2003.
- × *Falco rusticolus* (↔) [Gyr Falcon] CHR. HPF. Three-way hybrids have been produced with Gyr, Peregrine, and New Zealand falcons. Many fertile eggs do not complete development. Fox 2003; Parry-Jones 2003.
- Falco pelegrinoides*** [Barbary Falcon]
- See also: *Falco biarmicus*; *F. cherrug*; *F. columbarius*; *F. mexicanus*.
- × *Falco peregrinus* (↔) [Peregrine Falcon] CANHR. BRO: Eurasia, Africa. HPF(♂ & ♀). Three-way hybrids are known with Gyr, Lanner, and Saker. A population in the Cape Verdes (*madens*) is intermediate and, thus, a PHP of this cross. These birds are sometimes lumped. Barnaby 2003; Cramp and Simmons 1977–1980; Dowsett and Dowsett-Lemaire 1993 (p. 328); IZY 1987; Panov 1989; White et al. 1994.
- × *Falco rusticolus* (↔) [Gyr Falcon] CHR. HPF(♂♂). White et al. say *F. rusticolus*, which has a circumarctic distribution, is highly variable everywhere except Iceland. *F. pelegrinoides* does not occur in Iceland, but does co-occur with *F. rusticolus* over the rest of its range. A three-way hybrid with Saker is known. A four-way hybrid is also known: (Barbary/Gyr) × (Peregrine/Lanner). Barnaby 2003; Palmer 1962–1988 (vol. 5, p. 385). Internet: AVBI.
- Falco peregrinus*** [Peregrine Falcon]
- See also: *Falco biarmicus*; *F. cherrug*; *F. chicquera*; *F. columbarius*; *F. jagger*; *F. mexicanus*; *F. novaeseelandiae*; *F. pelegrinoides*.
- × *Falco rusticolus* (↔) [Gyr Falcon] CANHR. HPF(♂ & ♀). BRO: n Eurasia, n N. America. Male hybrids are more fertile than ♀♀. Three-way hybrids have been produced with Lanner, Laggarr, Merlin, Prairie, New Zealand, and Saker. Abrams et al. 2001; Barnaby 2003; Cade and Weaver 1976; Cade et al. 1977; D'Aloia and Eastham 2000; Gantlett and Millington 1992[†]; Lindberg 2000; Palmer 1962–1988 (vol. 5, pp. 329, 385); Sibley 1994. Internet: AVBI, UKRAP.
- × *Falco sparverius* [American Kestrel] CHR. BRO: N. America. Murphy et al. 1985; Palmer 1962–1988 (vol. 5, p. 329); Sibley 1994.
- × *Falco tinnunculus* (♀) [Common Kestrel] CHR. BRO: Eurasia. Barnaby 2003.
- Falco rusticolus*** [Gyr Falcon] See: *Falco biarmicus*; *F. cherrug*; *F. cherrug* × *F. peregrinus*; *F. columbarius*; *F. jagger*; *F. mexicanus*; *F. novaeseelandiae*; *F. pelegrinoides*; *F. peregrinus*.
- Note:** Hybridization is reported between two populations (*paulus*, *sparverius*) treated as races of the American Kestrel. Layne and Smith 1992.
- Falco sparverius*** [American Kestrel]
- See also: *Falco peregrinus*.
- × *Falco tinnunculus* [Common Kestrel] CHR. BRO: Bering Strait. After cross-fostering with

F. tinnunculus, captive American Kestrels showed no mating preference for their own kind over *F. tinnunculus*. Palmer 1962–1988 (vol. 5, p. 256).

Falco subbuteo [Eurasian Hobby]

See also: *Falco columbarius*.

- × *Falco vespertinus* [Red-footed Falcon] NHI. BRO: Eurasia. This hybrid has a ring number, but there seems to be no published report. Internet: FOTO5.

Falco tinnunculus [Common Kestrel] See:

Falco columbarius; *F. naumanni*; *F. peregrinus*; *F. sparverius*.

Falco vespertinus [Red-footed Falcon]

See: *Falco mexicanus*; *F. subbuteo*.

Ibycter circumcinctus See: *Phalcoboenus albogularis* × *P. megalopterus*.

Phalcoboenus albogularis [White-throated Caracara]

- × *Phalcoboenus carunculatus* [Carunculated Caracara] ONHR (n Peru). Fjeldså and Krabbe 1990; Vuilleumier 1970; Zimmer 1930.
- × *Phalcoboenus megalopterus* [Mountain Caracara] NHR (Argentina). Hybridization is known to occur in Rio Negro and Chubut. *Ibycter circumcinctus*, known from a single specimen, is apparently this hybrid. Fjeldså and Krabbe 1990; Scott 1910; Vuilleumier 1970.

Phalcoboenus carunculatus [Carunculated Caracara]

See also: *Phalcoboenus albogularis*.

- × *Phalcoboenus megalopterus* [Mountain Caracara] NHR. BRO: s Ecuador. Poulsen discusses available evidence for hybridization of these birds and suggests that reported hybrids are adults within the variation of *P. megalopterus*. However, a question remains whether hybrid specimens have been included in samples defining this variation. Poulsen 1993; Vuilleumier 1970.

Phalcoboenus megalopterus [Mountain Caracara] See: *Phalcoboenus albogularis*; *P. carunculatus*.

Polyborus cheriway [Crested Caracara]

- × *Polyborus plancus* [Southern Caracara] NHR (Amazon delta). These birds are sometimes

lumped. Dove and Banks 1999; Shirihai 2002; Vuilleumier 1970.

Grebes

Family Podicipedidae

Aechmophorus clarkii [Clark's Grebe]

- × *Aechmophorus occidentalis* (♂) [Western Grebe] ENHR (N. America). Populations in Mexico are intermediate, and thus PHPs of this cross. Hybrids between these similar birds are hard to identify. Eichhorst and Parkin 1991; Fjeldså 2004 (p. 92); Kaufmann 1990; Lasley and Sexton 1992; Lindvall and Low 1982; Nuechterlein 1981; Nuechterlein and Buitron 1998; Ratti 1979, 1984; Ratti et al. 1983; Sibley 2000 (p. 28[†]); Tallman and Hanson 1997.

Podiceps auritus [Horned Grebe]

- × *Podiceps nigricollis* [Black-necked Grebe] NHR. BRO: w Russia, ne Europe. Dennis 1973; Koblik and Tsvetkov 1998.

Podiceps cristatus [Great Crested Grebe]

- × *Podiceps grisegena* [Red-necked Grebe] NHI. BRO: w Eurasia. This hybrid has a ring number, but there seems to be no published report. Internet: FOTO5.

Podiceps gallardoi [Hooded Grebe]

- × *Podiceps occipitalis* [Silvery Grebe] NHR. BRO: s Argentina. A ♀ hybrid is in the University of Michigan Museum of Zoology (#220944). Storer 1982.

Podiceps grisegena [Red-necked Grebe]

See: *Podiceps cristatus*.

Podiceps juninensis [Junin Grebe]

- × *Podiceps occipitalis* [Silvery Grebe] ENHI?? PCZ (Andes). Southern populations of *juninensis* (adjacent to *occipitalis*) approach *occipitalis* in morphology (brassy-lustered ear plumes). These birds are often treated as conspecific. They replace each other abruptly at 36°S. Fjeldså 2004 (pp. 46, 197).

- Podiceps major** [Great Grebe] Two populations (*major*; *navasi*), treated as races of this bird, have a PCZ in s S. America where there is an abrupt shift in morphology. Fjeldså (p. 46) says more study is needed to determine whether they hybridize in zones of contact. Fjeldså 2004 (p. 46).

Podiceps nigricollis [Black-necked Grebe]

See: *Podiceps auritus*.

Podiceps occipitalis [Silvery Grebe]

See: *Podiceps gallardoi*; *P. juninensis*.

Podilymbus gigas [Atitlan Grebe]

- × *Podilymbus podiceps* [Pied-billed Grebe] NHR. Central America. It is thought hybridization between these birds contributed to the demise of the Atitlan Grebe. Cade and Temple 1995; Llimona and del Hoyo 1992 (pp. 186, 190–191).

Podilymbus podiceps [Pied-billed Grebe]

See also: *Podilymbus gigas*.

- × *Tachybaptus ruficollis* (♂) [Little Grebe] NHR. Very rarely, the Pied-billed Grebe occurs as a vagrant in w Europe. Hybridization is known from U.K. (Isle of Skye, Cornwall) and Norway (Time, Rogaland). Bunes and Solbakken 2004; Fjeldsá 2004 (p. 92[†]); Melling 2003; Rogers 1995 (pp. 497, 507[†]), 1996 (p. 485). Internet: BNOR (Aug. 2002, Mar. 2003), FOG10, FOGBR.

Note: Both *Tachybaptus pelzelni* and *Tachybaptus rufolavatus* are thought to be in danger of being genetically swamped out of existence through hybridization with the recently arrived Little Grebe. Collar and Andrew 1988.

Tachybaptus pelzelni [Madagascar Grebe]

- × *Tachybaptus ruficollis* [Little Grebe] ENHR. BRO: Madagascar. See note. Benson et al. 1976–1977; Collar and Andrew 1988; Dowsett and Dowsett-Lemaire 1993 (p. 324).

Tachybaptus ruficollis [Little Grebe]

See also: *Podilymbus podiceps*;

Tachybaptus pelzelni.

- × *Tachybaptus rufolavatus* [Rusty Grebe] ENHR. The Rusty Grebe was confined to Lake Rusty (nw Madagascar) and is now probably extinct, in part because of extensive hybridization with the invading Little Grebe. The Zoological Museum of Amsterdam has a hybrid. Collar and Andrew 1988; Collar and Stuart 1985; Dowsett and Dowsett-Lemaire 1993 (p. 324); Fjeldsá 2004 (pp. 157[†], 158); Harrison 1983; Sibley and Monroe 1990; Voous and Payne 1965. Internet: DIGI, ZMA.

Tachybaptus rufolavatus [Rusty Grebe]

See: *Tachybaptus ruficollis*.

Boobies and Gannets

Family Sulidae

Morus capensis [Cape Gannet]

- × *Morus serrator* [Australian Gannet] NHR (se Australia, sw S. Africa). These birds are sometimes lumped. The Cape Gannet occurs primarily in s Africa, but also, rarely, in the range of *M. serrator* (Australia, New Zealand). *M. serrator* vagrants, too, have been reported from s. Africa, and from Marion Island, 1,500 km to the se. Interbreeding occurs also on Malgas I., S. Africa. In a sample of birds from s Africa, 11% of so-called *M. capensis* birds had tails colored like *M. serrator*. Both birds breed on St. Paul I., halfway between Australia and S. Africa (37°S, 77°E). Marchant and Higgins (1990) say the Cape Gannet may be more common in Australia than is generally thought. They are so similar to Australian Gannets they would be hard to distinguish except at close range. Broekhuysen and Liversidge 1954; Marchant and Higgins 1990; McCulloch 1992; Mitchell 1995a, 1995b; Shirihai 2002 (p. 208).

Sula dactylatra [Masked Booby]

- × *Sula leucogaster* (♂) [Brown Booby] ONHR. HPF: Hybrids are known from Usong I. (Philippines), Boatswain Bird I., Ascension I., and Oahu. Nelson says Pyle photographed a hybrid ♀ with her 2-month-old chick. Interbreeding may occur, too, on Latham I. (off e Africa). Dorward 1962[†]; Nelson 1978 (pp. 332, 814[†]); Parker 1970; Worcester 1911.

Cormorants

Family Phalacrocoracidae

Phalacrocorax africanus [Long-tailed Cormorant]

- × *Phalacrocorax pygmaeus* [Pygmy Cormorant] NHR?? Suchetet 1897a.

Phalacrocorax albiventer [King Cormorant]

- × *Phalacrocorax atriceps* [Imperial Cormorant] ENHR (Patagonia). These birds are sometimes lumped. Devillers and Tershuren 1978; Malacalza 1991; Rasmussen 1986; Siegel-Causey 1986.

- × *Phalacrocorax bougainvillii* [Guanay Cormorant] ONHR (s Argentina). HPF. Hybridization occurs on Punta Loberia. Hybrids there mated with pure King and Imperial cormorants. Bertellotti et al. 2003; Malacalza 1991.

Phalacrocorax atriceps [Imperial Cormorant]
See: *Phalacrocorax albiventer*.

Phalacrocorax auritus [Double-crested Cormorant]

- × *Phalacrocorax carbo* (♂) [Great Cormorant] CHR. BRO: coastal ne N. America. Cornadó 1970[†].

Phalacrocorax bougainvillii [Guanay Cormorant] See: *Phalacrocorax albiventer*.

Note: Two populations (*carbo*, *sinensis*), treated as races of *Phalacrocorax carbo*, hybridize extensively in Britain. Carss and Ekins 2002; Sangster 1998.

Phalacrocorax carbo [Great Cormorant]
See also: *Phalacrocorax auritus*.

- × *Phalacrocorax sulcirostris* [Little Black Cormorant] CHR. BRO: Australasia. Sydney Zoo (Australia) had hybrids in 1975. IZY 1977.

Phalacrocorax fuscescens [Black-faced Cormorant]

- × *Phalacrocorax varius* [Pied Cormorant] CHR. BRO: Australia. Perth Zoo (Australia) had a hybrid in 1979. IZY 1981.

Phalacrocorax nivalis [Heard Island Shag]

- × *Phalacrocorax verrucosus* [Kerguelen Shag] ONHR (Kerguelen Is.). Most hybrids are concentrated in one colony on Presqu'île Jean d'Arc. They are like *P. verrucosus*, but have white wing bars. Marchant and Higgins 1990; Shirihai 2002 (p. 198); Watson 1975; Weimerskirch et al. 1989.

Phalacrocorax pygmaeus [Pygmy Cormorant]
See: *Phalacrocorax africanus*.

Phalacrocorax sulcirostris [Little Black Cormorant] See: *Phalacrocorax carbo*.

Phalacrocorax varius [Pied Cormorant]
See: *Phalacrocorax fuscescens*.

Phalacrocorax verrucosus [Kerguelen Shag]
See: *Phalacrocorax nivalis*.

Herons and Egrets

Family Ardeidae

Ardea cinerea [Grey Heron]

See also: *Casmerodius albus* × *Nycticorax caledonicus*.

- × *Ardea humbloti* [Madagascar Heron] ONHR. BRO: Madagascar. Londei 2002.

- × *Ardea purpurea* (♀) [Purple Heron] CAONHR. BRO: s Eurasia. HPF(♂♂). Hybrids are easily produced and have often occurred in captivity. A reciprocal cross bred in 1969 did not survive. Campos has a color plate of three half-grown hybrids. Ackermann 1898; Campos 1990[†]; Fenyvesi 1992; Harrison and Harrison 1968a; IZY 1961, 1966, 1968, 1970, 1971, 1973, 1974, 1990; Jahn et al. 2004; Lekuona and Campos 1998; Martínez-Vilalta and Motis 1992 (p. 378); Passarella et al. 1999; Suchetet 1897a.

- × *Casmerodius albus* [Great White Egret] NHR (Netherlands). BRO: s Eurasia. Baumanis 1998; Eigenhuis 1984; Martínez-Vilalta and Motis 1992; Sittig 1983.

- × *Egretta garzetta* [Little Egret] NHR. BRO: Africa, s Asia, and Indonesia. Lippens and Burggraef 1983, 1985.

Ardea herodias [Great Blue Heron]

- × *Ardea occidentalis* [Great White Heron] CAONHR (Caribbean, Gulf of Mexico). These distinctive birds, differing in plumage color, size, and length of head plumes, are now often lumped due to hybridization. Wurdemann's Heron, formerly treated as a species (*Ardea wurdemannii*), is this hybrid. Allen 1888; Baird 1858 (p. 669); Bancroft 1969; Bock 1956 (p. 42); Holt 1928; Hopkinson 1933a; Mann 1938; Mayr 1956a; Meise 1975; Peters 1940. Internet: SIB.

- × *Casmerodius albus* [Great Egret] NHR. BRO: N. America. Malosh 2004.

Ardea humbloti [Madagascar Heron]
See: *Ardea cinerea*.

Ardea occidentalis [Great White Heron]
See: *Ardea herodias*.

Ardea picata [Pied Heron]

- × *Egretta garzetta* [Little Egret] NHR (Papua New Guinea). A bird seen at Port Moresby was thought to be this hybrid. Internet: PAPG, VXDR.

Ardea purpurea [Purple Heron]

See: *Ardea cinerea*.

Ardeola grayii [Indian Pond-Heron]

- × *Mesophoyx intermedia* [Intermediate Egret] NHR (India). BRO: India, Myanmar. Martínez-Vilalta and Motis 1992 (p. 378).

Bubulcus ibis [Cattle Egret]

- × *Egretta caerulea* [Little Blue Heron] NHR (California, U.S.). BRO: N. and S. America. A mixed pair at Colusa National Wildlife Refuge hatched three, and fledged two hybrids. A probable hybrid was also sighted in Florida (Bay Co.). Bailey et al. 1989; Stevenson and Anderson 1994 (p. 63).
- × *Egretta garzetta* [Little Egret] CHR. BRO: Eurasia, Africa. IZY 1960, 1966, 1979.
- × *Egretta thula* [Snowy Egret] NHR. BRO: s N. America. In 1998 a mixed pair raised young on Little Bird Key (near Fort Desoto, Florida). Parkes 1978a; Paul and Schnapf 1998 (p. 449).

Butorides striatus [Striated Heron]

- × *Butorides sundevalli* [Galapagos Heron] NHR (Galapagos Is.). These birds are sometimes treated as conspecific. Harris 1973; Payne 1974.
- × *Butorides virescens* [Green Heron] ENHR. HPF(vh). There is a large hybrid population (*patens*) in cen. Panama. Hybridization also occurs in the s Lesser Antilles. These birds are sometimes lumped. Bock 1956 (pp. 37–38); Harris 1973; Hayes 2001a; Payne 1974; Sibley and Monroe 1990; Slud 1964 (pp. 271–272); Voous 1986.

Butorides sundevalli [Galapagos Heron]

See: *Butorides striatus*.

Butorides virescens [Green Heron]

See: *Butorides striatus*.

Casmerodius albus [Great Egret]

See also: *Ardea cinerea*; *A. herodias*.

- × *Nycticorax caledonicus* (♂) [Rufous Night-Heron] CHR. HPF BRO: Australasian region. Hybrids occurred at Uyeno Zoo (Tokyo) in

1939. The Marquess Hachisuka (p. 181) says the “general shape of the hybrids is very much like the Egret. They stand tall and keep their necks erect. Their bills are narrower and sharper than the Night Heron’s, but when watching for fish they assume the crouching attitude of the latter species.” In adult plumage they were gray above, paler below, with faint neck streaking. They lacked the nuptial train of the breeding egret, but had two long plumes hanging from the nape (as does the night-heron) which were, however, much shorter than in *N. caledonicus*. The Marquess says the hybrids reminded him of a young Grey Heron (*Ardea cinerea*) “in every respect, even in the shape of the bill.” One of the hybrids lived at least 10 years. Hachisuka (Marquess) 1949.

Cochlearius cochlearius [Southern Boat-billed Heron]

- × *Cochlearius zeledoni* [Northern Boat-billed Heron] ENHI (Cen. America). A geographically and morphologically intermediate population in Costa Rica is a PHP of this cross. Due to the existence of this population, these birds are now sometimes lumped. Sibley and Monroe 1990 (p. 308).

Egretta ardesiaca [Black Egret]

- × *Egretta gularis* [Western Reef-Egret] ONHR? BRO: w Africa. Dark morph of Western Reef-Egret is intermediate. Borrow and Demey 2001 (p. 344).

Egretta caerulea [Little Blue Heron]

See also: *Bubulcus ibis*.

- × *Egretta garzetta* [Little Egret] See *Egretta garzetta* × *E. thula*.
- × *Egretta thula* [Snowy Egret] ONHR (Brazil). BRO: N. and S. America. The Smithsonian has a hybrid (USNM #431325) taken in Feb. at L. Okeechobee (Florida). It looked like a Little Blue, but had the feeding behavior and long white back plumes of a Snowy. *American Birds* 1989 (p. 1277[†]); Kaufmann 1990; Martínez-Vilalta and Motis 1992 (p. 378); Sprunt 1954[†].
- × *Nycticorax nycticorax* [Black-crowned Night-Heron] See: *Egretta tricolor* × *Nycticorax nycticorax*.

Egretta garzetta [Little Egret]

See also: *Ardea cinerea*; *A. picata*;
Bubulcus ibis; *Egretta caerulea*.

- × ***Egretta gularis*** [Western Reef-Egret] NHR. BRO: n Africa, Pakistan, India. These birds are sometimes lumped. Hybrids have occurred in France (Carmargue) and e Spain (L'Albufera de Valencia). At the Spanish site probable hybrids (pale gray body, extensive white on the head, wings, and underparts) have been repeatedly observed. Both Grimmett et al. and Borrow and Demey say the rare dark morph of Little Egret is extremely similar to *E. gularis*. These dark morphs may be hybrids. Borrow and Demey 2001 (p. 345); Dies et al. 2001; Dowsett and Dowsett-Lemaire 1993 (p. 325); Grimmett et al. 1998 (p. 559); Kayser et al. 2000. Internet: RBSP[†], TERR[†].
- × ***Egretta novaehollandiae*** [White-faced Heron] NHR? BRO: Australasian region. Swaby and Boyb say a bird sighted on the ne Queensland coast (at Townsville) was probably this hybrid, (but might have been *Egretta garzetta* × *E. sacra*). Swaby and Boyb 1993.
- × ***Egretta sacra*** [Pacific Reef-Egret] BRO: Australasian region. See *Egretta garzetta* × *E. novaehollandiae*.
- × ***Egretta thula*** [Snowy Egret] CANHR. HPF. DRS (but some vagrant contact). A probable natural hybrid is known from Connecticut (U.S.). Toldi observed a bird in Trinidad which he thought was either this hybrid or *Egretta caerulea* × *E. thula*. He says it had a black bill, longer than typical for *E. thula*, no yellow around eye, yellowish-green legs, dull orange feet; white plumage with no nuchal plumes (Little Egrets were reported from the same location during the period of this observation). IZY 1961; Martínez-Vilalta and Motis 1992 (p. 378); Perkins 1995; Toldi 2004.
- × ***Nycticorax nycticorax*** (♂) [Black-crowned Night-Heron] CHR. BRO: Africa, s Asia, Japan, Indonesia. A reciprocal cross bred in 1969 did not reach maturity. Common in captivity. Hachisuka (1939) describes the hybrid. Hachisuka (Marquess) 1928, 1939;

Hopkinson 1933a; IZY 1968, 1969, 1970, 1971.

Egretta gularis [Western Reef-Egret]

See: *Egretta ardesiaca*; *E. garzetta*.

Egretta novaehollandiae [White-faced Heron]

See: *Egretta garzetta*.

Egretta sacra [Pacific Reef-Egret]

See: *Egretta garzetta*.

Egretta thula [Snowy Egret]

See also: *Bubulcus ibis*; *Egretta caerulea*;
E. garzetta.

× ***Egretta tricolor*** [Tricolored Heron] NHR.

BRO: N. and S. America. Meeks et al. describe a mixed pair and four hybrid offspring. Dickerman and Parkes 1968; Meeks et al. 1996[†].

- × ***Nycticorax caledonicus*** [Rufous Night-Heron] CHR. The Manila Zoo (Philippines) had two hybrids in 1969. DRS. IZY 1971 (p. 293).

Egretta tricolor [Tricolored Heron]

See also: *Egretta thula*.

- × ***Nycticorax nycticorax*** [Black-crowned Night-Heron] NHR (N. Carolina, U.S.). BRO: N. America. A probable hybrid was photographed in April on Bodie I. (but was perhaps *Egretta caerulea* × *Nycticorax nycticorax*). Sibley 1994 (p. 162)[†].

Mesophoyx intermedia [Intermediate Egret]

See: *Ardeola grayii*.

Nyctanassa violacea [Yellow-crowned Night-Heron]

- × ***Nycticorax nycticorax*** [Black-Crowned Night-Heron] CHR. BRO: N. and S.

America. Dallas Zoo (U.S.) had a hybrid in 1975. IZY 1977.

Nycticorax caledonicus [Rufous Night-Heron]

See also: *Casmerodius albus*; *Egretta thula*.

- × ***Nycticorax nycticorax*** [Black-crowned Night-Heron] ONHR (Java, Sulawesi, Philippines). Erfemeijer 1989; Hoogerwerf 1966; Hubbard 1976; Martínez-Vilalta and Motis 1992 (pp. 378, 420); Sibley and Monroe 1990; White and Bruce 1986.

Nycticorax nycticorax [Black-crowned Night-Heron]

See: *Egretta caerulea*; *E. garzetta*;
E. tricolor; *Nyctanassa violacea*; *Nycticorax caledonicus*.

Flamingoes*Family Phoenicopteridae**Phoenicopterus andinus* [Andean Flamingo]× *Phoenicopterus ruber* [American Flamingo]
CHR. DRS. IZY 1974.*Phoenicopterus chilensis* [Chilean Flamingo]× *Phoenicopterus minor* [Lesser Flamingo]
NHR. These birds have disjunct natural ranges. However, due to zoo escapes, both now breed in nw Germany in Zwillbrocker Venn. Hybrids have occurred there. Blair et al. 2000 (p. 21).× *Phoenicopterus roseus* [Greater Flamingo]
CANHR. HPF BRO: Mediterranean.
Common in captivity. Natural crosses are with exotic *P. chilensis* escapees. Greenwood describes a method of sterilizing hybrid ♀♀. These birds are often lumped. Blair et al. 2000 (p. 22); Cezilly and Johnson 1992; Greenwood 1992; IZY 1966, 1967, 1968, 1969, 1980, 1981, 1986, 1989, 1997. Internet: DECN.× *Phoenicopterus ruber* [American Flamingo]
CHR. DRS. These birds are often treated as conspecific. IZY 1981, 1982, 1984–1985, 1988, 1994.*Phoenicopterus minor* [Lesser Flamingo]See also: *Phoenicopterus chilensis*.× *Phoenicopterus roseus* [Greater Flamingo]
CANHR. BRO: Mediterranean. Natural crosses are with *P. minor* escapees. Cezilly and Johnson 1992; Greenwood 1992; IZY 1974. Internet: DECN.*Phoenicopterus roseus* [Greater Flamingo]See also: *Phoenicopterus chilensis*; *P. minor*.× *Phoenicopterus ruber* [American Flamingo]
CHR. DRS. HPF
Common in captivity. These birds are often lumped. IZY 1961, 1962, 1970, 1973, 1974, 1977, 1984–1985, 1986, 1988, 1989, 1994.*Phoenicopterus ruber* [American Flamingo]See: *Phoenicopterus andinus*; *P. chilensis*; *P. roseus*.**Ibises and Spoonbills***Family Threskiornithidae**Ajaia ajaja* [Roseate Spoonbill]× *Eudocimus ruber* (♀) [Scarlet Ibis] CHR? A hybrid was reported in 1901 (“Spoonbill × Ibis”). Harrison says a mixed pair nested together in captivity. The ibis incubated the resulting eggs, but the outcome was not reported. *Cage Birds* 1901 (Oct. 20); Harrison 1973; Hopkins 1926 (p. 253).× *Platalea leucorodia* [Eurasian Spoonbill]
CHR. DRS. IZY 1984–1985.*Eudocimus albus* [White Ibis]× *Eudocimus ruber* (♀) [Scarlet Ibis] CAENHR (n S. America). BRO: Venezuela, Colombia. Extensive hybridization occurs in Venezuela. In addition, there was a spate of hybrids in Florida during the 1970s and 80s, presumably the result of escaped Scarlets mating with resident Whites. The Smithsonian has specimens (USNM #321961, #491388). *Avicultural Magazine* 1933 (p. 104); Belsler 1989; IZY 1971, 1975, 1984–1985, 1986; Maehr and Hintermister 1982; Mann 1938; Ramo and Busto 1982, 1987; Stevenson and Anderson 1994 (p. 79).× *Threskiornis spinicollis* (♀) [Straw-necked Ibis] CHR. DRS. *Avicultural Magazine* 1966 (p. 29).*Eudocimus ruber* [Scarlet Ibis]See also: *Ajaia ajaja*; *Eudocimus albus*.× *Threskiornis aethiopicus* [Sacred Ibis] CHR. DRS. Hopkins 1939a (p. 135).*Platalea alba* [African Spoonbill]× *Platalea leucorodia* [Eurasian Spoonbill]
CHR. BRO: Horn of Africa. IZY 1984–1985.× *Threskiornis aethiopicus* [Sacred Ibis] CHR. BRO: Africa. Cape Town World of Birds (S. Africa) had six hybrids in 1988. IZY 1990.*Platalea leucorodia* [Eurasian Spoonbill] See: *Ajaia ajaja*; *Platalea alba*.*Platalea minor* [Black-faced Spoonbill]× *Threskiornis melanocephala* (↔) [Black-headed Ibis] CHR. DRS. HPF. Heinroth

1905, 1906, 1907; Hopkinson 1933a; Petzsch 1951; Przibram 1910.

Plegadis chihi [White-faced Ibis]

- × *Plegadis falcinellus* (♂) [Glossy Ibis] CAENHR. HPF(vh). BRO: s cen. U.S. Arterburn and Grzybowski observed numerous probable hybrids at one site in Oklahoma (Alfalfa County). Hybrids between these similar birds are hard to identify. *Chihi* and *falcinellus* are sometimes lumped. Arterburn and Grzybowski 2002; Hopkinson 1926 (p. 253); *The Ibis* 1905 (p. 294); Sibley 2000 (p. 66^o).

Threskiornis aethiopicus [Sacred Ibis]

See also: *Eudocimus ruber*; *Platalea alba*.

- × *Threskiornis melanocephala* (♂) [Black-headed Ibis] CHR. DRS. Common in captivity. These birds are often treated as conspecific. Hopkinson 1939a (p. 135); *IZY* 1969, 1970, 1973, 1977, 1983, 1984–1985, 1986, 1987, 1988, 1989, 1990.
- × *Threskiornis molucca* [Australian Ibis] CANHR. DRS. Poll 1921.
- × *Threskiornis spinicollis* [Straw-necked Ibis] CHR. DRS. Heinroth 1905; Poll 1921; Reisinger 1929.

Threskiornis melanocephala

[Black-headed Ibis]

See also: *Platalea minor*; *Threskiornis aethiopicus*.

- × *Threskiornis spinicollis* (↔) [Straw-necked Ibis] CHR. DRS. Common in captivity. *Avicultural Magazine* 1913 (p. 290); *IZY* 1971, 1972, 1974, 1977, 1979; Klös 1970.

Threskiornis molucca [Australian Ibis]

See also: *Eudocimus albus*.

- × *Threskiornis spinicollis* (♂) [Straw-necked Ibis] CANHR. BRO: Australia. Disher 1983; *IZY* 1966, 1972, 1973.

Threskiornis spinicollis [Straw-necked Ibis]

See: *Eudocimus albus*; *Threskiornis aethiopicus*; *T. melanocephala*; *T. molucca*.

Pelicans

Family *Pelecanidae*

Pelecanus crispus [Dalmatian Pelican]

- × *Pelecanus onocrotalus* [Great White Pelican] CHR. No natural hybrids are reported, but these birds breed in mixed colonies on the northern Black Sea, northern Caspian Sea, Aral Sea, and Lake Balkhash. Ganesh 2004; Grummt 1989.
- × *Pelecanus rufescens* (↔) [Pink-backed Pelican] CHR. BRO: n Africa, Middle East. The incubation period was 35 days. *Avicultural Magazine* 1968 (p. 23); *IZY* 1968; Klös 1966, 1967, 1968, 1969; Ling 2004.

Pelecanus erythrorhynchos

[American White Pelican]

- × *Pelecanus occidentalis* [Brown Pelican] CHR. BRO: N. America. Grummt 1989; Mann 1938.
- × ~~*Pelecanus onocrotalus*~~ [Great White Pelican] Gray says Antonius reported this cross, but Antonius mentions only mixed copulation, not actual hybrids. Antonius 1933; Gray 1958.

Pelecanus occidentalis [Brown Pelican]

See also: *Pelecanus erythrorhynchos*.

- × *Pelecanus onocrotalus* [Great White Pelican] CHR. DRS. The Zamosc (Poland) Zoo reported a hybrid in 1996. *IZY* 1998.

Pelecanus onocrotalus [Great White Pelican]

See also: *Pelecanus crispus*; *P. erythrorhynchos*; *P. occidentalis*.

- × *Pelecanus rufescens* [Brown-backed Pelican] CHR? BRO: Africa.

Flower 1908; Gray 1958; Hopkinson 1926.

Pelecanus philippensis [Spot-billed Pelican]

- × *Pelecanus rufescens* (♂)

[Pink-backed Pelican] CHR. BRO: n coast of Arabian Sea. Ling 2004.

Pelecanus rufescens [Pink-backed Pelican]

See: *Pelecanus crispus*; *P. onocrotalus*; *P. philippensis*.

New World Vultures

Family Cathartidae

Coragyps atratus [American Black Vulture]

× *Cathartes aura* [Turkey Vulture]

NHR?? BRO: N. America. While summarizing results of bird banding operations at Avery Island for 1936, McIlhenny (p. 119) mentions that “one of the most unusual hybrids taken was a cross of a Black Vulture (*Coragyps a. atratus*) and Turkey Vulture (*Cathartes aura septentrionalis*). This bird was captured in the winter of 1937 in my vulture trap, and was such a perfect, well-marked specimen that I sent it to the United States Biological Survey alive, and it is now in the flying cage of the Rock Creek Zoo at Washington, D.C.” However, Palmer says this case was a hoax. He says “an individual, alleged at the time (McIlhenny 1937) to be a hybrid [of Turkey Vulture] with the Black Vulture, proved to be the latter when red paint that had been applied to it wore off its head.” McIlhenny 1937; Mann 1938, Palmer 1962–1988 (vol. 4, p. 27).

Storks

Family Ciconiidae

Ciconia abdimii [Abdim's Stork]

× *Ciconia episcopus* [Woolly-necked Stork]

CHR. BRO: sub-Saharan Africa. IZY 1973, 1974.

Ciconia boyciana [Oriental Stork]

× *Ciconia ciconia* [White Stork] CHR.

DRS. These birds are sometimes lumped. IZY 1973.

Ciconia ciconia [White Stork]

See also: *Ciconia boyciana*.

× *Ciconia nigra* (↔) [Black Stork] CHR. BRO:

Eurasia. The Oriental Stork (*C. boyciana*) is sometimes lumped with *C. ciconia*. Common in captivity. Antonius 1933; IZY 1962, 1966, 1967, 1971, 1973, 1974, 1975, 1988, 1989, 1990; Petzsch 1951; Schergalin 1990; Wendnagel 1937*.

Ciconia episcopus [Woolly-necked Stork]

See: *Ciconia abdimii*.

Ciconia nigra [Black Stork] See: *Ciconia ciconia*.

Leptoptilos javanicus [Lesser Adjutant]

× *Mycteria leucocephalus* (♂) [Painted Stork]

CHR. Hybrids resemble Adjutant. BRO: lowlands of s Asia. Hill 1943*; IZY 1991.

Mycteria leucocephalus [Painted Stork]

See: *Leptoptilos javanicus*.

Penguins

Family Spheniscidae

Eudyptes chrysocome [Rockhopper Penguin]

× *Eudyptes chrysolophus* [Macaroni Penguin]

ONHR (Heard I., Marion I., Falklands Is.). HPF BRO: s Atlantic and s Indian oceans. Marchant and Higgins 1990; Martinez 1992; White and Clausen 2002; Woehler and Gilbert 1990.

× *Eudyptes schlegeli* [Royal Penguin] ONHR (Macquarie I., s Pacific). *E. schlegeli* breeds primarily on Macquarie Island. *E. chrysocome* also breeds there, but has a much broader, circumpolar distribution. Hybrids with white throats and faces occur in Macaroni colonies on the Crozet Is., Marion I., Kerguelen Is., and Heard I. Hull and Wiltshire 1999; Marchant and Higgins 1990; Martinez 1992; Simpson 1985. Internet: DIGI.

× *Eudyptes sclateri* [Erect-crested Penguin]

NHR (Falkland Is., s Atlantic). *E. chrysocome* has a much broader (circumpolar) distribution than *E. sclateri*, breeding in the Falklands among many other places. *E. sclateri* is primarily a resident of the sw Pacific (se Australia, Tasmania, New Zealand, and adj. islands), is only an occasional visitor to the Falklands, and would therefore be more likely in the Falklands than elsewhere to select a Rockhopper mate. *E. sclateri* is considered endangered. Marchant and Higgins 1990; Martinez 1992; Napier 1968.

Eudyptes chrysolophus [Macaroni Penguin]

See also: *Eudyptes chrysocome*.

× *Eudyptes schlegeli* [Royal Penguin] ONHR.

Hybrids (light-faced individuals with plumage very similar to light-phase *E. schlegeli*) are reported from Macaroni Penguin breeding colonies on Marion I.,

Crozet Is., Heard I., and Kerguelen Is. (islands that lie between the primary ranges of these two birds). In Macaroni Penguin colonies elsewhere, only black-faced birds are reported (with the exception of a single hybrid sighted in the Falklands). Some Macaronis and intermediates occur on Macquarie I., the only breeding site of *E. schlegeli*. Barré et al., 1976; Berruti 1981; Derenne et al. 1974; Downes et al., 1959; Shirihai 2002.

Eudyptes pachyrhynchus [Fiordland Penguin]

× ***Eudyptes robustus*** [Snares Penguin] ONHR. Variation in pattern of underflipper and presence of white cheek stripes in some *E. robustus* individuals suggest that some degree of gene flow occurs. BRO: Tasmania, New Zealand and adjacent islands. Marchant and Higgins 1990; Warham 1974.

Eudyptes robustus [Snares Penguin]

See: *Eudyptes pachyrhynchus*.

Eudyptes schlegeli [Royal Penguin]

See: *Eudyptes chrysolome*; *E. chrysolophus*.

Eudyptes sclateri [Erect-crested Penguin]

See: *Eudyptes chrysolome*.

Eudyptula albosignata [White-flipped Penguin]

× ***Eudyptula minor*** [Little Penguin] ENHR. White-flipped Penguins breed only on the Banks Peninsula (South I., New Zealand) and nearby Motunau Island. They are classed as endangered. *E. minor* is widespread (Australia, New Zealand, and adjacent islands). A morphologically intermediate population (*variabilis*) is a PHP of this cross. *E. albosignata* is known to interbreed with this intermediate population on Motunau Island. Given endangered status of the White-flipped Penguin, interbreeding with the far more abundant *E. minor* poses an imminent threat to its continued existence. One *E. minor* population (*E. m. iredalei*) encroaches on the White-flipped Penguin from the n, another (*E. m. minor*), from the s (*variabilis* is the product of hybridization with *iredalei*). Due to hybridization, these birds are now often lumped. Kinsky and Falla 1976; Meredith and Sin 1988a, 1988b. Internet: RCC.

Pygoscelis adeliae [Adelie Penguin]

× ***Pygoscelis antarctica*** [Chinstrap Penguin] BRO: s oceans. Mixed pairs reported (Anvers I., Antarctic Penin.), but as yet no hybrids. Internet: ANTD.

× ***Pygoscelis papua*** (♀) [Gentoo Penguin] CHR. BRO: s oceans. St. Louis Zoo (U.S.) had a ♂ hybrid in 1966. *Avicultural Magazine* 1968 (p. 151); *IZY* 1968.

Spheniscus demersus [Jackass Penguin]

× ***Spheniscus humboldti*** [Humboldt Penguin] CHR. DRS. HPF. Common in captivity. The Zoological Museum of Amsterdam has a hybrid. *IZY* 1962, 1965, 1972, 1980, 1981, 1982, 1984–1985, 1986, 1989, 1990, 1993. Internet: ZMA.

× ***Spheniscus magellanicus*** [Magellanic Penguin] CAONHR. BRO: s Atlantic. So-called *demersus* individuals with double chest bands indicate hybridization. These birds readily hybridize in captivity. Clancey considered them conspecific. Clancey 1966; Conway (G.) 1965; Gray 1958; Griffin 2002; Hori 1995; Martinez 1992 (p. 141); *IZY* 1998; Sinclair 1984 (p. 32).

Spheniscus humboldti [Humboldt Penguin]

See also: *Spheniscus demersus*.

× ***Spheniscus magellanicus*** [Magellanic Penguin] CAONHI. BRO: cen. Chile (between 32° and 34°S). These birds readily cross in captivity. So-called Humboldts with double pectoral bands are probable hybrids. *IZY* 1984–1985, 1986, 1987; Martinez 1992 (p. 141).

Spheniscus magellanicus [Magellanic Penguin]

See: *Spheniscus demersus*; *S. humboldti*.

Loons

Family Gaviidae

Gavia adamsii [Yellow-billed Loon]

× ***Gavia immer*** [Common Loon] NHR. BRO: n Canada, n Alaska. The Royal Ontario Museum has a hybrid (#76360). McIntyre and Barr mention a “Common/Yellow-throated pair with young in foothills of Brooks Range, AK.” This is probably is a mistake for

“Common/Yellow-billed” (the Yellow-billed does occur in Alaska, and no loon is known as “Yellow-throated”).

Godfrey 1966; McIntyre and Barr 1997; Palmer 1962–1988 (vol. 1, p. 25); Sibley 1994, 2000 (p. 25).

Gavia arctica [Arctic Loon]

× *Gavia immer* [Common Loon] NHR.
BRO: nw Alaska. Van Havre 1931[†]; Hunter and Dennis 1972.

× *Gavia viridigularis* [Green-throated Loon] ENHR (Lena Delta s to Transbaicalia). These birds are often treated as conspecific. Schüz 1954; Sibley and Monroe 1990 (p. 320); Stresemann 1936; Vaurie 1965a (p. 6).

Gavia immer [Common Loon]

See also: *Gavia adamsii*; *G. arctica*.

× *Gavia pacifica* [Pacific Loon] NHR.
BRO: n N. America. Robertson and Fraker observed a mixed pair with hybrid young in nw Canada (69° 00'N, 133° 31'W). Panov 1989; Robertson and Fraker 1974.

× *Gavia stellata* [Red-throated Loon] NHI.
BRO: Iceland, Greenland, n N. America. This hybrid has a ring number, but there seems to be no published report. Internet: FOTO5.

Gavia pacifica [Pacific Loon]

See also: *Gavia immer*.

× *Gavia viridigularis* [Green-throated Loon] ONHR. BRO: Aleutian Is., ne Siberia (Anadyr Basin, nw Yakutia). These birds are sometimes lumped. Storer reported several hybrids. Johansen noted intermediates from the Commander Islands. Dement'ev and Gladkov 1966–1970 (vol. 2, p. 302); Manning et al. 1956; Godfrey 1966; Johansen 1961 (p. 51); Panov 1989; Russell 2002 (pp. 7–8); Soloviev et al. 1993; Storer 1978.

Gavia stellata [Red-throated Loon]

See: *Gavia immer*.

Gavia viridigularis [Green-throated Loon]

See: *Gavia arctica*; *G. pacifica*.

Shearwaters, Petrels, and Prions

Family Procellariidae

Calonectris borealis [Cory's Shearwater]

× *Calonectris diomedea* [Scopoli's Shearwater] ENHR. BRO: n Atlantic. These birds are often lumped. Martinez-Abraín et al. 2002; Randi et al. 1989; Sibley 2000 (p. 36); Warham 1996 (p. 495).

Calonectris diomedea [Scopoli's Shearwater]
See also: *Calonectris borealis*.

× *Puffinus gravis* [Great Shearwater] NHI.
BRO: Atlantic. This hybrid has a ring number, but there seems to be no published report. Internet: FOTO5.

Fregetta grallaria [White-bellied Storm-Petrel]

× *Fregetta tropica* [Black-bellied Storm-Petrel] NHR. ENHI. BRO: s Atlantic. Populations (*leucogaster*, *melanoleuca*) on Tristan da Cunha and Gough Is. are morphologically intermediate. Bourne 1962, 2000; Brooke 2004 (p. 389); Imber 1983; Marchant and Higgins 1990. Internet: MCUE.

Hydrobates pelagicus [British Storm-Petrel]

This bird responds strongly to the call of Leach's Storm Petrel (*Oceanodroma leucorhoa*). No hybrids are as yet reported, but *H. pelagicus* is a nocturnal bird nesting in holes and crevices; its breeding biology is poorly known. BRO: s Iceland, Hebrides, Shetlands, and Faroe Is. Zontrillo 1982.

Macronectes giganteus [Antarctic Giant-Petrel]

× *Macronectes halli* (♀?) [Hall's Giant-Petrel] ENHR. HPF (♂ & ♀). BRO: southern oceans. On S. Georgia mixed pairs make up 1.5% of the total breeding population. Most interbreeding occurs late in nesting period of *M. giganteus* and early in that of *M. halli*. Mixed matings also have been observed on Marion and Macquarie islands. Intermediate populations exist also on Gough I. and in the Falklands. These birds were not treated as separate species until 1966. Burger 1978; Cramp and Simmons 1980; Hunter 1983, 1987; Johnstone 1978; Marchant and Higgins 1990 (p. 367); Penhallurick and Wink 2004 (p. 138). Internet: DIGI.

Oceanites maorianus [New Zealand Storm-Petrel] This bird, not listed by Sibley and Monroe (1990), was until recently believed extinct (known only from three 19th century skins). It was recently seen and photographed in the New Zealand's Hauraki Gulf (Brooke 2004 p. xvii; Flood 2003). There is no report that this bird is derived from hybridization, but its very rarity, along with the lack of any record of former abundance, suggest that it may be a hybrid of unknown parentage.

Oceanodroma leucorhoa [Leach's Storm-Petrel] See: *Hydrobates pelagicus*. Sibley (p. 43) notes that an abrupt shift occurs in Leach's Storm-Petrel populations on the Pacific coast at the U.S.–Mexican border. Data from this region suggest the presence of a hybrid zone between two populations treated as races of this bird, *chapmani* and *leucorhoa*. Northern birds (*leucorhoa*) close to the border are 80–90% light-rumped. Southern birds (*chapmani*) just s of the border are 90–100% dark-rumped. A third population (*socorroensis*) is intermediate in morphology and range and, thus, a PHP of crossing between *chapmani* and *leucorhoa*. Ainley 1980, 1983; Jehl and Everett 1985; Power and Ainley 1986; Sibley 2000.

Note: According to Warham (1996, p. 495), hybrids among prions are difficult to detect because because they are nocturnally active birds.

Pachyptila belcheri [Slender-billed Prion]

× ***Pachyptila desolata*** [Antarctic Prion] ENHR. BRO: Kerguelen, and possibly Macquarie, islands. Cox 1980; Penhallurick and Wink 2004 (p. 142).

× ***Pachyptila salvini*** [Medium-billed Prion] ONHR? BRO: the Crozets (Île de l'Est). Shirihai (p. 178) says reports of hybridization "from Kerguelen are considered erroneous." These birds are sometimes lumped. Cox 1980; Shirihai 2002. Internet: DIGI.

Pachyptila crassirostris [Fulmar Prion]

× ***Pachyptila turtur*** [Fairy Prion] ONHR. BRO: between subantarctic and subtropical convergences in all southern oceans. Hybrids

are known from Heard and Motunau Is. These birds have occasionally been lumped. Cox 1980; Marchant and Higgins 1990 (p. 549).

Pachyptila desolata [Antarctic Prion]

See also: *Pachyptila belcheri*.

× ***Pachyptila vittata*** [Broad-billed Prion] ENHR. BRO: New Zealand and adj. islands. Cox proposed *P. salvini* as a PHP of this cross. Cox 1980; Penhallurick and Wink 2004 (p. 142).

Pachyptila macgillivrayi [MacGillivray's Prion]

See: *Pachyptila salvini* × *P. vittata*.

Pachyptila salvini [Medium-billed Prion]

See also: *Pachyptila belcheri*.

× ***Pachyptila vittata*** [Broad-billed Prion] ENHI. MacGillivray's Prion (*Pachyptila macgillivrayi*), endemic to St. Paul and Amsterdam islands, is morphologically intermediate and has been treated by various authors as a race of both these birds, and as a distinct species. It is thus a PHP of this cross. Carboneras 1992a (p. 248); Dowsett and Dowsett-Lemaire 1993; Roux et al. 1986; Shirihai 2002 (p. 174); Sibley and Monroe 1990; White 1965.

Pachyptila turtur [Fairy Prion] See: *Pachyptila crassirostris*.

Pachyptila vittata [Broad-billed Prion]

See: *Pachyptila desolata*; *P. salvini*.

***Pagodroma* sp.**

× ***Puffinus* sp.** NHI. This hybrid has a ring number, but there seems to be no published report. Internet: FOTO5.

Pagodroma confusa [Greater Snow-Petrel]

× ***Pagodroma nivea*** [Lesser Snow-Petrel] ENHR. BRO: Antarctic (Peterson Is., Ardery I., Proclamation I., S. Sandwich Is., Cape Hallet, Cape Hunter). Greater Snow-Petrels are as much as 50% heavier than *P. nivea* birds, but the two are often lumped. Brooke says there is no evidence that mixed pairs have lower breeding success. They make up 28% of the breeding population on the Pointe Géologie Archipelago (Terre Adélie). Hybridization occurs also in the Davis Area, Antarctica. Barbraud and Jouventin 1998; Brooke 2004 (pp. 235–236); Jouventin and

Bried 2001; Marchant and Higgins 1990 (p. 409); Shirihai 2002 (pp. 141–142).

Pterodroma cahow [Bermuda Petrel]

× *Pterodroma feae* [Cape Verde Petrel] NHR (Azores). BRO: n Atlantic islands. Bibby and del Nevo 1991; Carboneras 1992a.

Pterodroma feae [Cape Verde Petrel] See: *Pterodroma cahow*.

Pterodroma mollis [Soft-plumaged Petrel]

Carboneras suggests that dark-plumaged birds may be hybrids “with other species.” Carboneras 1992a (p. 242).

Puffinus sp. See: *Pagodroma* sp.

Puffinus assimilis [Little Shearwater]

× *Puffinus lherminieri* [Audubon's Shearwater] ENHI. These similar birds are sometimes treated as conspecific. Palmer (vol. 1, p. 199) notes that “Atlantic subspecies of the 2 species—*P. l. lherminieri*, *P. a. boydi*, *P. a. baroli*, *P. a. elegans*—show virtually continuous geographical variation so that status of the intermediate populations (*boydi*, *baroli*) remains controversial.” Brooke (2004, p. 307) points out that *boydi* has been treated as a race of both Little and Audubon's. These facts suggest *boydi* and *baroli* as PHPs of this cross. Austin et al. 2004; Palmer 1962–1988.

Puffinus bulleri [Buller's Shearwater]

× *Puffinus griseus* [Sooty Shearwater] NHR. BRO: New Zealand (Poor Knights Is.). There is a sight record. Warham 1996 (p. 495).

Puffinus carneipes [Flesh-footed Shearwater]

× *Puffinus creatopus* [Pink-footed Shearwater] ENHI? These birds are sometimes treated as conspecific. Non-breeding birds seem to form a single clinal population, which suggests gene flow. However, known breeding sites of the two types are widely disjunct. Marchant and Higgins 1990 (p. 618).

Puffinus creatopus [Pink-footed Shearwater] See: *Puffinus carneipes*.

Puffinus gravis [Great Shearwater]

See: *Calonectris diomedea*.

Puffinus griseus [Sooty Shearwater]

See also: *Puffinus bulleri*.

× *Puffinus tenuirostris* [Short-tailed Shearwater] NHR. BRO: Tasmania, sw Australia. These similar birds are both abundant. Kuroda 1967.

Puffinus lherminieri [Audubon's Shearwater] See: *Puffinus assimilis*.

Puffinus tenuirostris [Short-tailed Shearwater] See: *Puffinus griseus*.

Albatrosses

Family Diomedidae

Diomedea albatrus [Short-tailed Albatross]

× *Diomedea nigripes* [Black-footed Albatross] NHR. BRO: Torishima I., Japan. *D. albatrus* was almost wiped out by feather harvesters during the early 20th century (global population is now about 1,200 birds). Fisher (1972, p. 385) says banders on Sand I. (Midway Is.) saw four hybrids, the highest density reported. Blackman 1941; Bryan and Greenway 1944; Fisher 1948, 1972⁺; Frings and Frings 1960; Garrett and Wilson 2003 (p. 21); Hadden 1941; Warham 1996 (pp. 247, 496).

Diomedea chrysostoma [Grey-headed Albatross]

× *Diomedea melanophrys* [Black-browed Albatross] Courtship was observed, but no hybrids are as yet reported. BRO: S. Georgia, Kerguelen, the Crozets. Warham 1996 (p. 496).

Diomedea epomophora [Northern Royal Albatross]

× *Diomedea sanfordi* (♀) [Southern Royal Albatross] ONHR. HPF. These birds are lumped by Sibley and Monroe (1990). There is a small mixed colony at Taiaroa Head, New Zealand (near Dunedin), where hybrids are on the increase. They lay about 11 days later than the pure Southern. Mixed pairs also occur on Enderby I. (Aucklands). Brooke 2004 (p. 184); Croxall and Gales 1997; Gales 1998; Moore et al. 1997 (pp. 134–135); Robertson 1993, 1998; Shirihai 2002 (p. 104); Taylor 2000; Tickell 2000 (p. 134). Internet: BTNZ.

Diomedea immutabilis [Laysan Albatross]

× *Diomedea nigripes* (♂) [Black-footed Albatross] ENHR. BRO: nw Hawaiian Is., Midway. Plumage of hybrid resembles Laysan's. It is pearl gray (underlaid with white), dark on back, near white ventrally. Bill is dark with white at base as in Black-footed, but white is more extensive. Gait and posture more like Laysan. One hybrid had one black foot and one light gray; another had both feet black. Warham saw hybrids on Midway dance with Laysans. Sibley pictures a light-morph of Black-footed that can be confused with hybrids. The mtDNA of several hybrids from Sand I. (Midway Atoll) showed the ♀ parent was a Laysan. The Smithsonian has several specimens. Brown and Fisher 1966; Ely and Clapp 1973; Fisher 1948, 1972; Grant 1982[†]; Grant and Pettit 1981a, 1981b; McKee and Pyle 2002; Moore et al. 1997 (p. 196); Rothschild 1893; Sibley 2000 (p. 31); Warham 1990 (p. 27), 1996 (p. 496); Warham and Fitzsimmons 1987. Internet: NESB, SCZL[†].

Diomedea impavida [New Zealand Black-browed Albatross]

× *Diomedea melanophris* (♂) [Black-browed Albatross] ONHR (New Zealand). BRO: Campbell Island. These birds are lumped by Sibley and Monroe (1990). Brooke 2004; Burg and Croxall 2001; Moore et al. 1997, 2001; Tickell 2000 (p. 91).

Diomedea melanophris [Black-browed Albatross] See: *Diomedea chrysostoma*; *D. impavida*.

Diomedea nigripes [Black-footed Albatross]
See: *Diomedea albatrus*; *D. immutabilis*.

Diomedea sanfordi [Southern Royal Albatross]
See: *Diomedea epomophora*.

and Dowsett 2004[†]; Erritzoe 2003 (p. 149); Keith et al. 1992; Prigogine 1984; Sibley and Monroe 1990 (p. 332).

Pitta granatina [Garnet Pitta]

× *Pitta venusta* [Graceful Pitta] NHR? ENHI. These birds may hybridize in Sumatra. Also, a Bornean population (*ussheri*) has been lumped with both, a history of treatment suggesting it as a PHP of this cross. Erritzoe 2003 (p. 146); Rozendaal 1994; Sibley and Monroe 1990 (p. 332).

Pitta reichenowi [Green-breasted Pitta]

See: *Pitta angolensis*.

Pitta venusta [Graceful Pitta]

See: *Pitta granatina*.

Pitta versicolor [Noisy Pitta] Two populations, *simillima* and *versicolor*, usually treated as races of the Noisy Pitta, have hybridized in ne Queensland, Australia to produce a population often listed as a third race, *intermedia*, of the same bird. There are two hybrid zones. *Intermedia* meets *simillima* between Cooktown and Princess Charlotte Bay. It meets *versicolor* in the Dawson-MacKenzie River basin (near Rockhampton). Erritzoe 2003 (p. 159); Erritzoe and Erritzoe 1998; Higgins et al. 2001 (p. 115).

Asities

Family Philepittidae

Neodrepanis coruscans [Wattled Asity]

× *Neodrepanis hypoxanthus* [Small-billed Asity] ENHR (mts of e Madagascar).

N. coruscans occurs in upper sclerophyllous forest. *N. hypoxanthus*, in lower to mid-altitude, moist forest. Hybridization occurs in narrow ACZs. Internet: ASITI.

Pittas

Family Pittidae

Pitta angolensis [African Pitta]

× *Pitta reichenowi* [Green-breasted Pitta] ONHR (Cameroon, s Congo). Decoux and Fotso 1988; Dowsett and Dowsett-Lemaire 1989, 1993 (p. 347); Dowsett-Lemaire

Tyrant Flycatchers

Family Tyrannidae

Casiornis fusca [Ash-throated Casiornis]

× *Casiornis rufa* [Rufous Casiornis] NHR. BRO: se Brazil. Ridgely and Tudor 1994; Sibley and Monroe (1990).

Contopus pertinax [Greater Pewee]

- × *Contopus sordidulus* [Western Wood-Pewee] NHR. BRO: sw U.S., Mexico. Phillips and Short 1968.

Contopus sordidulus [Western Wood-Pewee]

See also: *Contopus pertinax*.

- × *Contopus virens* [Eastern Wood-Pewee] ONHR (Great Plains, Canada, U.S.). Barlow and Rising 1965; Rising 1983a; Rising and Schueller 1980; Sattler and Braun 2000.
- × *Empidonax traillii* [Willow Flycatcher] NHR. BRO: w U.S., sw Canada. Barlow and Rising 1965; Rising 1983a; Rising and Schueller 1980; Sattler and Braun 2000; Short and Burleigh 1965.

Elaenia albiceps [White-crested Elaenia]

- × *Elaenia palatangae* [Sierran Elaenia] ONHR (sw Ecuador). Fjelds  and Krabbe 1990.
- × *Elaenia parvirostris* [Small-billed Elaenia] ENHR. ACZ (*albiceps* occurs above *parvirostris*). These birds are sometimes lumped. Hybrid zone is in e Andes (s Bolivia, nw Argentina). A population, *chilensis*, often treated as a race of *E. albiceps*, hybridizes with *E. parvirostris*. On the basis of distinctive features apparently arising out of this hybridization, *chilensis* is sometimes treated as a separate species. Fjelds  and Krabbe 1990; Ridgely and Tudor 1994 (p. 437); Traylor 1982 (p. 15). Internet: DIGI.

Elaenia chilensis [Chilean Elaenia]

See: *Elaenia albiceps* × *E. parvirostris*.

Elaenia palatangae [Sierran Elaenia]

See: *Elaenia albiceps*.

Elaenia parvirostris [Small-billed Elaenia]

See: *Elaenia albiceps*.

Note: Sibley (2000, 327), says some *Empidonax* flycatchers are intermediate and “should not be identified beyond genus.” Such intermediates are usually interpreted as hybrids. Flycatchers of this genus are very similar and are thus considered among the most difficult birds in N. America to identify. Hybridization between similar birds is harder to detect than between dissimilar ones (see p. 34). This fact suggests that hybridization in this genus is likely to be underreported.

Empidonax alnorum [Alder Flycatcher]

- × *Empidonax traillii* [Willow Flycatcher] NHR. BRO: U.S.–Canada border. Sedgwick and Winker found no evidence of hybridization. Yet, Stewart says songs of ♂♂ breeding in N. Dakota are intermediate and Seutin and Simon (p. 241) mention intermediates from se Canada (Brighton). Sedgwick 2000; Seutin and Simon 1988; Stewart 1975; Winker 1994.

Empidonax difficilis [Pacific-slope Flycatcher]

- × *Empidonax occidentalis* [Cordilleran Flycatcher] ENHI (U.S.). A population in n California, *hellmayri*, has been classified as a race of both *E. difficilis* and of *E. occidentalis*, and is geographically intermediate. These facts suggest *hellmayri* as a PHP of this cross. Ratti 1984.

Empidonax hammondii [Hammond’s Flycatcher]

- × *Empidonax oberholseri* [Dusky Flycatcher] NHR. BRO: nw U.S., sw Canada (s British Columbia). Phillips 1966 (pp. 325–326).
- × *Empidonax wrightii* [Grey Flycatcher] NHR. BRO: nw U.S. Phillips 1966.

Empidonax oberholseri [Dusky Flycatcher]

See also: *Empidonax hammondii*.

- × *Empidonax wrightii* [Grey Flycatcher] NHR. BRO: w U.S. Phillips 1966.

Empidonax occidentalis [Cordilleran Flycatcher]

See: *Empidonax difficilis*.

Empidonax traillii [Willow Flycatcher]

See: *Contopus sordidulus*; *Empidonax alnorum*.

Empidonax wrightii [Grey Flycatcher]

See: *Empidonax hammondii*; *E. oberholseri*.

Empidonomus varius [Variegated Flycatcher]

- × *Tyrannus melancholicus* [Tropical Kingbird] NHR. BRO: S. America. Heine’s Kingbird (*Tyrannus apolites*), based on one trade skin, is thought to be this hybrid. Meise 1949 (pp. 61–68), 1975; Ridgely and Tudor 1994 (p. 671); Sibley and Monroe 1990 (p. 364). Internet: REM.

Myiarchus atriceps [Dark-capped Flycatcher]

- × *Myiarchus tuberculifer* [Dusky-capped Flycatcher] ENHR (Bolivia). Ridgely and Tudor say these birds differ more in appearance than many other birds in the genus

treated as separate species, but they go on to say that Lanyon “did finally locate an intermediate population in the Chapare of Cochabamba, Bolivia. He thus concluded that they should be considered a single species.” This intermediate population is a PHP of this cross. Joseph and Wilke 2004; Lanyon 1978 (pp. 470–488); Ridgely and Tudor 1994 (p. 653); Tweit and Tweit 2002 (p. 5).

Myiarchus brachyurus [Ometepe Flycatcher]

× ***Myiarchus magister*** [Wied’s Flycatcher] ENHR (El Salvador, Pacific Honduras). HPF The intermediate population breeds only in coastal mangroves, with some inland movement in fall and winter. Due to hybridization, these birds are often treated as conspecific. Often both are lumped with *Myiarchus tyrannulus* (Brown-crested Flycatcher). AOU Checklist 1998 (p. 405); Cardiff and Dittman 2000; Dickey and van Rossem 1938; Lanyon 1960; Rand and Traylor 1954.

Myiarchus cinerascens [Ash-throated Flycatcher]

× ***Myiarchus nuttingi*** [Nutting’s Flycatcher] ENHR (n Mexico). Van Rossem (1945, p. 152) says the “truly impressive number of intermediates are the result of hybridization on a mass scale.” Lanyon argued (*contra* Miller and van Rossem) that intermediates between these birds are better explained as overlap in variation. Griscom 1934 (p. 388); Lanyon 1961; Miller et al. 1957; van Rossem 1931b; 1932, 1945.

Myiarchus magister [Wied’s Flycatcher] See: *Myiarchus brachyurus*.

Myiarchus nuttingi [Nutting’s Flycatcher] See: *Myiarchus cinerascens*.

Myiarchus pelzelni [Pelzelni’s Flycatcher]

× ***Myiarchus phaeonotus*** [Whitely’s Flycatcher] ENHR. Hybrid zone is n Brazil (Guianas s to lower Rio Negro, lower Rio Madiera, and lower Amazon). Lanyon says these two birds “are about as distinct morphologically as any two species in the genus,” but he recommended they be lumped because they hybridize. Lanyon 1978 (p. 531); Ridgely and Tudor

1994 (p. 648); Sibley and Monroe 1990 (pp. 362–363); Zimmer 1937.

Myiarchus phaeonotus [Whitely’s Flycatcher]

See also: *Myiarchus pelzelni*.

× ***Myiarchus swainsoni*** [Swainson’s Flycatcher] ENHR. Hybrid zone is w Paraguay, ne Argentina, and w Uruguay. Due to hybridization, these birds are sometimes lumped. Lanyon 1978; Sibley and Monroe 1990 (pp. 362–363).

Myiarchus swainsoni [Swainson’s Flycatcher]

See also: *Myiarchus phaeonotus*.

× ***Myiarchus tuberculifer*** [Dusky-capped Flycatcher] On the basis of mtDNA, some populations of *M. swainsoni* are more closely related to *M. tuberculifer* than to other populations of *M. swainsoni* (which may indicate mitochondrial gene flow). Joseph et al. 2003; Joseph and Wilke 2004.

Myiarchus tuberculifer [Dusky-capped Flycatcher] See: *Myiarchus atriceps*; *M. swainsoni*.

Myiodynastes maculatus [Streaked Flycatcher]

× ***Myiodynastes solitarius*** [Solitary Flycatcher] NHR (s Brazil). Ridgely and Tudor say “*solitarius* differs markedly in plumage from the other races of *M. maculatus*, and it has been suggested that it might be a distinct species. However, J. T. Zimmer (*Am. Mus. Novitates* 963, 1937) found apparent intermediates [i.e., hybrids] from s. Amaz. Brazil.” These birds are now usually treated as conspecific. Ridgely and Tudor 1994 (p. 666); Zimmer 1937.

Myiobius barbatus [Bearded Flycatcher]

× ***Myiobius mastacalis*** [Whiskered Flycatcher] ENHI (S. America). A population in w Mato Grosso (Brazil) is intermediate and, thus, a PHP of this cross. These birds are often treated as conspecific. Sibley and Monroe 1990.

Myiophobus fasciatus [Bran-colored Flycatcher]

× ***Myiophobus rufescens*** [Rufescent Flycatcher] NHR (Andes, w Peru). Due to hybridization, these birds are often lumped, but Ridgely and Tudor (who so treated them) say *rufescens* “stands apart strikingly from all the

other subspecies of *M. fasciatus*." Hybrids are reported from Pacasmayo and Yaután (Ancash). Koepcke 1961 (17–18); Ridgely and Tudor 1994 (pp. 567–568); Sibley and Monroe 1990; Zimmer 1939 (p. 6).

Ochthoeca fumicolor [Brown-backed Chat-Tyrant]

× *Ochthoeca superciliosa* [Rufous-browed Chat-Tyrant] PCZ in Andes (w Venezuela). No hybrids as yet reported, but an abrupt shift from a bright form (*superciliosa*) to a dingy one (*fumicolor*) occurs at the Tachira Depression. These birds have been listed separately, but they are now usually lumped, although Ridgely and Tudor say they "suspect two species are involved." Ridgely and Tudor 1994 (p. 588).

Platyrinchus albogularis [White-throated Spadebill]

× *Platyrinchus cancrininus* [Stub-tailed Spadebill] PCZ (Coast Rica). No hybrids as yet reported. These birds are sometimes lumped. Ridgely and Tudor 1994 (p. 545); Sibley and Monroe 1990 (p. 349).

× *Platyrinchus mystaceus* [Yellow-crested Spadebill] ENHI (S. America). A population in Bolivia, *partridgei*, is intermediate and, thus, a PHP of this cross. Due to hybridization, these birds are now usually treated as conspecific. Remsen et al. 1991; Ridgely and Tudor 1994 (p. 545); Short 1969d.

Platyrinchus cancrininus [Stub-tailed Spadebill] See: *Platyrinchus albogularis*.

Platyrinchus mystaceus [Yellow-crested Spadebill] See: *Platyrinchus albogularis*.

Serpophaga munda [White-bellied Tyrannulet]

× *Serpophaga subcristata* [White-crested Tyrannulet] ONHR (s S. America). Long PCZ in s Bolivia, nw Argentina. These birds are sometimes treated as conspecific. Meyer de Schauensee 1966 (p. 377); Ridgely and Tudor 1994 (p. 473); Short 1975 (p. 280); Sibley and Monroe 1990 (p. 344).

Sublegatus modestus [Southern Scrub-Flycatcher]

× *Sublegatus obscurior* [Todd's Scrub-Flycatcher] ENHR (w Brazil, e Peru). Long

contact zone in w Amazonia, s of the Amazon River. These birds are often treated as conspecific due to hybridization. Ridgely and Tudor 1994; Sibley and Monroe 1990 (p. 341); Traylor 1982 (pp. 4–10).

Suiriri affinis [Campo Suiriri]

× *Suiriri suiriri* [Chaco Suiriri] ENHR.

Hybrid zone is in e Bolivia, ne Paraguay, and adjacent Brazil. In addition, *bahiae*, a population more than 2,000 km away in ne Brazil (Piauí), is similar to *S. suiriri*, but is separated from *S. suiriri* by *S. affinis*. *Bahiae* may represent a remnant population of *S. suiriri* which has hybridized extensively with *S. affinis*, according to Hayes, who says the intermediate size and high variability of *bahiae* resembles that of *S. affinis* × *S. suiriri* hybrids and suggests a hybrid origin. However, it may also be that *S. affinis* has split the range (see p. 22) of *S. suiriri* as seems to have happened in the cases of certain other hybridizing pairs (e.g., Hooded and Carrion crows), and that the general variability and intermediacy of *bahiae* (between *S. affinis* and *S. suiriri*) result from genetic swamping of the northern remnant of *S. suiriri* that will eventually lead to its extirpation. More data will be needed to determine whether *bahiae* is a new type of bird coming into being, or a remnant of an old one passing out of existence. See Figure 8. A controversy has existed over whether these birds should be treated as conspecific due to hybridization. Hayes 2001b; Meyer de Schauensee 1966 (p. 384); Ridgely and Tudor 1994 (pp. 427–428); Short 1975; Sibley and Monroe 1990 (p. 341); Traylor 1982 (pp. 10–12). Internet: DIGI.

Sirystes albogriseus [White-rumped Sirystes]

× *Sirystes sibilator* [Sibilant Sirystes] ENHI (n S. America). Although they differ in plumage, and markedly in call, these birds are now usually treated as conspecific due to

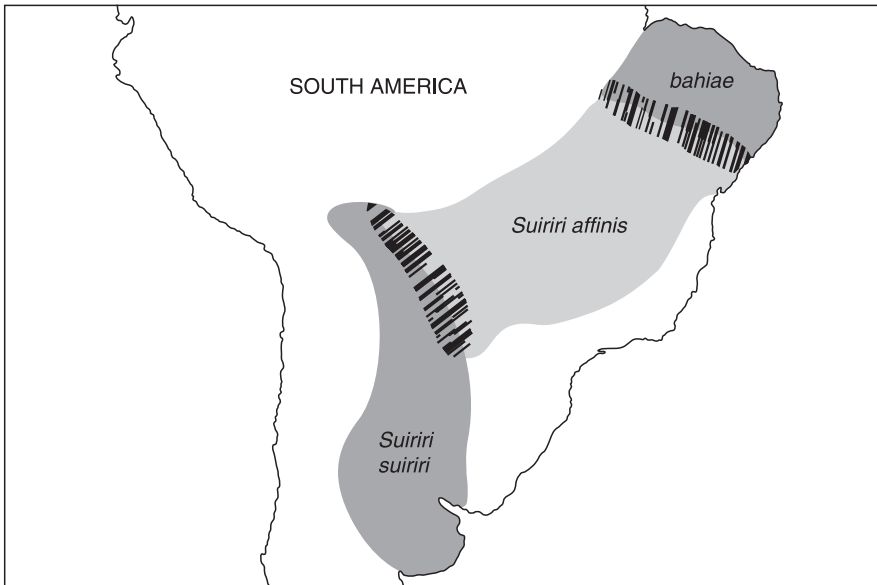


Figure 8. Suiriri Flycatcher Complex. *Suiriri affinis* widely separates the ranges of two similar birds *bahiae* and *suiriri*. It hybridizes with both.

the existence of Amazonian populations (*albocinereus* and *subcanescens*) which are geographically and morphologically intermediate (PHPs of this cross). Ridgely and Tudor 1994 (p. 654).

Tyrannus apolites [Heine's Kingbird]

See: *Empidonomus varius* × *Tyrannus melancholicus*.

Tyrannus caudifasciatus [Loggerhead Kingbird]

× *Tyrannus dominicensis* [Grey Kingbird] NHR (Florida). BRO: Caribbean. A bird sighted and photographed on Sugarloaf Key may have been this hybrid. Kale 1977 (p. 991).

Tyrannus couchii [Couch's Kingbird]

× *Tyrannus forficatus* [Scissor-tailed Flycatcher] NHR (U.S.). BRO: se Texas, ne Mexico. A bird observed near Geneseo, se New York (9 Nov. to 2 Dec. 2003) was first thought to be a Western Kingbird because of its yellow breast and white outer tail

feathers, but was later identified as this hybrid. The contact zone is far removed from the sighting location. McGowan and Spahn 2004[†].

× *Tyrannus melancholicus* [Tropical Kingbird] NHR (s Mexico). Binford collected hybrids in n Oaxaca. Brush says that Couch's "possibly intergrades" with the Tropical in Morelos. Binford 1989; Brush 1999 (p. 3).

Tyrannus dominicensis [Grey Kingbird]
See: *Tyrannus caudifasciatus*.

Tyrannus forficatus [Scissor-tailed Flycatcher]
See also: *Tyrannus couchii*.

× *Tyrannus verticalis* (♀) [Western Kingbird] NHR. BRO: s cen. U.S. Tyler and Parkes describe a hybrid taken in sw Oklahoma in May. Hybrids look like short-tailed *T. forficatus*. A ♂ was observed trying to nest with a *T. verticalis* ♀. Bevier 1990; Davis and Webster 1970; Rosenberg et al. 1991; Rottenborn and Morlan 2000; Tyler and Parkes 1992.

Tyrannus melancholicus [Tropical Kingbird]

See: *Empidonomus varius*; *Tyrannus couchii*.

Tyrannus tyrannus [Eastern Kingbird]

× *Tyrannus verticalis* (♀) [Western Kingbird] ONHR. BRO: w U.S., sw Canada. A Western Kingbird returned for 3 years to the same site in Michigan, each time nesting with a *T. tyrannus* ♂. Brewer et al. 1991 (p. 294); Gamble and Bergin 1996 (p. 3); Granlund et al. 1994; Sheffield 1992; Thompson 1965 (p. 148).

× *Tyrannus vociferans* [Cassin's Kingbird] NHR? A bird seen in Delaware, July 8, 2000 (at Little Creek Wildlife Area) was thought probably to be this hybrid. It had several fieldmarks of *T. tyrannus* (white tail band, etc.), but had a pale yellow belly, and a dark, not gray, head (like *T. vociferans*), which was uncapped as in *T. tyrannus*. Internet: SRF9.

Tyrannus verticalis [Western Kingbird]

See: *Tyrannus forficatus*; *T. tyrannus*.

Tyrannus vociferans [Cassin's Kingbird]

See: *Tyrannus tyrannus*.

Tityra braziliensis [Brazilian Tityra]

× *Tityra cayana* [Black-tailed Tityra] NHR (Brazil). Ridgely and Tudor say "*braziliensis* is so distinct from nominate *cayana* that it almost appears to deserve full species status (Brazilian Tityra), but intergrades [i.e., hybrids] are apparently known." Ridgely and Tudor 1994 (p. 687).

Manakins
Family Pipridae***Antilophia galeata*** [Helmeted Manakin]

× *Chiroxiphia caudata* [Swallow-tailed Manakin] ENHR. BRO: s Brazil. Hybridization occurs in the interior of São Paulo. Pachecho and Parrini 1995; Sick 1979, 1993 (p. 491).

Chiroxiphia caudata [Swallow-tailed Manakin]

See also: *Antilophia galeata*.

× *Ilicura militaris* (♂) [Pin-tailed Manakin] NHR. BRO: Brazil. A ♂ hybrid was taken in March (1999) near Belo Horizonte. Marini and Hackett 2002.

Heterocercus linteatus [Flame-crested Manakin]

× *Pipra aureola* [Crimson-hooded Manakin] NHR (Pará, Brazil). The Anomalous Manakin (*Pipra anomala*), a taxon based on a single specimen, is now considered to be this hybrid. Parkes 1961. Internet: REM.

Heterocercus luteocephalus [Golden-crested Manakin] This bird, based on a lost specimen, is probably a hybrid involving *Neopelma*. Parkes 1961. Internet: REM.

Ilicura militaris [Pin-tailed Manakin] See: *Chiroxiphia caudata*.

Note: Wherever any two of the following four birds meet, they form a hybrid zone.

Manacus aurantiacus [Orange-collared Manakin]

× ***Manacus candei*** [White-collared Manakin] ENHR (Costa Rica, Panama). A variable population of nw Panama has been treated either as a separate species, the Almirante Manakin (*Manacus cerritus*), or as a hybrid population derived from this cross. Internet: SCRI.

× ***Manacus vitellinus*** [Golden-collared Manakin] ONHR (Panama). These birds are sometimes treated as conspecific. Internet: SCRI.

Manacus candei [White-collared Manakin]

See also: *Manacus aurantiacus*.

× ***Manacus vitellinus*** [Golden-collared Manakin] ENHR. A narrow hybrid zone exists in the lowlands of w Panama. Clines for male plumage color are 50 km west of those for other genetic and morphological characters. Brumfield 1999; Brumfield et al. 2001; Butlin and Neems 1994; Haffer 1967 (p. 17), 1974; Höglund and Shorey 2004; McDonald 1996; McDonald et al. 2001; Parsons et al. 1993, 1994; Sibley and Monroe 1990 (p. 377). Internet: SCRI.

Manacus cerritus [Almirante Manakin]

See also: *Manacus aurantiacus* × *M. candei*.

× ***Manacus vitellinus*** [Golden-collared Manakin] ENHR (nw Panama). These birds are sometimes lumped. Sibley and Monroe 1990 (p. 377).

Manacus manacus [White-bearded Manakin]

× ***Manacus vitellinus*** [Golden-collared Manakin] ENHR (w Colombia,

- nw Ecuador). Mixed leks occur with ♂♂ of either parental type at opposite ends and hybrids in the middle. Haffer 1967 (pp. 15–16), 1974; Höglund and Shorey 2004; Ridgely and Tudor 1994 (p. 711); Sibley and Monroe 1990 (p. 377).
- × *Pipra aureola* [Crimson-hooded Manakin] NHR (n Brazil). A hybrid is known from Roraima. Stotz 1993.
 - × *Pipra erythrocephala* [Golden-headed Manakin] NHR. BRO: Colombia. Boucard's Manakin (*Manacus coronatus*), a taxon based on one specimen, is this hybrid. Meyer de Schauensee 1966 (p. 328); Parkes 1961; Sibley 1957; Sick 1993 (p. 491); Stotz 1993. Internet: REM.
 - × *Pipra filicauda* [Wire-tailed Manakin] NHR. BRO: S. America. Parkes 1961.
- Manacus vitellinus*** [Golden-collared Manakin]
See: *Manacus candei*; *M. cerritus*; *M. manacus*.
- Neopelma* sp.** See: *Heterocercus luteocephala*.
- Pipra anomala*** [Anomalous Manakin]
See: *Heterocercus lineatus* × *Pipra aureola*.
- Pipra aureola*** [Crimson-hooded Manakin]
See also: *Heterocercus lineatus*;
Manacus manacus.
- × *Pipra filicauda* [Wire-tailed Manakin] NHR (Brazil)? The Sharp-tailed Manikin (*Pipra heterocerca*), is now deemed this hybrid (or *Pipra fasciicauda* × *P. filicauda*). Haffer 1970, 1974, 2002; Meyer de Schauensee 1966 (p. 326); Parkes 1961. Internet: REM.
- Pipra coronata*** [Blue-crowned Manakin]
× *Pipra exquisita* [Exquisite Manakin] ENHR. Hybrid zone in Amazonian Peru and w Brazil. Though one of these birds has a green body and the other a black one, they are often lumped due to hybridization. Haffer 1970 (pp. 309–315).
- × *Pipra serena* [White-fronted Manakin] NHR. BRO: Brazil. Stotz 1993.
- Pipra erythrocephala*** [Golden-headed Manakin] See: *Manacus manacus*.
- Pipra exquisita*** [Exquisite Manakin]
See: *Pipra coronata*.

- Pipra fasciicauda*** [Band-tailed Manakin]
× *Pipra filicauda* [Wire-tailed Manakin] NHR? BRO: nw S. America. The Sharp-tailed Manikin (*Pipra heterocerca*) is now thought to be this hybrid (or *Pipra aureola* × *P. filicauda*). Haffer 2002; Parkes 1961 (p. 345). Internet: REM.
- Pipra filicauda*** [Wire-tailed Manakin]
See also: *Manacus manacus*; *Pipra aureola*;
P. fasciicauda.
- × *Pipra pipra* [White-crowned Manakin] NHR. BRO: Amazonia. Graves 1993a.
- Pipra heterocerca*** [Sharp-tailed Manakin] See: *Pipra aureola* × *P. filicauda*; *Pipra fasciicauda* × *P. filicauda*.
- Pipra pipra*** [White-crowned Manakin]
See: *Pipra filicauda*.
- Pipra serena*** [White-fronted Manakin]
See: *Pipra coronata*.

Ovenbirds and Their Allies

- Dendrocolaptidae*, *Furnariidae*,
*Thamnophilidae***
- Anabacerthia stratiacollis*** [Montane
Foliage-gleaner]
× *Anabacerthia variegaticeps* [Scaly-throated
Foliage-gleaner] ENHI. A population (*temporalis*) of the w Andes of Colombia (s from s Chocó) and w Ecuador (s to w Loja) has been treated as a race of both these birds and is thus a PHP of this cross. It has often been treated as a separate species, *A. temporalis* (Spot-breasted Foliage-gleaner). Remsen 2003 (p. 102).
- Anabacerthia temporalis*** [Spot-breasted
Foliage-gleaner] See: *Anabacerthia stratiacollis* × *A. variegaticeps*.
- Asthenes arequipae*** [Dark-winged Canastero]
× *Asthenes dorbignyi* [Creamy-breasted
Canastero] NHR. BRO: w Bolivia. Sibley and Monroe (1990) lump these birds. Ridgely and Tudor 1989 (p. 102).
- Asthenes dorbignyi*** [Creamy-breasted Canastero]
See: *Asthenes arequipae*.
- Asthenes flammulata*** [Many-striped Canastero]
× *Asthenes virgata* [Junin Canastero] ENHI.
A population (*taczanowskii*) in cen. Peru is geographically and morphologically

intermediate and, thus, a PHP of this cross. These birds are often lumped. Ridgely and Tudor 1989 (p. 114).

Asthenes punensis [Puno Canastero]

× *Asthenes sclateri* [Cordoba Canastero] ENHI (s Peru). HPF(vh). There is a hybrid population (*A. p. punensis*) near Lake Titicaca (Puno). These birds are often lumped. Here *Asthenes punensis* includes *cuchacanchae* and *lilloi*. Fjeldså and Krabbe 1990; Remsen 2003 (pp. 188, 304–305); Ridgely and Tudor 1989 (p. 111).

Asthenes sclateri [Cordoba Canastero] See: *Asthenes punensis*.

Asthenes virgata [Junin Canastero] See: *Asthenes flammulata*.

Automolus ochrolaemus [Buff-throated

Foliage-gleaner] Two populations treated as races of this bird (*cervinularis* and *hypophaeus*) hybridize in Belize; two others (*auricularis* and *ochrolaemus*) may hybridize in w Brazil. Remsen 2003 (p. 345).

Campylorhamphus procurviroides [Curve-billed Scythebill]

× *Campylorhamphus trochilrostris* [Red-billed Scythebill] ENHI (s Brazil). Birds from s of the Amazon, usually treated as races (*multostriatus*, *probatas*) of the Curve-billed, are morphologically intermediate (e.g., they have pronounced streaking below and backs variably streaked with buff, as in the Red-billed) and geographically intermediate and are thus PHPs of this cross. Marantz et al. 2003 (pp. 445–446); Ridgely and Tudor 1989 (p. 214).

Cichlocolaptes holti [Pale-browed Treehunter]

× *Cichlocolaptes leucophrus* [Pale-tailed Treehunter] ONHR (ne São Paulo, Brazil). Sibley and Monroe (1990) lump these birds, but Ridgely and Tudor imply they would be split if no hybrids were known. Pinto 1978; Ridgely and Tudor 1989.

Cinclodes fuscus [Bar-winged Cinclodes]

× *Cinclodes olrogii* [Olrog's Cinclodes] ENHI (nw Argentina). A population of La Rioja (*riojanus*), usually treated as a race of *C. fuscus*, is geographically and morphologically intermediate and, thus, a PHP of this cross.

Nores 1986; Remsen 2003 (p. 253); Ridgely and Tudor 1989 (p. 92).

Cranioleuca albicapilla [Creamy-crested Spinetail] Two populations (*albicapilla*, *albigula*), treated as races of *C. albicapilla*, hybridize in Peru (Ayacucho and Apurimac). Remsen 2003 (p. 296).

Cranioleuca albiceps [Light-crowned Spinetail] Two populations (*albiceps*, *dicolor*), treated as races of *C. albiceps*, hybridize in Bolivia (Ayopaya, Cochabamba). Remsen 2003.

Cranioleuca antisiensis [Line-cheeked Spinetail]

× *Cranioleuca baroni* [Baron's Spinetail] ENHR (Ecuador, Peru). These birds are often lumped. They grade into each other through a series of step clines. Birds at geographic extremes of the complex differ in weight by almost 100%. Plumage differences are also marked. Some populations treated as races of Baron's are more similar to adj. populations treated as races of *C. antisiensis* (e.g., *palamblae*) than to distant populations also included in *C. baroni*. (e.g., *capitalis*). Remsen 2003 (pp. 187, 297–298); Vaurie 1980.

Cranioleuca baroni [Baron's Spinetail]

See: *Cranioleuca antisiensis*.

Cranioleuca erythrops [Red-faced Spinetail]

Two populations (*erythrops*, *griseigularis*), treated as races of this bird, hybridize in s Colombia. Remsen 2003.

Cranioleuca obseleta [Olive Spinetail]

× *Cranioleuca pyrrhophia* [Stripe-crowned Spinetail] ENHR (se Brazil). Hybrid populations exist in s Brazil, Uruguay, and ne Argentina. Belton 1985; Claramunt 2002; Remsen 2003 (p. 293); Ridgely and Tudor 1989 (p. 92).

Cranioleuca pyrrhophia [Stripe-crowned Spinetail] See: *Cranioleuca obseleta*.

Dendrocolaptes certhia [Amazonian Woodcreeper]

× *Dendrocolaptes concolor* [Concolor Woodcreeper] ENHI. A population in n cen. Brazil (*ridgwayi*) is a PHP of this cross. These birds are now usually lumped. Marantz et al. 2003 (p. 419).

Dendrocolaptes concolor [Concolor Woodcreeper] See: *Dendrocolaptes certhia*.

Dendrocolaptes picumnus [Black-banded Woodcreeper]

× *Hylexetastes stresemanni* [Bar-bellied Woodcreeper] NHR. (w Brazil). Marantz et al. 2003 (p. 413).

Dendrocolaptes platyrostris [Planalto Woodcreeper] Two populations (*intermedius*, *platyrostris*), usually treated as races of this bird, hybridize in s Paraguay and s Brazil (e São Paulo, s Goiás, Minas Gerais). They differ both in voice and plumage. Marantz et al. 2003 (p. 422).

Dendrocolaptes sanctithomae [Northern Barred Woodcreeper] Hybridization may occur between two populations (*punctipectus*, *sancithomae*), usually treated as races of *D. sanctithomae*, which is not listed by Sibley and Monroe (1990). Marantz et al. 2003 (p. 419).

Geositta tenuirostris [Slender-billed Miner] Two populations (*kalimayae*, *tenuirostris*), treated as races of this bird, hybridize in nw Peru. Remsen 2003.

Glyphorhynchus spirurus [Wedge-billed Woodcreeper] With regard to the various populations making up *Glyphorhynchus spirurus*, Marantz et al. note that the “possibility that more than one species is involved [is] suggested by [the] existence of two markedly different song types combined with several well-differentiated races; however, molecular data suggest gene flow [which cannot occur without hybridization] between neighboring, morphologically distinct subspecies.” Marantz et al. 2003 (p. 407).

Heliobletus contaminatus [Sharp-billed Treehunter] Two populations (*camargoi*, *contaminatus*), treated as races of this bird, hybridize in s Brazil (n São Paulo). Remsen 2003 (p. 354).

Hylexetastes perrotii [Red-billed Woodcreeper]

× *Hylexetastes stresemanni* [Bar-bellied Woodcreeper] ENHI? A population (*insignis*) of ext. nw Amazonian Brazil (n bank of Rio Uaupés) and adj. Colombia (Vaupés) is morphologically intermediate, but not

geographically intermediate. Marantz et al. 2003.

Hylexetastes stresemanni [Bar-bellied Woodcreeper] See: *Dendrocolaptes picumnus*; *Hylexetastes perrotii*.

Hypocnemis cantator [Warbling Antbird]

× *Hypocnemis subflava* [Sulphur-breasted Antbird] PCZ in s Peru. Although a mixed pair was observed, no hybrids have as yet been reported. These birds are often lumped. Ridgely and Tudor 1989 (p. 323).

Lepidocolaptes albolineatus [Lineated Woodcreeper] Hybrids between two populations (*layardi*, *madierae*) usually treated as races of *L. albolineatus* occur in s Amazonian Brazil. Marantz et al. 2003 (p. 440).

Lepidocolaptes falcinellus [Scalloped Woodcreeper]

× *Lepidocolaptes squamatus* [Scaled Woodcreeper] PCZ along Rio Paraíba do Sol in n São Paulo (Brazil). No hybrids as yet reported. Marantz et al. 2003 (pp. 442–443).

Myrmeciza exsul [Chestnut-backed Antbird]

× *Myrmeciza maculifer* [Wing-spotted Antbird] ENHR (cen. America). Hybrid zone is in e Panama. Sibley and Monroe 1990 (p. 391).

Myrmotherula atrogularis [Inornate Antwren]

× *Myrmotherula ornata* [Ornate Antwren] NHR. Hybrids are known from s Peru (Cuzco, Madre de Dios). Sibley and Monroe (1990) do not list *M. atrogularis*. Ridgely and Tudor 1989 (p. 278).

Myrmotherula brachyura [Pygmy Antwren]

× *Myrmotherula obscura* [Short-billed Antwren] ENHI (w Brazil). Griscom's Antwren (*Myrmotherula ignota*) is morphologically intermediate and has been treated as a race of both *M. brachyura* and *M. obscura*, facts suggesting it as a PHP of this cross. Meyer de Schauensee 1966 (p. 276); Ridgely and Tudor 1989 (p. 226); Sibley and Monroe 1990 (p. 383).

Myrmotherula ignota [Griscom's Antwren]

See: *Myrmotherula brachyura* × *M. obscura*.

Myrmotherula obscura [Short-billed Antwren] See: *Myrmotherula brachyura*.

Myrmotherula ornata [Ornate Antwren]

See: *Myrmotherula atrogularis*.

Philydor erythrocerus

[Rufous-rumped Foliage-gleaner]

× *Philydor ochrogaster* [Ochre-bellied Foliage-gleaner] NHR (s Ecuador). Ridgely and Tudor 1989 (p. 158).

Philydor ochrogaster [Ochre-bellied Foliage-gleaner] See: *Philydor erythrocerus*.

Philydor ruficaudatus [Rufous-tailed Foliage-gleaner] Three populations treated as races of this bird (*flavipectus*, *ruficaudatus*, *subflavescens*) hybridize extensively in Amazonia. Remsen 2003 (p. 335).

Phlegopsis barringeri [Argus Bare-eye]

See: *Phlegopsis erythroptera* × *P. nigromaculata*.

Phlegopsis erythroptera

[Reddish-winged Bare-eye]

× *Phlegopsis nigromaculata* [Black-spotted Bare-eye] NHR (se Colombia). The Argus Bare-eye (*Phlegopsis barringeri*), a taxon based on one specimen, is this hybrid. Graves 1992; Willis 1979. Internet: REM.

Phlegopsis nigromaculata [Black-spotted Bare-eye] See: *Phlegopsis erythroptera*.

Pithys albifrons [White-plumed Antbird]

See: *Pithys castanea*.

Pithys castanea [White-masked Antbird] The specimen on which this taxon is based may be a hybrid of *Pithys albifrons* and some other antbird. It was taken in n Peru in 1937 at Andoas (ext. n Lareto). Ridgely and Tudor say it recalls *Pithys albifrons*, but is larger and lacks plumes. It is mostly chestnut, including all upper parts, and has no gray mantle. Its white face contrasts with its black head and throat. Ridgely and Tudor 1989 (p. 346); Willis 1984.

Synallaxis atrigularis [Magdalena Spinetail]

× *Synallaxis candei* [White-whiskered Spinetail] ONHR (nw Colombia). These birds are usually lumped, but Ridgely and Tudor say “*atrigularis* is morphologically quite distinct and might almost be regarded as a separate species (Magdalena Spinetail) but for the reported occurrence of specimens with apparent intermediate characters.” The

Smithsonian has two hybrids taken in Magdalena (El Difícil) in Dec. (USNM #392724, #411282). Ridgely and Tudor 1989 (p. 64).

Scelerus caudacutus [Black-tailed Leaf-tosser]

Two populations (*brunneus*, *pallidus*), treated as races of this bird, hybridize in w Brazil. Remsen 2003.

Schizoeaca fuliginosa

[White-chinned Thistletail]

× *Schizoeaca griseomurina* [Mouse-colored Thistletail] ENHI (Ecuador). *S. griseomurina* splits the range of *S. fuliginosa*. Populations of *S. fuliginosa* adjacent to the range of *S. griseomurina* morphologically approach *S. griseomurina*. These birds are sometimes lumped. Remsen 1981, 2003.

Sittasomus griseicapillus [Olivaceous

Woodcreeper] Many populations treated as races of the Olivaceous Woodcreeper hybridize. Marantz et al. (2003) think some may deserve separate specific status.

Synallaxis azarae [Azara's Spinetail]

× *Synallaxis superciliosa* [Buff-browed Spinetail] ENHR (cen. Bolivia). HPF(vh). Hybrid zone is in Cochabamba. Due to hybridization, these birds are now sometimes lumped. Remsen et al. 1988; Ridgely and Tudor 1994 (pp. 79–80); Sibley and Monroe 1990 (p. 382).

Synallaxis candei [White-whiskered Spinetail]

See: *Synallaxis atrigularis*.

Synallaxis omissa [Para Spinetail]

× *Synallaxis rutilans* [Rudy Spinetail] ONHR (e Brazil). HPF(vh) These birds are sometimes lumped. Ridgely and Tudor 1994.

Synallaxis rutilans [Rudy Spinetail]

See: *Synallaxis omissa*.

Synallaxis superciliosa [Buff-browed Spinetail]

See: *Synallaxis azarae*.

Thamnistes anabatinus [Russet Antshrike]

× *Thamnistes rufescens* [Peruvian Antshrike] NHR. BRO: Ecuador. These birds are sometimes lumped. Ridgely and Tudor 1994.

Thamnomanus ardesiacus

[Dusky-throated Antshrike]

- × *Thamnomanes saturninus* [Saturnine Antshrike] PCZ in w Brazil (along upper Amazon). No hybrids as yet reported. These birds are sometimes lumped. Ridgely and Tudor 1994 (pp. 247–248); Sibley and Monroe 1990 (p. 383).

Thamnophilus aspersiventer
[Andean Antshrike]

- × *Thamnophilus caerulescens* [Lowlands Antshrike] ENHI. HPF(vh). A series of antshrike populations stretching from the Andes of Peru and Bolivia, to the lowlands of Paraguay, Uruguay, n Argentina, and s Brazil is sometimes lumped under the name Variable Antshrike (*Thamnophilus caerulescens*). However, Ridgely and Tudor describe the Andes population, in which the males are entirely black, as “completely different” from the eastern, lowland population, in which ♂♂ are gray, with tawny below, and black crown, wings, and tail. Several workers have suggested that it might be reasonable to treat these two types as separate species, *T. aspersiventer* (Andean Antshrike) and *T. caerulescens* (for which Ridgely and Tudor say the name Lowlands Antshrike might be appropriate). These two populations are connected by a population, *connectans*, which Fjeldså and Krabbe describe as variably intermediate between the Andean and lowland populations. *Connectans* thus has all the characteristics of a typical hybrid population (i.e., variability, along with geographic and morphological intermediacy). Brumfield 2005; Fjeldså and Krabbe 1990; Isler et al. 2005; Meyer de Schauensee 1966; Ridgely and Tudor 1994.

Thamnophilus caerulescens [Lowlands Antshrike] See: *Thamnophilus aspersiventer*.

Thamnophilus marcapatae
[Marcapata Antshrike]

- × *Thamnophilus ruficapillus* [Rufous-capped Antshrike] ENHI. Ridgely and Tudor say these birds are “radically different,” but they are sometimes lumped. A population in Bolivia (*subfasciatus*) is geographically and morphologically intermediate and, thus, a

PHP of this cross. Ridgely and Tudor 1994 (pp. 231–232); Sibley and Monroe 1990 (p. 382).

Thamnophilus ruficapillus [Rufous-capped Antshrike] See: *Thamnophilus marcapatae*.

- Thripadectes virgaticeps*** [Streak-capped Treehunter] Two populations, (*sclateri*, *virgaticeps*), usually treated as races of this bird may hybridize in sw Colombia. Remsen 2003 (p. 342).

Upucerthia jelskii

[Plain-breasted Earthcreeper]

- × *Upucerthia validirostris* [Buff-breasted Earthcreeper] ENHR. Hybrid zone (“stepped cline”) is in the Andes along the western Bolivia–Argentina border. An abrupt shift in size occurs across the zone. These birds are sometimes treated as conspecific. Remsen 2003; Ridgely and Tudor 1994 (p. 32).

- Xenops minutus*** [Plain Xenops] Two populations (*mexicanus*, *ridgwayi*), treated as races of this bird, hybridize in s Honduras, as do two other such populations (*remoratus*, *ruficaudus*) in s Venezuela (Rio Casiquiare region). Remsen 2003.

- Xiphocolaptes major*** [Great Rufous Woodcreeper] Two populations (*castaneus*, *major*), treated as races of this bird, hybridize in nw Argentina. Marantz et al. 2003.

Xiphorhynchus elegans [Elegant Woodcreeper]

- × *Xiphorhynchus spixii* [Spix’s Woodcreeper] ENHI. These birds are sometimes lumped. Two populations (*insignis*, *juruanus*) are intermediate and thus PHPs of this cross, but the situation is complex and seems to involve a series of interbreeding populations which might be grouped in various ways. For example, *juruanus* intervenes between two populations (*elegans*, *ornatus*) that are morphologically similar to each other, but not to *juruanus*. Marantz et al. 2003 (p. 427); Ridgely and Tudor 1994 (p. 201).

Xiphorhynchus erythropygius

[Spotted Woodcreeper]

- × *Xiphorhynchus triangularis* [Olive-backed Woodcreeper] NHR. ACZ on w slope

of Andes (sw Colombia, w Ecuador).
Aleixo 2002.

Xiphorhynchus eytoni

[Dusky-billed Woodcreeper]

- × *Xiphorhynchus guttatus* [Buff-throated Woodcreeper] ENHR. Hybridization occurs in cen. Brazil (Amazonia). Due to hybridization, these birds are sometimes lumped. Ridgely and Tudor 1994 (p. 203); Zimmer 1934 (p. 2).

Xiphorhynchus guttatus

[Buff-throated Woodcreeper]

See also: *Xiphorhynchus eytoni*.

- × *Xiphorhynchus susurrans* [Cocoa Woodcreeper] ENHI (Amazonia). Populations (*connectans*, *guttatus*, *polystictus*) are intermediate and thus PHPs of this cross. Marantz et al. 2003 (p. 429).

Xiphorhynchus insignis [Hellmayr's

Woodcreeper] See: *Xiphorhynchus elegans* × *X. spixii*.

Xiphorhynchus juruanus [Ihering's

Woodcreeper] See: *Xiphorhynchus elegans* × *X. spixii*.

Xiphorhynchus obsoletus [Striped Woodcreeper]

Three populations (*notatus*, *obsoletus*, *palliatius*), treated as races of this bird, hybridize where they abut (n S. America). Marantz et al. 2003 (p. 428).

Xiphorhynchus picus [Straight-billed

Woodcreeper] According to Marantz et al., two groups of populations, the *picrostris* group and *picus* group, often lumped under Straight-billed Woodcreeper, have been "treated as separate species by some authors, but not by others because of apparent hybrids from lower R[io] Orinoco region of Venezuela." Within these two groups, variation is relatively minor, but between them, marked.

Marantz et al. 2003 (p. 435).

Xiphorhynchus spixii [Spix's Woodcreeper]

See: *Xiphorhynchus elegans*.

Xiphorhynchus susurrans [Cocoa

Woodcreeper] See: *Xiphorhynchus guttatus*.

Xiphorhynchus triangularis [Olive-backed

Woodcreeper] See: *Xiphorhynchus erythropygius*.

Australo-Papuan Treecreepers

Family Climacteridae

Climacteris affinis [White-browed Treecreeper]

- × *Climacteris picumnus* [Brown Treecreeper] ONHR. BRO: e Australia. Ford 1974a; Higgins et al. 2001; Keast 1961.

Climacteris leucophaeus

[White-throated Treecreeper]

- × *Climacteris minor* [Little Treecreeper] ENHI (e Australia). An intermediate population exists in se Queensland. Sibley and Monroe 1990 (p. 422).

Climacteris melanota [Black Treecreeper]

- × *Climacteris picumnus* [Brown Treecreeper] ENHR (ne Australia). A broad hybrid zone in n Queensland extends across the Burdekin Lynd Divide from near Cooktown and Croyden, to the vicinity of Hughenden and Townsville. These birds are now usually lumped due to hybridization. Ford 1986, 1987 (p. 176); Harrison 1970; Higgins et al. 2001.

Climacteris melanura

[Chestnut-bellied Treecreeper]

- × *Climacteris picumnus* [Brown Treecreeper] PCZ in Queensland (Australia). No hybrids as yet reported. Higgins et al. 2001.

Climacteris minor [Little Treecreeper]

See: *Climacteris leucophaeus*.

Climacteris picumnus [Brown Treecreeper]

See also: *Climacteris affinis*; *C. melanota*; *C. melanura*.

× ***Climacteris rufa*** [Rufous Treecreeper]

PCZ (Flinders Range, se Australia). No hybrids as yet reported. Higgins et al. 2001.

Climacteris rufa [Rufous Treecreeper]

See: *Climacteris picumnus*.

Lyrebirds

Family Menuridae

Menura novaehollandiae [Superb Lyrebird]

See: Appendix 2. Two populations (*victoriae* and *novaehollandiae*) usually treated as races of this bird have a hybrid zone in se Australia (New South Wales–Victoria border). Higgins et al. 2001.

Bowerbirds

Family Ptilonorhynchidae

Amblyornis macgregoriae [MacGregor's Bowerbird]

- × *Amblyornis subalaris* [Streaked Bowerbird]
ONHR (Papua New Guinea). ACZ at ~1,500 m in cen. cordillera of se peninsula (*macgregoriae* occurs above *subalaris*). Frith and Frith 1998, 2004 (p. 36).
- × *Archboldia papuensis* [Archbold's Bowerbird]
ACZ in Papua New Guinea at ~2,250 m (*papuensis* occurs above *macgregoriae*). No hybrids as yet reported. Frith and Frith 2004 (p. 37).

Archboldia papuensis [Archbold's Bowerbird]
Amblyornis macgregoriae.

Chlamydera maculata [Spotted Bowerbird]

- × *Chlamydera nuchalis* [Great Bowerbird]
ONHR. BRO: ne Australia. Hybridization occurs ~100 km sse of Charters Towers, Queensland (along both banks of the Cape R.). Frith and Frith 1995, 2004 (pp. 43, 424, 437); Frith et al. 1995.

Chlamydera nuchalis [Great Bowerbird] See: *Chlamydera maculata*. Two populations (*nuchalis*, *orientalis*), treated as races of this bird, have a hybrid zone at the head of the Gulf of Carpentaria. Frith and Frith 2004 (pp. 424, 426); Hall 1974; Schodde and Mason 1999.

Ptilonorhynchus violaceus [Satin Bowerbird]

- × *Sericulus chrysocephalus* [Regent Bowerbird]
NHR (e Australia). Rawnsley's Bowerbird (*Ptilonorhynchus rawnsleyi*), based on a specimen now missing, was probably this hybrid. Also known as the Blue Regent, it had the general appearance of a ♂ Regent, but greenish-blue irides and a yellow wing patch suggesting Satin parentage. It was taken at Brisbane, in July 1867. Marshall regarded it as a mutant Satin. Frith and Frith 1995, 2004 (pp. 17, 382, 387); Gilliard 1969; Gould 1969; Iredale 1950; Marshall 1954; Ramsay 1875; Stresemann 1930a; Suchet 1897a.

Sericulus ardens [Flame Bowerbird]

- × *Sericulus aureus* [Masked Bowerbird]
ONHR. These birds were long lumped, and

were not treated separately by Sibley and Monroe (1990), but have recently been split. Frith and Frith (2004, p. 30) say they "have distinctively different biometrics, adult male plumages, bill structure and colouration, and altitudinal ranges. They are all but allopatric, but meet and hybridize on the Wataikwa River, south Irian Jaya." Frith and Frith 2001, 2004.

Sericulus aureus [Masked Bowerbird]

See: *Sericulus ardens*.

Sericulus chrysocephalus [Regent Bowerbird]

See: *Ptilonorhynchus violaceus*.

Fairywrens

Family Maluridae

Malurus amabilis [Lovely Fairywren]

- × *Malurus lamberti* [Variegated Fairywren]
NHR (ne Australia). BRO: Cape York Penin. Ford 1987 (p. 175); Schodde 1982.

Malurus assimilis [Purple-backed Fairywren]

- × *Malurus lamberti* [Variegated Fairywren]
ENHR (e Australia). The hybrid zone is in the Great Dividing Range. Ford 1987 (p. 175); Harrison 1972; Mack 1934; Schodde 1982.

× *Malurus pulcherrimus* [Blue-breasted Fairywren] PCZ in s Western Australia.

No hybrids as yet reported. Ford 1987 (pp. 165, 176).

- × *Malurus rogersi* [Rogers's Fairywren] ENHR (nw Australia). The hybrid zone is in the s Kimberley Range and Victoria River region. These birds are sometimes lumped. Ford 1987 (p. 175); Ford and Johnstone 1991.

Malurus callainus [Turquoise Fairywren]

- × *Malurus melanotus* [Black-backed Fairywren]
ENHR (s Australia). HPF(vh). A population (*whitei*) on the w side of the Flinders range is geographically and morphologically intermediate and, thus, a PHP of this cross. Ford 1975a; Reid et al. 1977; Schodde 1982; Wilson 1983.

- × *Malurus splendens* [Splendid Fairywren]
CAENHR (Australia). HPF(vh). BRO: n Western Australia. A variable intermediate population exists in the s Gibson Desert. Ford 1975a, 1987 (p. 175); Keast 1961; IZY 1980.

Malurus cruentatus [Red-backed Fairywren]

× **Malurus melanocephalus** [Orange-backed Fairywren] ENHR (Australia). HPF(vh). A variable hybrid zone exists in ne Queensland (Burdekin-Lynd Divide and Einasleigh Uplands). Ford 1986, 1987 (p. 176).

Malurus cyaneus [Superb Fairywren]

× **Malurus melanocephalus** [Orange-backed Fairywren] There is a NHR (Australia). BRO: se Queensland. Wilson 1983.

Malurus elegans [Red-winged Fairywren]

× **Malurus pulcherrimus** [Blue-breasted Fairywren] There is a PCZ in sw Australia (inland margin of Jarrah-Marri area). No hybrids as yet reported. Ford 1966, 1987.

Malurus lamberti [Variegated Fairywren]

See: *Malurus amabilis*; *M. assimilis*.

Malurus leuconotus [Blue-and-white Fairywren]

× **Malurus leucopterus** [Black-and-white Fairywren] NHR (Australia). BRO: coastal in Western Australia (Peron Peninsula). Sedgwick 1967.

Malurus leucopterus [Black-and-white Fairywren] See: *Malurus leuconotus*.

Malurus melanotus [Black-backed Fairywren]

See: *Malurus callainus*.

Malurus melanocephalus [Orange-backed Fairywren] See: *Malurus cruentatus*; *M. cyaneus*.

Malurus pulcherrimus [Blue-breasted Fairywren] See: *Malurus assimilis*; *M. elegans*.

Malurus rogersi [Rogers's Fairywren] See: *Malurus assimilis*.

Malurus splendens [Splendid Fairywren] See: *Malurus callainus*.

Honeyeaters

Family Meliphagidae**Anthochaera carunculata** [Red Wattlebird]

× **Anthochaera chrysoptera** [Brush Wattlebird] NHR. BRO: se Australia. Sibley and Monroe 1990 (p. 438). Internet: SCRI.

Note: Australasian honeyeaters of the genus *Lichenostomus* seem to hybridize extensively in all well-studied areas of contact. Perhaps

for this reason, many populations that were once treated as separate species, with distinct English common names, are now often lumped in modern taxonomic listings. Ford 1987; Sibley and Monroe 1990.

Lichenostomus cassidix [Helmeted Honeyeater]

× **Lichenostomus melanops** [Yellow-tufted Honeyeater] ENHR (se Australia). An intermediate population occurs between the Latrobe River valley (Victoria) and Eden-Naroma (se New South Wales). This intermediate population (*gippslandicus*) was previously treated as a race of *L. melanops*. Although these two birds have long been treated as separate species, they are now often treated as conspecific (under the name "*Lichenostomus melanops*") due to hybridization. Ford 1987 (p. 177); Higgins et al. 2001 (p. 823). Internet: VIRID.

Lichenostomus fasciolaris

[Mangrove Honeyeater]

× **Lichenostomus versicolor** [Varied Honeyeater] ENHR (Australia). The Mangrove Honeyeater has a dark gray-brown breast band, while the Varied Honeyeater is uniformly bright yellow beneath. There is a narrow hybrid zone on the nw coast in Queensland near Cleveland Bay, where color shifts abruptly. Due to hybridization, these birds are now often lumped. Ford 1978a^f, 1982b; Higgins et al. 2001 (p. 763); Simpson and Day 1999 (p. 196). Internet: SCRI.

Lichenostomus flavescens [Yellow-tinted Honeyeater]

× **Lichenostomus fuscus** [Fuscous Honeyeater] ENHR (ne Australia). A population (*subgermana*), treated as a race of *L. fuscus*, resembles *L. flavescens*, and is adj. to it (ne Queensland). Its geographic and morphological intermediacy between *L. flavescens* and *fuscus* (a population treated as another race of *L. fuscus*) make it a PHP of this cross. *Fuscus* and *subgermana* have a narrow hybrid zone in the Dawson-Mackenzie Basin (e Queensland). These birds are sometimes treated as conspecific. Ford 1986; Higgins et al. 2001 (pp. 870, 878).

Lichenostomus fuscus [Fuscous Honeyeater] See: *Lichenostomus flavescens*.

Lichenostomus laetior [Golden-backed Honeyeater] See: *Lichenostomus gularis*.

Lichenostomus leucotis [White-eared Honeyeater] In Australia two populations treated as races of this bird, the large eastern *leucotis* and the small western *novaenoriae*, hybridize on the e edge of the 90–Mile Plain. Ford 1971.

Lichenostomus melanops [Yellow-tufted Honeyeater] See: *Lichenostomus cassidix*.

Lichenostomus penicillatus [White-plumed Honeyeater]

× **Phylidonyris pyrrhoptera** [Crescent Honeyeater] NHR (se Australia). Quinn 1978.

Note: Three populations (*sonoroides*, *versicolor*, *vulgaris*) treated as races of *Lichenostomus versicolor* hybridize where they meet. Ford 1978a; Higgins et al. 2001; Mayr and Rand 1935.

Lichenostomus versicolor [Varied Honeyeater] See: *Lichenostomus fasciularis*.

Lichenostomus virescens [Singing Honeyeater] This polytypic Australian species is composed of four populations (*cooperi*, *forresti*, *sonorus*, *virescens*), each morphologically uniform over its range. Narrow hybrid zones exist where they meet. Higgins et al. 2001 (pp. 751–752).

Lichmera indistincta [Brown Honeyeater] Two populations (*indistincta*, *ocularis*), treated as races of this bird, have a broad hybrid zone in the se Gulf of Carpentaria drainage (Australia). Higgins et al. 2001 (p. 982).

Note: Due to hybridization, the following trio are sometimes lumped.

Manorina flavigula [Yellow-throated Miner]

× **Manorina melanocephala** [Noisy Miner] ENHR. BRO: e Australia. Dow 1972; Ford 1981; Higgins et al. 2001 (p. 648); Short 1972a. Internet: SCRI.

× **Manorina melanotis** [Black-eared Miner] ENHR (se Australia). HPF(vh). Intense hybridization occurs just e of Adelaide in a restricted area of mallee scrub at the junction of the borders of New South Wales, Victoria, and South Australia. Backcrossing results in a

continuum of hybrids with the darkest almost indistinguishable from the Black-eared Miner, and the palest almost like the Yellow-throated. Darker and paler hybrids are not safely identifiable as hybrids in the field. No single character (or group of characters) is diagnostic of all hybrids. *M. flavigula* ranges over most of Australia, while *M. melanotis* has a restricted range. Higgins et al. state that “with only one possible exception, all known phenotypically pure Black-eared Miners occur in colonies that also contain hybrids.” This pervasive mixture, together with its restricted range, are causing the Black-eared Miner to be genetically swamped by the Yellow-throated. Ford 1981; Higgins et al. 2001 (pp. 665, 671–675); Joseph 1986; McLaughlin 1993; Serventy 1953; Sibley and Monroe 1990 (p. 437). Internet: SCRI.

Manorina melanocephala [Noisy Miner] See: *Manorina flavigula*.

Manorina melanotis [Black-eared Miner] See: *Manorina flavigula*.

Melidectes belfordi [Belford’s Melidectes]

× **Melidectes leucostephes** [Vogelkop Melidectes] ENHR (New Guinea). Mayr and Gilliard 1952.

× **Melidectes rufocrissalis** [Yellow-browed Melidectes] ENHR (cen. New Guinea). ACZ in Star, Hindenburg, Shrader, and Herzog mts, with *M. rufocrissalis* occurring below *M. belfordi*. Internet: DIGI.

Melidectes leucostephes [Vogelkop Melidectes] See: *Melidectes belfordi*.

Melidectes rufocrissalis [Yellow-browed Melidectes] See: *Melidectes belfordi*.

Melithreptus albogularis [White-throated Honeyeater] Two populations treated as races of *M. albogularis* (*albogularis*, *inopinatus*) hybridize in the Burdekin-Endeavor rivers region, (Queensland, Australia). Higgins et al. 2001 (p. 933).

Melithreptus brevirostris [Brown-headed Honeyeater] Three populations (*brevirostris*, *leucogenys*, *pallidiceps*), treated as races of *M. brevirostris*, hybridize where they abut (Australia). Higgins et al. 2001 (p. 925).

Melithreptus gularis [Black-chinned Honeyeater]
 × *Melithreptus laetior* [Golden-backed Honeyeater] ENHR (e Australia). Facial coloration changes abruptly at the hybrid zone (n side of the Einasleigh Uplands and Burdekin Divide). The facial skin of the northern *M. laetior* is yellow-green, that of the southeastern *M. gularis* is blue. These birds are sometimes lumped. Ford 1986, 1987; Higgins et al. 2001 (p. 906)

Melithreptus laetior [Golden-backed Honeyeater] See: *Melithreptus gularis*.

Myzomela cardinalis [Cardinal Honeyeater]

× *Myzomela jugularis* [Orange-breasted Myzomela] ENHR (s Pacific). Populations on Malaitae I. (*malaitae*) and New Ireland (*pulchella*) are PHPs of this cross. Koopman 1957 (p. 63).

× *Myzomela tristrami* [Sooty Myzomela] ONHR (n Melanesia). Hybrids occur on the island of San Cristobal. Diamond 2002; Koopman 1957 (p. 63); Mayr 1932; Mayr and Diamond 2001.

Myzomela jugularis [Orange-breasted Myzomela] See: *Myzomela cardinalis*.

Myzomela tristrami [Sooty Myzomela] See: *Myzomela cardinalis*.

Phylidonyris pyrrhoptera [Crescent Honeyeater] See: *Lichenostomus penicillatus*.

Ptiloprora erythropleura [Rufous-sided Honeyeater]

× *Ptiloprora perstriata* [Black-backed Honeyeater] These birds hybridize in the Wissel Lake area of New Guinea. Internet: SCRI.

Pardalotids

Family Pardalotidae

Acanthiza pusilla [Brown Thornbill] Several thornbills formerly separately treated are now usually lumped under *A. pusilla* because they hybridize in all zones of contact. They are distinct in range and appearance. Their former names were Brown-tailed Thornbill (*A. apicalis*), Tanami Thornbill (*A. tanami*), Whitlock's Thornbill

(*A. whitlocki*), White-bellied Thornbill (*A. albiventris*), and Brown Thornbill (*A. pusilla*). Boles 1983; Ford 1987; Panov 1989; Sibley and Monroe 1990 (p. 441); Simpson and Day 1999 (p. 184). Internet: SCRI.

Note: Due to extensive hybridization, three of the following four calamanthus (*C. campestris*, *C. isabellinus*, and *C. montanellus*) are now often lumped. They differ significantly, however, in morphology, including eye color.

Calamanthus campestris [Rufous Calamanthus]

× *Calamanthus fuliginosus* [Striated Calamanthus] ONHR. BRO: se Australia. Sibley and Monroe 1990 (p. 441). Internet: SCRI.

× *Calamanthus isabellinus* [Rusty Calamanthus] ENHR (Australia). BRO: S. Australia. Sibley and Monroe 1990 (p. 441).

Calamanthus fuliginosus [Striated Calamanthus] See: *Calamanthus campestris*.

Calamanthus isabellinus [Rusty Calamanthus] See also: *Calamanthus campestris*.

× *Calamanthus montanellus* [Rock Calamanthus] ENHR (Australia). BRO: sw Western Australia. Sibley and Monroe 1990 (p. 441).

Calamanthus montanellus [Rock Calamanthus] See: *Calamanthus isabellinus*.

Gerygone flavida [Fairy Gerygone]

× *Gerygone palpebrosa* [Black-headed Gerygone] ENHR (Australia). Hybrid zone near Rockhampton (e Queensland). Sibley and Monroe 1990 (p. 442).

× *Gerygone personata* [Black-throated Gerygone] ENHR (Australia). Hybrid zone near Cairns (ne Queensland). Ford 1977, 1987 (p. 176); Sibley and Monroe 1990.

Gerygone palpebrosa [Black-headed Gerygone] See: *Gerygone flavida*.

Gerygone personata [Black-throated Gerygone] See: *Gerygone flavida*.

Note: Due to extensive hybridization *P. melanocephalus*, *P. striatus*, *P. substriatus*, and *P. uropygialis* are now usually lumped (e.g., Ford 1987; Wolters 1975–1982 (p. 268)).

Pardalotus melanocephalus [Black-headed Pardalote]

- × *Pardalotus ornatus* [Red-tipped Pardalote] ENHR (e Australia). BRO: Chinchilla, Emu Vale, Grafton. Ford 1987; Grosper 1964.
- × *Pardalotus substriatus* [Striated Pardalote] ENHR (Australia). Hybrid zone lies along the Great Dividing Range in se Queensland between Charleville and Emu Vale. Ford 1987; Grosper 1964; Lord 1956; MacDonald 1969a; Salomonsen 1961.
- × *Pardalotus uropygialis* [Northern Pardalote] ENHR (Australia). BRO: ne Queensland. HPF(vh). A variably intermediate population exists at the base of the Cape York Penin. Ford 1986, 1987 (p. 177); Salomonsen 1961.

Pardalotus ornatus [Red-tipped Pardalote]
See also: *Pardalotus melanocephalus*.

- × *Pardalotus substriatus* [Striated Pardalote] ENHR (Australia). BRO: w edge of Great Dividing Range. See: *Pardalotus striatus* × *P. substriatus*. Cooper 1961; Ford 1987; Grosper 1964; Woinarski et al. 1983.

Pardalotus punctatus [Spotted Pardalote]

- × *Pardalotus xanthopygus* [Yellow-rumped Pardalote] ENHR (Australia). Hybrid zones occur in sw and se Australia where sclerophyll forests and mallee woodlands abut. Ford 1987 (p. 177); Milne 1936; Parker and Reid 1983; Short et al. 1983c; Woinarski 1984.

Pardalotus striatus [Yellow-tipped Pardalote]

- × *Pardalotus substriatus* [Striated Pardalote] ENHR (Australia). The hybrid zone is in e Victoria. The Red-tipped Pardalote (*Pardalotus ornatus*), often treated as a species, is a PHP of this cross. Ford 1987; Keast 1961; Salomonsen 1961.

Pardalotus substriatus [Striated Pardalote] See: *Pardalotus melanocephalus*; *P. ornatus*; *P. striatus*.

Pardalotus uropygialis [Northern Pardalote]
See: *Pardalotus melanocephalus*.

Pardalotus xanthopygus [Yellow-rumped Pardalote] See: *Pardalotus punctatus*.

Sericornis beccarii [Beccari's Scrubwren]

- × *Sericornis magnirostris* [Large-billed Scrubwren] ENHR. A narrow hybrid zone

exists in the n Cape York Penin. Christidis et al. 1988. Internet: SCRI.

- × *Sericornis nouhuysi* [Large Scrubwren] ENHR (New Guinea). Christidis et al. treated an intermediate population of nw New Guinea (*virgatus*) as a PHP of this cross. Christidis et al. 1988. Internet: SCRI.

Note: As listed in Sibley and Monroe (1990), *S. frontalis* is composed of three populations formerly treated as species (*S. frontalis*, White-browed Scrubwren; *S. laevigaster*, Buff-breasted Scrubwren; *S. maculatus*, Spotted Scrubwren). They ring the w, s, and e Australian coasts and hybridize extensively in their zones of contact. Within these populations, various subpopulations (*mellori*, *balstoni*, *ashbyi*, *tweedi*, *rosinae*, *harterti*, *humilis*, *flindersi*) have been treated as races, all of which apparently hybridize where they meet. *Rosinae* has been suggested as a product of hybridization between populations that flank it. Beruldsen 1973; Condon 1954; Ford 1985a, 1987 (p. 176); Keast 1961; Sibley and Monroe 1990.

Sericornis frontalis [White-browed Scrubwren]

- × *Sericornis kerri* [Atherton Scrubwren] ENHR. Hybrid zone is in e Australia. These birds are sometimes lumped. Joseph and Moritz 1993.

Sericornis kerri [Atherton Scrubwren]

See: *Sericornis frontalis*.

Sericornis magnirostris [Large-billed Scrubwren] See: *Sericornis beccarii*.

Sericornis nouhuysi [Large Scrubwren]

See: *Sericornis beccarii*.

Australo-Papuan Robins

Family Eopsaltriidae, Petroicidae

Microeca flavigaster [Lemon-bellied Flyrobin]

- × *Microeca tormenti* [Kimberley Flyrobin] ENHI (n Australia). A population in the Cambridge Gulf region (ne Western Australia) is variably intermediate. HPF(vh). These birds are sometimes treated as conspecific. Ford 1987 (p. 174); Johnstone 1984; Parker 1973; Sibley and Monroe 1990 (p. 445).

Microeca leucophaea [Jacky-Winter] Two populations (*leucophaea*, *pallida*), treated as races of the Jacky Winter, have a narrow hybrid zone along the e edge of the Carpentarian Barrier (n Australia). Ford 1987 (p. 175).

Microeca tormenti [Kimberley Flyrobin] See: *Microeca flavigaster*.

Petroica goodenovii [Red-capped Robin]
 × *Petroica multicolor* (♀) [Scarlet Robin] NHR (Australia). Mixed pairs have been observed in Queensland. Cooper 1973; Serventy 1953.

Petroica macrocephala [Tomtit]
 × *Petroica traversi* [Chatham Robin] ONHR (s Pacific). BRO: Mangere Island (e of New Zealand). As part of a protection program for the endangered Chatham Robin, eggs and chicks were cross-fostered in the nests of its relative, the Tomtit. Resultant imprinting of Chatham young on the Tomtit has led to hybridization. Ma and Lambert 1997.

Petroica multicolor [Scarlet Robin]
 See: *Petroica goodenovii*.

Petroica traversi [Chatham Robin]
 See: *Petroica macrocephala*.

Australo-Papuan Babblers

Family Pomatostomidae

Pomatostomus halli [Hall's Babbler]
 × *Pomatostomus superciliosus* [White-browed Babbler] PCZ in ne Australia (s Queensland, n New South Wales). No hybrids as yet reported. These birds are often lumped. Miura and Edwards found that *P. halli* has a northern and a southern population (the latter adj. to *P. superciliosus*) with two distinct haplotypes of mtDNA. It would be interesting to know whether the southern haplotype is the same as that of *P. superciliosus* (which would indicate hybridization). Miura and Edwards 2001; Sibley and Monroe 1990 (p. 449).

Pomatostomus rebeculus [Red-breasted Babbler]

× *Pomatostomus temporalis* [Grey-crowned Babbler] ENHR (Northern Territory,

Australia). Ford notes Storr considered the contact zone clinal but says there might be a step on the Carpentarian plain. These birds are often lumped. Ford 1987 (p. 175); Storr 1977.

Pomatostomus superciliosus [White-browed Babbler] See: *Pomatostomus halli*.

Pomatostomus temporalis [Grey-crowned Babbler] See: *Pomatostomus rebeculus*.

Shrikes

Family Laniidae

Lanius bucephalus [Bull-headed Shrike]

× *Lanius cristatus* [Brown Shrike] NHR. BRO: s Japan (Minami-daito I.). Takagi 2000.

Note: Hybridization occurs between various populations treated as races of *Lanius collaris* in their respective contact zones. Lefranc 1997 (p. 155); MacLean and MacLean 1976; Toll 1979.

Lanius collaris [Common Fiscal]

× *Lanius subcoronatus* [Latakoo Fiscal] ENHR (s Africa). Hybrid zone is in s Namibia and n S. Africa. Lefranc 1997 (p. 155).

Note: Sibley and Monroe (1990) say taxonomic treatment of *L. collurio*, *L. cristatus*, *L. isabellinus*, and *L. phoenicuroides* has been inconsistent. These birds have sometimes been lumped due to hybridization, but it has been more common to lump *L. collurio* and *L. isabellinus*, but keep *L. cristatus* separate. More recently, *collurio* and *cristatus* have been lumped, and *isabellinus* left separate. Wolters 1975–1982 (p. 232) says the following names refer to hybrids derived from the cross *L. collurio* × *L. isabellinus*: *andzarudnyi*, *bogdanowi*, *darwini*, *loudoni*, *pseudocollurio*, *raddei*, *salina*, *velizhanini*.

Lanius collurio [Red-backed Shrike]

× *Lanius cristatus* (♀) [Brown Shrike] ONHR (Siberia). HPF. BRO: e West Siberian Plain (on the upper Ob and w of Yenisei R. at about 80°E). This hybrid was treated as a species (*Lanius dichourus*). See Figure 9. Ackermann 1898; Kryukov and Gureev 1997;

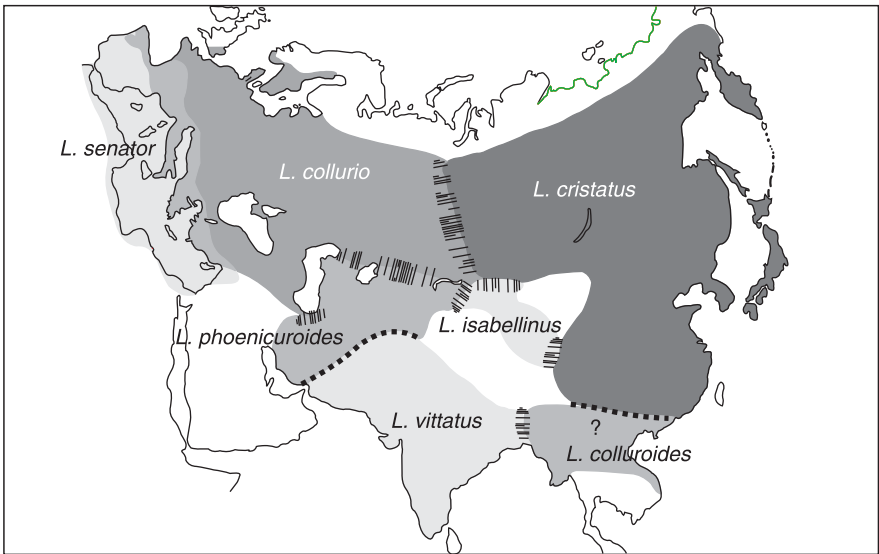


Figure 9. Contact zones between Eurasian shrikes (*cristatus-collurio* group). Hybrid zones: hatched regions. PCZs: dotted lines. Occasional hybridization occurs between *L. collurio* and *L. senator* along northern Mediterranean (shaded regions of overlap). Question marks indicate possible hybridization.

Mauersberger 1971a; Mayr 1942; Meise 1928a; Panov 1989; Stegmann 1930; Suchetet 1897a; Sushkin 1929.

- × *Lanius minor* [Lesser Grey Shrike]
NHR (Bulgaria, n Plevin). BRO: se Europe, Turkey, w Russia, w Siberia. See Figure 9. Eck 1973a, 1973b, 1975a; Harris 2000 (p. 198); Lefranc 1997 (p. 119); Nielsen 1981; Nikolov 2003; Panov 1989.
- × *Lanius phoenicurooides* [Rufous-tailed Shrike]
ENHR (sw Asia). A hybrid zone stretches across the Kirghiz Steppe from ne of L. Balkhash to ne of Aral Sea; there is a second hybrid zone se of the Caspian (Turkmenistan, n Iran). Hybrids occur, too, away from the zone, deep within the range of *L. isabellinus*. See Figure 9. Andrusenko and Panov 1993; Chylarecki 1991; Harris 2000 (p. 191); Kryukov 1995; Lefranc 1997 (Plate 3[†] and p. 94); Panov 1989; Panov 1983; Pearson 1979; Sibley and Monroe 1990 (p. 449); Voous 1979.
- × *Lanius senator* (↔ usu. ♀) [Woodchat Shrike] ONHR. BRO: n Mediterranean. Most

reports of mixed pairs are from France. See Figure 9. Bersuder and Koenig 1991; Boet and Boet 1988; Harris 2000 (pp. 181, 198, 379); Kleinschmidt 1930[†]; Lefranc 1993, 1997 (Plate 14[†] and p. 162); Lefranc et al. 1989; Lefranc and Worfolk 1997; Meise 1936a; Panov 1989; Panov 1983; Salzmann 1908; Uhlich and Holyński 1994.

Lanius colluroides [Burmese Shrike]

- × *Lanius cristatus* [Brown Shrike]
PCZ in s China. No hybrids as yet reported. See Figure 9. Harris 2000 (p. 76); Meinertzhagen 1954 (Map 11).
- × *Lanius vittatus* [Bay-backed Shrike]
ENHI (Bengladesh, w Myanmar). The breeding biology of *L. colluroides* is poorly known, but Harris says this bird is similar to *L. vittatus* in the extreme w of its range (i.e., in the region adjacent to the range of *L. vittatus*). This statement suggests extensive hybridization. See Figure 9. Harris 2000 (p. 205); Meinertzhagen 1954 (Map 11).

Lanius cristatus [Brown Shrike] See also:

Lanius bucephalus; *L. collurio*; *L. colluriooides*.

- × **Lanius isabellinus** [Isabelline Shrike] ONHR. PCZ (n China, Ningxia Prov., ne of Lanzhou). See Figure 9. Cramp and Perrins 1993; Harris 2000 (pp. 187, 191); Kryukov and Panov 1980; Lefranc 1997 (p. 97); Panov 1989; Sibley and Monroe 1990 (p. 449); Sokolov and Sokolov 1987; Voous 1979.
- × **Lanius tigrinus** [Tiger Shrike] NHR. ENHI. BRO: Japan, e China, e Russia (near Vladivostok). HPF: A population, *lucionensis*, is usually treated as a race of *L. cristatus*. With its gray head, and indistinct superciliary, *lucionensis* approaches *L. tigrinus* (with which it is broadly sympatric in e China). Harris 2000 (p. 187, also Plate 9, 20e compared to Plate 10, 22a); Kryukov 1995; Lefranc 1997 (p. 83); Lefranc and Worfolk 1997; Ohata 1991; Panov 1989; Panov 1974, 1983.

Lanius darwini

See: *Lanius phoenicuroides* × *L. shach*.

Lanius dichourus

See: *Lanius collurio* × *L. cristatus*.

Note: In addition to the contact between

L. excubitor and *L. meridionalis*, hybridization also occurs in internal contact zones between the various populations treated as races of these birds. Lefranc 1997; Salomonsen 1949.

Lanius excubitor [Great Grey Shrike]

- × **Lanius meridionalis** [Southern Grey Shrike] ENHI (s Siberia). A population (*leucopterus*), usually treated as a race of *L. excubitor*, is geographically and morphologically intermediate. It is therefore a PHP of this cross. This inference is based on illustrations (Plate 8, 15i; Plate 10, 16k) and maps (pp. 129, 138) in Lefranc. These birds are often lumped. Lefranc 1997.

Lanius isabellinus [Isabelline Shrike]

See also: *Lanius cristatus* and note immediately preceding *L. collurio*.

- × **Lanius phoenicuroides** [Rufous-tailed Shrike] ONHR. BRO: cen. Asia (Tianshan Mts.). See Figure 9. These birds are often lumped. Panov 1989.

Lanius meridionalis [Southern Grey Shrike]

See: *Lanius excubitor*.

Lanius minor [Lesser Grey Shrike]

See also: *Lanius collurio*.

- × **Lanius senator** [Woodchat Shrike] NHR (Hungary). A specimen collected at Fehértó in April 1979 is now thought to be this hybrid. Internet: LOXI.
- × **Lanius vittatus** [Bay-backed Shrike] Although no hybrids are as yet reported, Lesser Grey Shrikes are known to have approached Bay-backed Shrikes in courtship under natural conditions. BRO: s Kazakhstan. Harris 2000 (p. 379).
- Lanius nigriceps** [Black-headed Shrike]
- × **Lanius shach** [Rufous-backed Shrike] ENHR (n India). Due to hybridization, these birds are often lumped. Ali and Ripley 1973 (p. 348); Biswas 1950, 1962; Panov 1989; Panow 1983; Rand and Fleming 1957; Ripley 1982 (p. 266); Sultana and Bhunya 1981.
- × **Lanius tephronotus** [Grey-backed Shrike] NHR. BRO: e Nepal, s China. Panov 1989; Panow 1983.

Lanius phoenicuroides [Rufous-tailed Shrike]

See also: *Lanius collurio*; *L. isabellinus*.

- × **Lanius shach** [Rufous-backed Shrike] NHR. BRO: cen. Asia. This hybrid has been treated as a species (*L. darwini*). Panov 1989.
- × **Lanius vittatus** [Bay-backed Shrike] PCZ in Afghanistan. See Figure 9. No hybrids as yet reported, but Harris says *nargiansus*, a population, adj. to the PCZ (in se Iran, s Turkmenistan, Afghanistan, and e Pakistan) is variable. Variability is often a sign of hybridization. *Nargiansus* is often treated as a race of *L. vittatus*. Harris 2000 (pp. 72, 76, 204); Meinertzhagen 1954 (Map 11).

Lanius senator [Woodchat Shrike]

See: *Lanius collurio*; *L. minor*.

Lanius shach [Rufous-backed Shrike]

See also: *Lanius nigriceps*; *L. phoenicuroides*.

- × **Lanius tephronotus** [Grey-backed Shrike] ENHR (n India, w Nepal). A population, *lahulensis*, is a PHP of this cross. Due to hybridization, these birds are often lumped. Ali and Ripley 1973 (p. 348); Biswas 1950, 1962; Harris 2000 (p. 379); Panov 1989; Panow 1983.

Lanius subcoronatus [Latakoo Fiscal] See: *Lanius collaris*.

Lanius tephronotus [Grey-backed Shrike] See also: *Lanius nigriceps*; *L. shach*.

Lanius tigrinus [Tiger Shrike] See: *Lanius cristatus*.

Lanius vittatus [Bay-backed Shrike] See: *Lanius colluroides*; *L. minor*; *L. phoenicuroides*.

Vireos and Greenlets

Family Vireonidae

Hylophilus brunneiceps [Brown-headed Greenlet]

× *Hylophilus hypoxanthus* [Dusky-capped Greenlet] ENHI. A population in ne Brazil (*inornatus*) is morphologically intermediate and has been treated as a race of both *H. brunneiceps* and *H. hypoxanthus*. It is thus a PHP of this cross. Ridgely and Tudor 1989 (p. 157); Sibley and Monroe 1990 (p. 456); Zimmer 1942.

Hylophilus decurtatus [Grey-headed Greenlet]

× *Hylophilus minor* [Lesser Greenlet] ENHR (cen. Panama). A population, *darienensis*, has been treated as a race of both these birds. This history of treatment, along with the fact that it is also geographically intermediate, suggest *darienensis* as a PHP of this cross. The Smithsonian has specimens. Due to hybridization, these birds are now often treated as conspecific. Meyer de Schauensee 1966 (p. 428); Ridgely and Tudor 1989 (p. 159); Sibley and Monroe 1990 (p. 456); Stiles and Skutch 1989.

Hylophilus hypoxanthus [Dusky-capped Greenlet]

See: *Hylophilus brunneiceps*.

Hylophilus minor [Lesser Greenlet]

See: *Hylophilus decurtatus*.

Note: Distinct western (California, Arizona, and New Mexico) and eastern (Texas eastward) populations of Cassin's Vireo (*Vireo cassinii*) can be recognized in the field. Hybrids occur in w Texas. Sibley 2000 (p. 345).

Note: The following three birds are often lumped.

Vireo cassinii [Cassin's Vireo]

× *Vireo plumbeus* [Plumbeous Vireo] ONHR (e California). Genetic analysis of individuals from the contact zone indicates hybridization. Cicero and Johnson 1998; Sibley 2000 (p. 349).

× *Vireo solitarius* [Solitary Vireo] NHR. PCZ in w Canada (e British Columbia, w Alberta). In the contact zone these birds sing similar songs and mtDNA analyses indicate hybridization. James 1998; Murray et al. 1994; Sibley 2000 (p. 349).

Vireo flavifrons [Yellow-throated Vireo]

× *Vireo solitarius* (♀) [Solitary Vireo] NHR. BRO: e U.S., se Canada. A winter migrant specimen was taken in Guatemala (USNM #A20402). It was formerly treated as a species (*Vireo propinquus*, *Vireosylvia propinqua*), but is now considered to be this hybrid. Other, putative hybrids have been reported. Hauser observed a mixed pair building a nest. Numerous records, primarily from Massachusetts, of Yellow-throated Vireos singing the song of the Solitary, and vice versa, or of one bird singing both songs. Bagg and Eliot 1937; Bent 1965 (p. 286); Brewster 1903, 1906; Hauser 1959; James 1984; Miller et al. 1957; Ridgway 1901–1950 (Part 3); Sibley 2000; Townsend 1920.

Vireo olivaceus [Red-eyed Vireo]

× *Vireo philadelphicus* [Philadelphia Vireo] NHR. BRO: ne U.S., Canada. The Smithsonian has a hybrid (USNM #109920) taken in Canada (Godbout, Quebec).

Vireo philadelphicus [Philadelphia Vireo]

See: *Vireo olivaceus*.

Vireo plumbeus [Plumbeous Vireo]

See: *Vireo cassinii*.

Vireo propinquus

See: *Vireo flavifrons* × *V. solitarius*.

Vireo solitarius [Solitary Vireo]

See: *Vireo cassinii*; *V. flavifrons*.

Quail-thrushes

Family Cinclosomatidae

Cinclosoma castaneothorax [Chestnut-breasted Quail-thrush]

× *Cinclosoma cinnamomeum* [Cinnamon Quail-thrush] ONHR (Beal Range, Queensland, Australia). Due to hybridization, these birds are now sometimes lumped. Ford 1970, 1983a, 1987 (p. 175).

Cinclosoma castanotus [Chestnut Quail-thrush]

× *Cinclosoma cinnamomeum* [Cinnamon Quail-thrush] ONHR (e Australia). Ford 1974b, 1983a; Sibley and Monroe 1990. Internet: DIGI.

× *Cinclosoma marginatum* [Western Quail-thrush] NHR? A ♂ bird taken at Armstrong Creek, extreme sw N. Territory, Australia may have been this hybrid. It was paired with a ♀ *C. castanotus*. Ford 1970 (p. 137).

Cinclosoma cinnamomeum [Cinnamon Quail-thrush] See: *Cinclosoma castaneothorax*; *C. castanotus*.

Cinclosoma marginatum [Western Quail-thrush] See: *Cinclosoma castanotus*.

Sittellas

Family Neosittidae

Note: The following five birds (*Daphoenositta chrysoptera*, *D. leucocephala*, *D. leucoptera*, *D. pileata*, *D. striata*) differ more from each other in appearance than do many birds ranked as separate species. They were treated separately until they were found to hybridize in all regions of contact. They are now often lumped, under the name of Varied Sittella (*Daphoenositta chrysoptera*). The five hybrid zones have a star-shaped configuration (see Figure 10), with all five converging to a single region in cen. Queensland, where there is a variable swarm of hybrids that can have ancestry involving up to five different types (Short et al. 1983a).

Daphoenositta chrysoptera [Orange-winged Sittella]

× *Daphoenositta leucocephala* [White-headed Sittella] ENHR (Australia). A hybrid zone stretches from the e coast near Brisbane to

cen. Queensland. See Figure 10. Ford 1980a, 1987; Mayr 1950; Short et al. 1983b.

× *Daphoenositta pileata* [Black-capped Sittella] ENHR (Australia). A hybrid zone stretches from the w coast of Victoria to cen. Queensland. See Figure 10. Ford 1980a, 1987; Mayr 1950.

Daphoenositta leucocephala [White-headed Sittella]

See also: *Daphoenositta chrysoptera*.

× *Daphoenositta striata* [Striated Sittella] ENHR (Australia). A hybrid zone extends from the ne coast near Bowen to cen. Queensland. Ford 1980a, 1987; Mayr 1950.

Daphoenositta leucoptera [White-winged Sittella]

× *Daphoenositta pileata* [Black-capped Sittella] ENHR (Australia). A hybrid zone extends from cen. N. Territory to cen. Queensland. See Figure 10. Ford 1987; Ford and Parker 1974; Mayr 1950; Parker 1970.

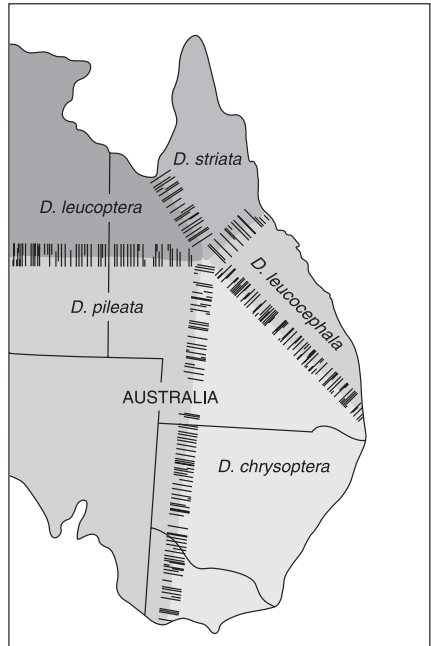


Figure 10. Five hybrid zones between five sittellas (*Daphoenositta*) converge in north central Queensland. Hatching indicates hybrid zones.

- × *Daphoenositta striata* [Striated Sitella] ENHR (Australia). A hybrid zone stretches from the Gulf of Carpentaria near Normanton to cen. Queensland. See Figure 10. Ford 1987; MacDonald 1969b; Mayr 1950; Short et al. 1983a.

Daphoenositta pileata [Black-capped Sitella]
See: *Daphoenositta chrysoptera*; *D. leucoptera*.

Daphoenositta striata [Striated Sitella]
See: *Daphoenositta leucocephala*; *D. leucoptera*.

Whistlers and Shrike-thrushes

Family Pachycephalidae

Colluricincla harmonica [Grey Shrike-thrush]

- × *Colluricincla rufiventris* [Western Shrike-thrush] ENHR (Flinders Range, s Australia). Due to hybridization, these birds are sometimes lumped; the Northern Shrike-thrush (*Colluricincla brunnea*), too, is sometimes lumped with this pair. Ford 1974a, 1987 (p. 175); Sibley and Monroe 1990 (p. 462).

Colluricincla megarhyncha [Rufous Shrike-thrush]

- × *Colluricincla parvula* [Little Shrike-thrush] ENHR (n Australia). A hybrid population exists at the mouth of the Roper R. (N. Territory). It is exactly intermediate. The bill is blue-gray in hybrids. In vent color, wing and tail dimensions, as well as superciliary color and length, they are intermediate. An additional intermediate population (*aelpes*), at the mouth of the McArthur R. and on the Sir Edward Pellew Is., is more similar to *C. megarhyncha*. Due to hybridization, these birds are now often lumped. Ford 1979; Schodde and Mason 1975; Sibley and Monroe 1990.

Colluricincla parvula [Little Shrike-thrush]
See: *Colluricincla megarhyncha*.

Colluricincla rufiventris [Western Shrike-thrush] See: *Colluricincla harmonica*.

Pachycephala leucogastra [White-bellied Whistler]

- × *Pachycephala monacha* [Black-bellied Whistler] ONHR (New Guinea). Internet: PAPG.

Pachycephala melanura [Black-tailed Whistler]

- × *Pachycephala pectoralis* [Golden Whistler] NHR. BRO: Melanesia. Diamond 2002.
× *Pachycephala spinicauda* [Robust Whistler] ENHR (nw Australia). Intermediate populations connect *P. melanura* with *P. spinicauda* (between Port Warrender and Napier Broome Bay, Kimberley, in the extreme n of Western Australia). Ford 1978b, 1982b, 1982c, 1983b, 1987.

Pachycephala monacha [Black-headed Whistler]

- See also: *Pachycephala leucogastra*.
× *Pachycephala rufiventris* [Rufous Whistler] ONHR (se New Guinea). Sibley and Monroe 1990 (p. 461).

Note: Some 60 named populations have been treated as races of *Pachycephala pectoralis*, or, sometimes, as separate species. Many hybridize.

Pachycephala pectoralis [Golden Whistler]
See also: *Pachycephala melanura*.

- × *Pachycephala spinicauda* [Robust Whistler] ENHR (Whitney I.). These birds are connected by an intermediate population and are sometimes lumped. Ford 1987 (p. 175); Mayr and Diamond 2001; Sibley and Monroe 1990.

Pachycephala rufiventris [Rufous Whistler]
See: *Pachycephala monacha*.

Pachycephala spinicauda [Robust Whistler]
See: *Pachycephala melanura*; *P. pectoralis*.

Jays and Magpie-Jays

Family Corvidae

Aphelocoma californica [Scrub Jay]

- × *Aphelocoma coerulescens* [Florida Jay] CHR. DRS. Webber and Cox 1987.
× *Aphelocoma ultramarina* (♂?) [Mexican Jay] ENHI (s U.S., n Mexico). A population in the border mts of Texas and Coahuila, *couchii*, usually treated as a race of *A. ultramarina*, is morphologically, geographically, behaviorally, and genetically intermediate and, thus, a PHP of this cross. Brown and Li discussed two alternative explanations of *couchii*'s similarity to the Scrub Jay: (1) convergence due to similar habitats; (2) origin of

couchii through hybridization. They concluded that the high levels of variability (heterozygosity) seen in *couchii* are inconsistent with the first of these two hypotheses (but see Bhagabati et al. 2004 *contra*).

Couchii is intermediate in many different respects. For example, some *couchii* eggs are spotted like the Scrub Jay's, some unspotted, as in the Mexican Jay. *Couchii* has a Scrub-Jay-like rattle call not produced by members of other populations treated as races of the Mexican Jay further south. A second PHP of this cross, *gracilis*, occurs in w Mexico. No direct hybridization of the pure parental types is observed in this case because they are separated by the hybrid populations, but Brown and Li suggest that given the ethology and relative sizes of the birds involved, the direction of the cross would likely be ♂ Mexican × ♀ Scrub. Bhagabati et al. 2004; Brown and Horvath 1989; Brown and Li 1995; Strahl and Brown 1987.

- × *Cyanocitta stelleri* [Steller's Jay] NHR (Washington). BRO: w U.S. A juvenile hybrid associated with a mixed pair of adults was observed in Tacoma. in 1999. Internet WOS62[†].

Aphelocoma coerulescens [Florida Jay]

See also: *Aphelocoma californica*.

- × *Cyanocitta cristata* [Blue Jay] NHR. BRO: Florida (U.S.). A mixed pair was observed in St. Johns Co., Florida. Subsequently the Scrub Jay parent was seen in the company of three hybrid young. Morgan and Morgan 1997[†].

Aphelocoma ultramarina [Mexican Jay]

See also: *Aphelocoma californica*.

- × *Aphelocoma unicolor* [Unicolored Jay] ENHI (Mexico). Eastern and western populations of the Unicolored Jay are outwardly similar, but the eastern population is genetically very similar to the local population of the Mexican Jay. Brown and Li 1995 (p. 470); Peterson 1992.

Aphelocoma unicolor [Unicolored Jay]

See: *Aphelocoma ultramarina*.

Calocitta collicie [Black-throated Magpie-Jay]

- × *Calocitta formosa* [White-throated Magpie-Jay] ONHR (w Mexico). Hybrids are reported from Jalisco. Contact occurs in Colima. Although sometimes lumped, these forms are markedly distinct (see Hardy fig. 9). Goodwin 1986a; Hardy 1969.

- × *Cyanocorax beecheii* [Purplish-backed Jay] CHR. BRO: Pacific Mexico (s Sonora to Nayarit). These birds are markedly different in appearance. The hybrid is more like *C. beecheii* than the Magpie Jay. However, the cross in question here may instead have been *Calocitta formosa* × *Cyanocorax beecheii*. Pulich and Dellinger 1982.

Calocitta formosa [White-throated Magpie-Jay]

See also: *Calocitta collicie*.

- × *Cyanocorax beecheii* [Purplish-backed Jay]

See *Calocitta collicie* × *Cyanocorax beecheii*.

- × *Psilorrhinus morio* [Brown Jay] NHR. BRO: Cen. America. Pitelka et al. 1956[†].

Cyanocitta cristata [Blue Jay]

See also: *Aphelocoma coerulescens*.

- × *Cyanocitta stelleri* [Steller's Jay] ONHR (U.S., Canada). HPF (♂ & ♀). Most hybrids occur on e fringe of Rocky Mts. Campbell et al. 1997 (vol. 3); Rising 1983a; Wilde 1993; Williams and Wheat 1971[†].
- × *Cyanocorax luxuosus* (♂) [Green Jay] CHR. BRO: s Texas near Corpus Christi (U.S.), probable PCZ. In a mixed mating described by Pulich and Dellinger, an initial clutch failed, but one ♂ hybrid hatched from a second clutch in 1965 and lived 12 years. The specimen is in the vertebrate collection of the Univ. of Texas (Arlington, #UTA 730). The hybrid's call was like that of a Blue Jay. It also responded to the calls of wild Blue Jays. The green plumage of *C. luxuosus* was absent in the hybrid, which had the blue color of a Blue Jay, but the black facial mask of a Green Jay. IZY 1967; Pulich and Dellinger 1982.

Cyanocitta stelleri [Steller's Jay] See:

Aphelocoma californica; *Cyanocitta cristata*.

Cyanocorax beecheii [Purplish-backed Jay]

See: *Calocitta collicie*; *C. formosa*.

Cyanocorax caeruleus [Azure Jay]
 × *Cyanocorax cristatellus* [Curl-crested Jay]
 PCZ on São Paulo–Paraná border (s Brazil).
 No hybrids as yet reported. Goodwin 1986a;
 Ridgely and Tudor 1989.

Cyanocorax chrysops [Plush-crested Jay]
 × *Cyanocorax cyanopogon* [White-naped Jay]
 NHR (Brazil). BRO: s Pará. An apparent
 hybrid is reported from Alagoas, but see
 Hardy (p. 365) *contra*, who points out that
 Alagoas is not geographically intermediate.
 Perhaps Alagoas was the site of purchase,
 not collection. These birds are sometimes
 lumped. Goodwin 1986a; Hardy 1969;
 Meyer de Schauensee 1966.

Cyanocorax cristatellus [Curl-crested Jay]
 See: *Cyanocorax caeruleus*.

Cyanocorax cyanopogon [White-naped Jay]
 See: *Cyanocorax chrysops*.

Cyanocorax luxuosus [Green Jay]
 See also: *Cyanocitta cristata*.

× *Cyanocorax yncas* [Inca Jay] ENHI. These
 different-looking birds (e.g., *C. luxuosus* is
 pale green below where *C. yncas* is bright
 yellow) have often been lumped since it was

found that a population (*guatemalensis*) in
 nw S. America, usually treated as a race of
C. yncas, is geographically and morphologi-
 cally intermediate, and so a PHP of this
 cross. Goodwin 1986a.

Cyanocorax sanblasianus [San Blas Jay]
 × *Cyanocorax yucatanicus* [Yucatan Jay] CHR.
 DRS. These birds are very similar. Hardy and
 Raitt 1974; Pulich and Dellinger 1982.

Cyanocorax yucatanicus [Yucatan Jay] See:
Cyanocorax sanblasianus.

Cyanolyca turcosa [Turquoise Jay]
 × *Cyanolyca viridicyana* [Collared Jay] NHR
 (Andes, Ecuador). These birds are some-
 times lumped. The range of the Collared Jay
 is split by the Turquoise Jay (see p. 22). It
 has a white collar, the Turquoise Jay, a black
 one. Two seemingly identical populations of
 the latter occur, one to the n and one to the
 s of the former. Hybrids occur in both con-
 tact zones. Fjeldså and Krabbe 1990.

Note: The following (*Garrulus*) crosses involve
 birds that have been listed as separate
 species, but which hybridize where their
 ranges meet. See Figure 11. They are often

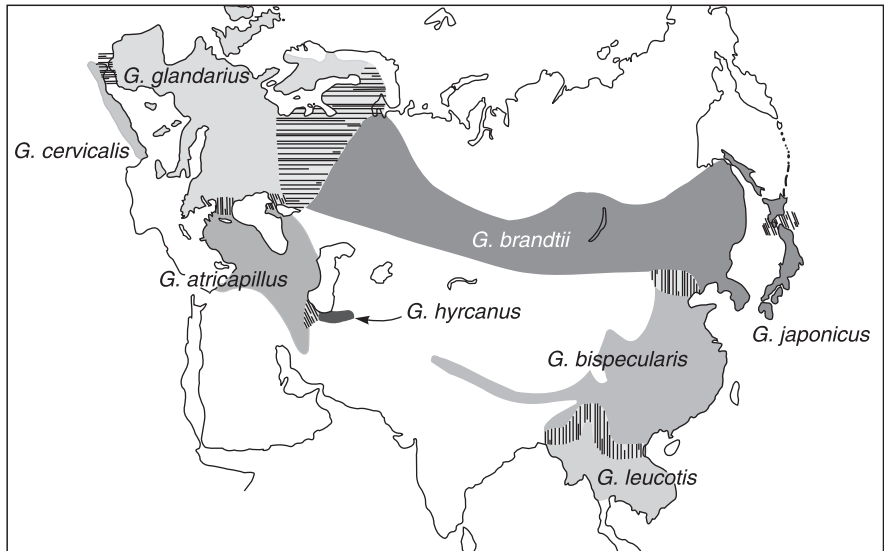


Figure 11. Hybridization in *Garrulus*. Hatched regions are hybrid zones.

lumped under *Garrulus glandarius* (Eurasian Jay).

Garrulus atricapillus [Black-capped Jay]

× *Garrulus glandarius* [Eurasian Jay] ONHR?

BRO: se Europe. Sibley and Monroe says most *Garrulus* jays hybridize where their ranges meet. See Figure 11. Harrison 1982 (p. 307); Sibley and Monroe 1990 (p. 465).

× *Garrulus hyrcanus* [Iranian Jay] ENHR (n Iran). Hybrid zone is in sw Caspian region. See Figure 11. Harrison 1982 (p. 307); Madge and Burn 1994 (p. 96); Sibley and Monroe 1990 (p. 465).

Garrulus bispecularis [Himalayan Jay]

× *Garrulus brandtii* [Brandt's Jay] ENHR (n China) Goodwin 1986a (pp. 206, 207) says a population in ne China (*pekingensis*) is probably composed of hybrids from this cross. See Figure 11. Harrison 1982 (p. 307); Sibley and Monroe 1990.

× *Garrulus leucotis* [White-faced Jay] ENHR (se Asia). Hybrid populations occur in n Myanmar (*harringtoni*, *oatesi*). See Figure 11. Goodwin 1986a (pp. 194, 208); Harrison 1982 (p. 307); Madge and Burn 1994 (p. 96); Sibley and Monroe 1990.

Garrulus brandtii [Brandt's Jay]

See also: *Garrulus bispecularis*.

× *Garrulus glandarius* [Eurasian Jay] ENHR. A broad hybrid zone stretches from Finland to Black Sea. The hybrid was treated as a race (*svetzwovi*). See Figure 11. Goodwin 1986a (p. 194); Harrison 1982 (p. 307); Sibley and Monroe 1990.

× *Garrulus japonicus* [Japanese Jay] ONHR (Japan)? PCZ at the Tsugaru Strait. Sibley and Monroe do not mention this cross specifically, but note that most *Garrulus* jays “hybridize where their ranges meet.” See Figure 11. Harrison 1982 (p. 307); Sibley and Monroe 1990 (p. 465).

Garrulus cervicalis [Black-crowned Jay]

× *Garrulus glandarius* [Eurasian Jay] ONHR? PCZ at Strait of Gibraltar. Sibley and Monroe say most *Garrulus* jays hybridize where their ranges meet. See Figure 11. Harrison

1982 (p. 307); Sibley and Monroe 1990 (p. 465).

Garrulus glandarius [Eurasian Jay]

See: *Garrulus atricapillus*; *G. brandtii*; *G. cervicalis*; *Perisoreus infaustus*.

Garrulus hyrcanus [Iranian Jay] See: *Garrulus atricapillus*.

Garrulus japonicus [Japanese Jay] See: *Garrulus brandtii*.

Garrulus leucotis [White-faced Jay] *Garrulus bispecularis*.

Perisoreus infaustus [Siberian Jay]

× ~~*Bombycilla garrulus*~~ [Bohemian Waxwing] BRO: n Scandinavia, Russia. In error, Gray cites Ackermann for the cross *Perisoreus infaustus* × *Garrulus glandarius*, who instead lists *Perisoreus infaustus* × *Bombycilla garrulus* (as *Garrulus infaustus* × *Ampelis garrulus*). However, Ackermann cites only a single, very old listing (Sundevall 1845) which seems unreliable for such a disparate cross. Ackermann 1898 (p. 33). Gray 1958 (p. 188).

Psilorhinus morio [Brown Jay] See: *Calocitta formosa*.

Crows, Ravens, Magpies, and Nutcrackers

Family Corvidae

***Corvus* sp.**

× *Corvus frugilegus* [Rook] Wassman says aberrant birds from n Germany may be hybrids of the Rook with some other corvid. Wassmann 1988.

Corvus albicollis [White-necked Raven]

× *Corvus albus* [Pied Crow] A natural mixed mating was observed. BRO: s and e Africa. No hybrids as yet reported. Grobler 1974.

Corvus albus [Pied Crow]

See also: *Corvus albicollis*.

× *Corvus ruficollis* [Brown-necked Raven] CAENHR (Horn of Africa). HPF(♂ & ♀).

Reported hybridization involves a population (*edithae*) usually treated as race of the Brown-necked Raven, but sometimes as a separate species (Dwarf Raven), which occurs in the Somali Rep. and in se Ethiopia

as far w as the Galama Mts. (cen. Arsi). Blair saw hundreds of hybrids in the highlands of cen. Ethiopia s of Addis Ababa (Arsi, Bale). He says mixed pairs of pure parental types are rare within the hybrid zone. Smith, however, observed such a pair in Eritrea at Thio (*C. ruficollis* ♂ × *C. albus* ♀). Since it is intermediate in range and morphology (it closely resembles the Brown-necked in coloration, but is similar to Pied in size and build), *edithae* is a PHP of this cross.

As yet, in the long PCZ to the w (lower rim of Sahara), there are no reports of hybridization, perhaps due to lack of investigation. Alamargot 1987; Antonius 1933; Ash 1983; Blair 1961; Goodwin 1986a; Hall and Moreau 1970; Jollie 1978; Kleinschmidt 1906[†]; Londei 2005; Madge and Burn 1994[†]; Meise 1975; Smith 1957 (p. 326).

- × *Corvus splendens* (♀) [House Crow] CHR. BRO: Possible contact in ne Africa and s Arabian Penin. Zukowsky 1951.

Corvus brachyrhynchos [American Crow]

- × *Corvus caurinus* [Northwestern Crow] ENHR. Long PCZ in Washington state (U.S.) and British Columbia (Canada). On the basis of voice, habitat, nesting habits, and morphology, Johnston concluded hybridization is common in nw Washington. Near the contact zone, birds looking like American Crow often have a lower, hoarser call than eastern birds (thus approaching Northwestern). Hybrids between these similar birds can be hard to identify. Johnston 1961; Ratti 1984; Sibley 2000 (p. 360).

- × *Corvus corax* [Raven] NHR. BRO: s Canada, w U.S. A mixed pair and hybrid young were observed in Ontario. Jefferson 1994.

Corvus capellanus [Mesopotamian Crow]

- × *Corvus corone* [Carriion Crow] ENHR (Zagros Mts., Iran). See Figure 12. These birds are markedly distinct in build, plumage, and egg coloration. Though long treated as separate species, since they were found to hybridize, they have

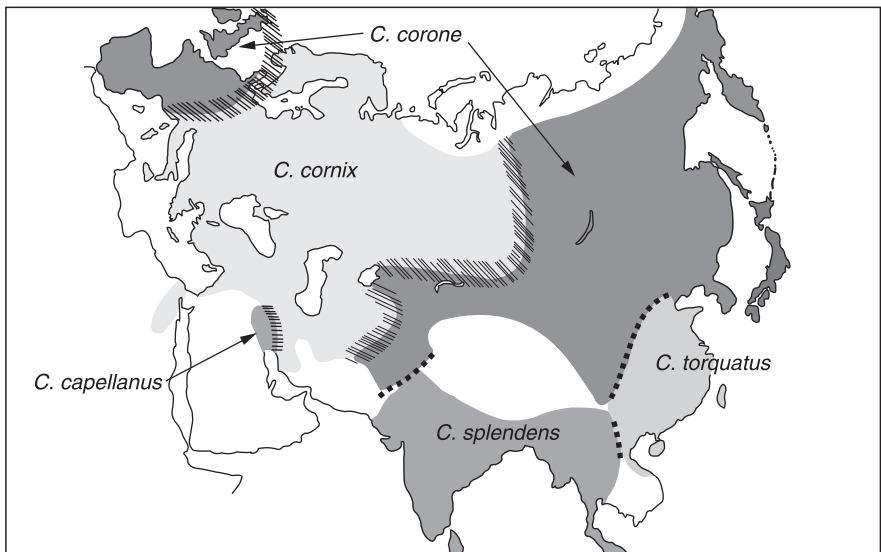


Figure 12. The range of the Hooded Crow (*Corvus cornix*) lies between the two widely separated ranges of the Carriion Crow (*C. corone*). Active hybrid zones exist at both interfaces. The Hooded Crow also hybridizes with the Mesopotamian Crow (*C. capellanus*) in the Middle East. Hatched regions: hybrid zones. Dotted lines: PCZs.

often been lumped. The hybrid zone stretches from the slopes of the Zagros Mts. to Luristan. Hybrids are also reported from the north of Baghdad. See: *Corvus cornix* × *C. corone*. Goodwin 1986a; Madge and Burn 1994; Moore and Boswell 1956; Vaurie 1959a.

Corvus caurinus [Northwestern Crow] See: *Corvus brachyrhynchos*.

Corvus corax [Common Raven]
See also: *Corvus brachyrhynchos*.

- × ***Corvus corone*** [Carrion Crow] NHR. BRO: Europe, Far East. Ackermann 1898; Meise 1936a; Suchetel 1897a.
- × ***Corvus cryptoleucus*** [Chihuahuan Raven] ENHR (sw U.S.). Hybrids are like small *C. corax* and are hard to tell from Chihuahuans. Sibley 2000 (p. 359).
- × ***Corvus leuallantii*** [Jungle Crow] ENHI (n India). A Himalayan population (*intermedius*) treated as a race of *C. leuallantii* is geographically and morphologically intermediate between *C. corax* and a second

population, *culminatus*, treated as a race of *C. leuallantii*. So *intermedius* is a PHP of this cross. These birds have bigger, heavier bills than *culminatus* birds. They also have wedge-shaped tails and harsher, raven-like calls. Their vocalizations include many bell-like tones. See Figure 13. Ali 1961; Goodwin 1986a (p. 96); Grimmett et al. 1998 (pp. 398–399); Madge and Burn 1994.

- × ***Corvus macrorhynchos*** [Large-billed Crow] ENHI (Tibet, China). A population (*tibetosinensis*) usually treated as a race of *C. macrorhynchos* is intermediate in morphology and range between *C. corax* and other populations treated as races of *C. macrorhynchos*, which suggests *tibetosinensis* as a PHP of this cross. Brazil notes that intermediate birds occur, also, in the north of Japan (Hokkaido) in winter. See Figure 13. Ali and Ripley 1973; Brazil 1991 (p. 249); Grimmett et al. 1998 (pp. 398–399); MacKinnon and Phillipps 2000.

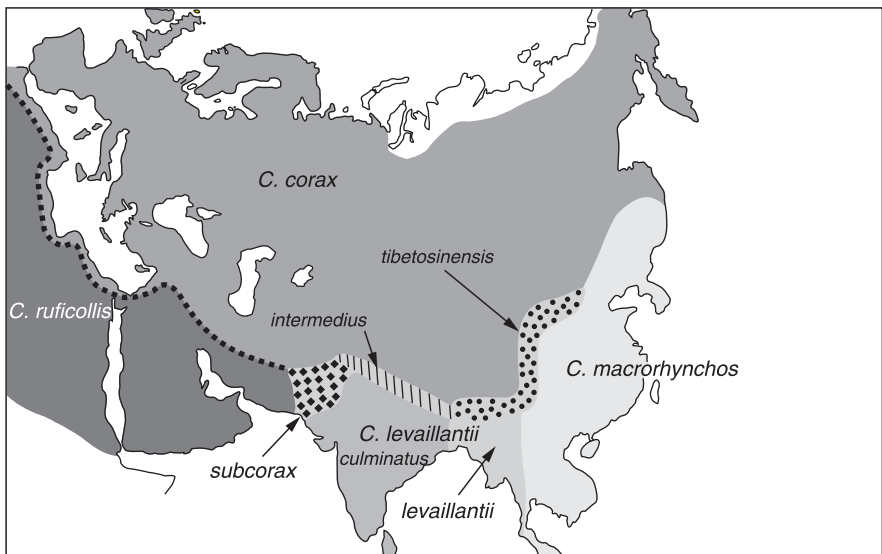


Figure 13. Four PHPs between Asian corvids: *intermedius* (*corax* × *culminatus*); *leuallantii* (*culminatus* × *macrorhynchos*); *subcorax* (*corax* × *ruficollis*); *tibetosinensis* (*corax* × *macrorhynchos*). Dotted line: PCZ (with possible hybridization).

× *Corvus ruficollis* [Brown-necked Raven] ENHI. Goodwin (1986a) notes that many birds from *C. corax* populations in Afghanistan, Sind, Rajputana, and Punjab are morphologically intermediate. Probable hybrids occur in the *subcorax* population of Pakistan and nw India. The individuals that are most intermediate have a brownish head and neck, but in general, members of *subcorax* are intermediate because they are smaller than typical ravens and have shorter throat hackles; in addition, *subcorax* is geographically intermediate and variable. These facts suggest *subcorax* as a PHP of this cross. PCZ stretches from Iran to Morocco. See Figure 13. Goodwin 1986a (pp. 69, 125); Meinertzhagen 1926.

Corvus cornix [Hooded Crow]

× *Corvus corone* [Carrion Crow] ENHR. HPF (♂ & ♀). Because the Carrion Crow has a split range (see p. 22) with the Hooded Crow intervening (see Figure 12), there are two long contact zones, one extending from n Ireland, though n Scotland, to nw Germany, then s to n Italy, and another stretching from the Gulf of Ob (n Russia) to the Aral Sea. These zones are relatively stable, but the European zone seems to be shifting slowly westward. The eastern zone is 150 km wide, but hybrid plumage characters are detectable up to 700 km away. Even in the center of the zone, only 30% of birds are obviously intermediate. Due to hybridization these birds are now sometimes lumped, but Parkin et al. (2003) recommend against this treatment since the two have obvious differences in plumage, as well as in vocalizations and ecology, and because hybrids have lower reproductive success than either parental type. Hybrid young are less viable, too, than young produced from unmixed matings (Saino and Villa 1992). Genetic variability increases within the hybrid zone (as has been observed in many other types of crosses). Occasional mixed pairs occur well outside zones (e.g., Schlyter reports one from Sweden). See: *Corvus capellanus* × *C. corone*. Ackermann 1898;

Aubrecht 1983; Backhouse 1901; Bahrmann 1960; Bechtold 1975; Blinov and Kryukov 1989, 1992; Blinov et al. 1993; Bril and Dubois 1996; Chelomina et al. 1991; Cook 1975; Cuénot 1941; Dubois 1994a; Fimaggioli 1973; Flint et al. 1984 (p. 302); Ghidini 1910; Goodwin 1986a; Grobe 1987; Hachisuka (Marquess) 1928; Iborra 2003; Jonsson 1993 (p. 495⁷); Kennedy 1939, 1940, 1941, 1944; Kryukov and Blinov 1988, 1989, 1994; Kryukov and Suzuki 2000; Legendre 1936; Leverkusühn 1890; Lewartowski and Winięcki 1984; Madge and Burn 1994; Maffezzoli 2002; Mayr 1942; Meise 1928a, 1928b; Nothdurft 1976; Palestrini and Rolando 1996; Parkin et al. 2003; Picozzi 1976, 1982; Risch and Andersen 1998; Rolando 1993; Rolando and Laiolo 1994; Rolando and Saino 1994; Roslik and Kryukov 2001; Saino 1991, 1994; Saino and Bolzern 1992; Saino and de Bernardi 1994; Saino and Villa 1992, 1998; Schifferli 1932; Schlyter 1978; Steiniger 1950; Stenhouse 1925; Suchetet 1897a; Sueur 1981; Ufyorkina et al. 1995; van Oort 1908; Vandevyvre 1999. Internet: DIGI.

× *Pica pica* [Black-billed Magpie] NHR. BRO: cen. Europe to w Siberia. Holmqvist reports apparent hybrids in Sweden (Ångermanland Prov.). A bird sighted in Kramfors was described as having the head, body, and tail of a Hooded Crow, but the wings and characteristic flight of a magpie. Another such bird was sighted and photographed in the community of Svedjeholmen, Själebad. In Denmark, too, Olsen says an apparent hybrid was observed for 5 days (7–11 Apr. 1994) on the island of Läsö. However, see Thiede *contra*. The Hooded Crow is intermediate in plumage between *P. pica* and ordinary, uniformly black crows (e.g., Carrion Crow). Hansen 1998; Holmqvist 1994; Olsen 1995; Thiede 1996.

Corvus corone [Carrion Crow]

See also: *Corvus capellanus*; *C. corax*; *C. cornix*.

× *Corvus macrorhynchos* [Large-billed Crow] NHR (Japan). BRO: e Asia. Birds in the Nansei Shoto are intermediate. Brazil 1991 (p. 249).

× *Corvus splendens* [House Crow] PCZ in nw Pakistan. No hybrids as yet reported.

× *Corvus torquatus* [Collared Crow] PCZ in e China. No hybrids as yet reported. Harrison 1982 (Map 665).

Corvus cryptoleucus [Chihuahuan Raven]
See: *Corvus corax*.

Corvus dauuricus [Daurian Jackdaw]

× *Corvus monedula* [Eurasian Jackdaw] ENHR. Contact zone extends s from L. Baikal (Mongolia, e Siberia). Sibley and Monroe say these birds may be conspecific, though they differ markedly in plumage pattern and even in eye color. Like most crows, the Daurian Jackdaw has dark brown eyes; Jackdaws are white. Panov 1989; Piechocki et al. 1982; Sibley and Monroe 1990.

Corvus edithae [Dwarf Raven] See: *Corvus albus* × *C. ruficollis*.

Corvus frugilegus [Rook] See: *Corvus* sp.

Corvus levaillantii [Jungle Crow]

See also: *Corvus corax*.

× *Corvus macrorhynchos* [Large-billed Crow] ENHI (se Asia). A population (*levaillantii*) treated as a race of *C. levaillantii* is intermediate in morphology and range between *C. macrorhynchos* and another population (*culminatus*) so treated. It is thus a PHP of this cross. See Figure 13. Madge and Burn 1994 (pp. 162, 164).

Corvus macrorhynchos [Large-billed Crow]
See: *Corvus corax*; *C. corone*; *C. levaillantii*.

Corvus monedula [Eurasian Jackdaw]

See: *Corvus dauuricus*.

Corvus ruficollis [Brown-necked Raven]

See: *Corvus albus*; *C. corax*.

Corvus splendens [House Crow] See: *Corvus albus*; *C. corone*.

Corvus torquatus [Collared Crow]

See: *Corvus corone*.

Nucifraga caryocatactes [Eurasian Nutcracker]

× *Nucifraga multipunctata* [Indian Nutcracker] ENHR. BRO: sw Himalayas. Intermediates have been collected (Kulu dist., nw India). Due to hybridization, these birds are often lumped. Ali and Ripley 1973; Bates and Lowther 1952; Goodwin 1986a; Madge and Burn 1994 (p. 130); Paludan 1959; Vaurie 1954.

Pica nuttalli [Yellow-billed Magpie]

× *Pica pica* [Black-billed Magpie] ENHI (California, U.S.). Populations of *P. pica* adj. to *P. nuttalli* approach *P. nuttalli* in morphology, which suggests them as PHPs of this cross. Sibley 2000 (p. 358).

Pica pica [Black-billed Magpie]

See: *Corvus cornix*; *Pica nuttalli*.

Pyrhcorax graculus [Alpine Chough]

× *Pyrhcorax pyrhorax* [Red-billed Chough] CAONHR (Switzerland). BRO: ACZs in mts of s Eurasia (*graculus* occurs above *pyrhorax*). IZY 1975, 1982, 1984–1985; Mattes and Bürkli 1979; Pechlaner 1976; Sitasuwan 1984; Sitasuwan and Thaler 1985.

Birds of Paradise

Family Paradisaeidae

Note: The prevalence of natural hybridization has been longer recognized in the Paradisaeidae than in the case of almost any other group of birds. As early as 1901 Reichenow suggested that *Janthothorax mirabilis*, which he had originally treated as a new species, might actually be a natural hybrid derived from a *Paradisaea* × *Seleucidis* cross. He was ridiculed by his colleagues, but was eventually vindicated by Stresemann (1930a, 1930b), who presented the then radical idea that not one, but 17, named forms were of hybrid origin. Ernst Mayr strongly supported the claims of Stresemann, his teacher. But many biologists were dismayed by 'the hybrid fantasy.' Today, even the former naysayers are largely

convinced—only a few of Stresemann's original 17 are seriously questioned. Male hybrids may be overreported in this family since they were hunted for plumes, while ♀♀ were not. Frith and Beehler (1998) provide detailed information on paradisaeid hybrids.

Astrapia mayeri [Ribbon-tailed *Astrapia*]

× ***Astrapia spendidissima*** [Splendid *Astrapia*]

No hybrids as yet recorded, but Frith and Beehler suggest that hybridization may occur at points of contact with *A. mayeri* in the Central Range and Victor Emanuel/Muller Range (New Guinea). Frith and Beehler 1998.

× ***Astrapia stephaniae*** [Stephanie's *Astrapia*] CAENHR. (Mt. Hagen and Mt. Giluwe, Central Highlands, New Guinea). This is a narrow ACZ where hybrids occur. Ribbon-tailed replaces Stephanie's above 2,400 m. *Avicultural Magazine* 1963 (p. 233); Sims 1956. Internet: DIGI.

× ***Epimachus meyeri*** (♂) [Brown Sicklebill] CHR. A hybrid hatched, but died after 10 days from dry conditions. Hallstrom 1962.

Astrapia nigra [Arfak *Astrapia*]

× ***Epimachus fastuosus*** [Black Sicklebill] NHR (nw Irian Jaya). Only one undoubted hybrid is known (although others are suspected to represent this cross). Frith and Beehler 1998[†]; Frith and Frith 1997; Fuller 1995; Rothschild (Lord) 1930a, 1930b; Stresemann 1930a.

Astrapia spendidissima [Splendid *Astrapia*]

See: *Astrapia mayeri*.

Astrapia stephaniae [Stephanie's *Astrapia*]

See: *Astrapia mayeri*.

Cicinnurus goodfellowi [Goodfellow's Bird of Paradise] See: *Cicinnurus magnificus* × *C. regius*.

Cicinnurus lyogyrus See: *Cicinnurus magnificus* × *C. regius*.

Cicinnurus magnificus [Magnificent Bird of Paradise]

× ***Cicinnurus regius*** [King Bird of Paradise] NHR (n coastal New Guinea). HPF First recognized as a hybrid by Berlioz (1927) and

known today from some 28 ♂ specimens, this bird was treated as a species independently by at least three workers (in England, Germany, and the U.S.). It was variously known as King of Holland's Bird of Paradise, King William III's Bird of Paradise, Lyre-tailed King Bird of Paradise, Lyre-tailed King, Lonely Little King, or Crimson Bird of Paradise (*Diphyllodes gulielmi*, *Rhipidornis gulielmi*, *Cicinnurus goodfellowi*, and *C. lyogyrus*). Parental ♀♀ are so similar that ♀ hybrids might be overlooked. Currie 1900; Frith and Beehler 1998[†]; Meise 1929; Meyer 1875a, 1875b; Ogilvie-Grant 1907; Rothschild (Lord) 1930a; Rousseau-Decelle 1937; Stresemann 1930a.

× ***Lophorina superba*** [Superb Bird of Paradise] NHR (Arfak Mts., New Guinea).

Wilhemina's Bird of Paradise (*Lamprothorax wilhelminae*), a taxon based on three ♂ specimens, is now thought to be this hybrid. Frith and Beehler 1998[†]; Meyer 1894; Stresemann 1930a, 1930b.

× ***Paradisaea minor*** [Lesser Bird of Paradise] NHR (New Guinea). Based on one specimen, Ruy's Bird of Paradise (*Neoparadisaea ruyisi*) is now deemed this hybrid. Frith and Beehler 1998[†]; Stresemann 1930a, 1930b; van Oort 1906.

Cicinnurus regius [King Bird of Paradise]

See: *Cicinnurus magnificus*.

Craspedophora bruyini [Bruijn's Riflebird] See: *Ptiloris magnificus* × *Seleucidis melanoleuca*.

Diphyllodes gulielmi See: *Cicinnurus magnificus* × *C. regius*.

Epimachus fastuosus [Black Sicklebill]

See also: *Astrapia nigra*.

× ***Lophorina superba*** [Superb Bird of Paradise] NHR? A specimen known as the Mysterious bird of Bobairo is probably this hybrid (but see Fuller *contra*). Frith and Beehler 1998[†]; Frith and Frith 1997; Fuller 1979; Junge 1953.

× ***Paradigalla carunculata*** [Long-tailed Paradigalla] NHR (New Guinea). Once treated as a species, the False-lobed *Astrapia* (*Pseudastrapia lobata*), is probably this

hybrid. Frith and Beehler say it looks like a Long-tailed Paradigalla, but with several Black Sicklebill tail feathers added. Frith and Beehler 1998[†]; Frith and Frith 1997; Rothschild 1907; Stresemann 1930a.

Epimachus meyeri [Brown Sicklebill]

See: *Astrapia mayeri*.

Heteroptilorhis mantoui [Mantou's Riflebird]

See: *Ptiloris magnificus* × *Seleucidis melanoleuca*.

Janthothorax bensbachi [Bensbach's Bird of Paradise] See: *Paradisaea minor* × *Ptiloris magnificus*.

Janthothorax mirabilis [Wonderful Bird of Paradise] See: *Paradisaea minor* × *Seleucidis melanoleuca*.

Loborhampus nobilis [Lobe-billed Bird of Paradise] See: *Lophorina superba* × *Paradigalla carunculata*.

Loborhampus ptilorhis [Sharpe's Lobe-billed Riflebird] See: *Paradigalla carunculata* × *Parotia sefilata*.

Lophorina superba [Superb Bird of Paradise] See also: *Cicinnurus magnificus*.

× *Ptiloris magnificus* [Magnificent Riflebird] NHR (New Guinea). Once treated as a species, van Duivenbode's Bird of Paradise, *Paryphorphorus duivenbodei*, is now thought to be this hybrid. Stresemann 1930a.

× *Paradigalla carunculata* [Long-tailed Paradigalla] NHR? Rothschild's Lobe-billed Bird of Paradise (*Loborhampus nobilis*), once treated as a species, may be this hybrid. See discussion in Frith and Beehler. Frith and Beehler 1998[†]; Frith and Frith 1997; Rothschild 1901, 1907; Stresemann 1930a, 1930b.

× *Parotia carolae* [Carola's Parotia] NHR. Stresemann's Bird of Paradise, known from a specimen from Mt. Hunstein, New Guinea (Sepik) was treated initially as a ♀ Carola's Parotia and later as a race of the Superb Bird (*L. s. pseudoparotia*). It is now known to be this hybrid. Frith and Frith 1996b, 1997, 1998; Stresemann 1923a, 1934.

× *Parotia sefilata* [Western Parotia] NHR (w New Guinea). There can be little doubt that Duivenbode's Six-wired Bird of Paradise

(*Parotia duivenbodei*) is this hybrid. Frith and Frith 1997; Stresemann 1930a.

× *Ptiloris magnificus* [Magnificent Riflebird] NHR (nw New Guinea). Some hybrids are known. ACZ? Beehler et al. 1986; Frith and Beehler 1998[†]; Pruett-Jones and Pruett-Jones 1986

Neoparadisaea ruysi [Ruy's Bird of Paradise] See: *Cicinnurus magnificus* × *Paradisaea minor*.

Paradigalla carunculata [Long-tailed Paradigalla]

See also: *Epimachus fastuosus*; *Lophorina superba*.

× *Parotia sefilata* [Western Parotia] NHR (New Guinea). Sharpe's Lobe-billed Riflebird (*Loborhampus ptilorhis*), based on one specimen, is probably this hybrid. Frith and Beehler 1998[†]; Sharpe 1908; Stresemann 1930a, 1930b.

Paradisaea apoda [Greater Bird of Paradise]

× *Paradisaea minor* [Lesser Bird of Paradise] Frith and Beehler state that hybrids of this type are "likely" in Irian Jaya, in the Etna Bay contact zone, but that "there do not seem to be any hybrids identified to date—although they are expected. There should be a hybrid zone between Etna Bay and the Mimika R." Frith and Beehler 1998.

× *Paradisaea raggiana* (♀) [Raggiana Bird of Paradise] CAENHR (sw Papua New Guinea). HPF(vh). Mixed leks with hybrid ♂♂ have been observed. In the hybrid zone, birds exhibit all degrees of morphological intermediacy. Ackermann 1898; Berlioz 1927; Frith and Beehler 1998[†]; Frith and Frith 1997; Legendre 1936; Lowe 1923; Rothschild (Lord) 1923; Suchetet 1897a.

Paradisaea bloodi [Captain Blood's Bird of Paradise] See: *Paradisaea raggiana* × *P. rudolphi*.

Paradisaea granti [Grant's Bird of Paradise]

This bird, once treated as a species is the product of hybridization of two other populations (*augustavictoriae*, *intermedia*) formerly treated as separate species, but now, usually as races of *Paradisaea raggiana*. Frith and Beehler 1998; Legendre 1936 (p. 316).

Note: *Paradisaea guilielmi* occurs above both *P. minor* and *P. raggiana*.

Paradisaea guilielmi [Emperor Bird of Paradise]

× *Paradisaea minor* [Lesser Bird of Paradise] ONHR (Finisterre Mts., Huon Penin., New Guinea). ACZ. Internet: DIGI.

× *Paradisaea raggiana* [Raggiana Bird of Paradise] ONHR (Finisterre Mts., Huon Penin., New Guinea). ACZ. Frith and Beehler 1998[†]; Frith and Frith 1997; Rothschild (Lord) 1923; Stresemann 1930a, 1930b.

Paradisaea minor [Lesser Bird of Paradise]
See also: *Cicinnurus magnificus*.

× *Paradisaea raggiana* (♀) [Raggiana Bird of Paradise] ENHR (New Guinea). HPF(vh). There is a 35 km-wide zone in the upper Ramu ("Gusap" Pass separating the Ramu and Markham river basins). Within it, hybrids vary over the full range of intermediates between the parental forms. Frith and Beehler say there is probably another zone along the w coast of the Huon Penin, e the Gogol River. Even while naming this bird as a species (*Paradisaea mixta*), Rothschild said that it might in fact be a hybrid. Frith and Beehler 1998[†]; Frith and Frith 1997; Rothschild (Lord) 1921.

× *Ptiloris magnificus* [Magnificent Riflebird] NHR (Arfak Mts., New Guinea). Known from a ♂ specimen, Bensbach's Bird of Paradise or Bensbach's Riflebird (*Janthothorax bensbachi*) is now deemed this hybrid. Büttikofer 1894; Frith and Beehler 1998[†]; Stresemann 1930a, 1930b.

× *Seleucidis melanoleuca* [Twelve-wired Bird of Paradise] NHR (New Guinea). Known from five ♂ specimens, the Wonderful Bird of Paradise (*Paradisaea mirabilis* = *Janthothorax mirabilis*) is almost certainly this hybrid. Frith and Beehler 1998[†]; Rothschild 1907; Stresemann 1930a, 1930b.

Paradisaea mirabilis [Wonderful Bird of Paradise] *Paradisaea minor* × *Seleucidis melanoleuca*.

Paradisaea mixta [Rothschild's Bird of Paradise] See: *Paradisaea minor* × *P. raggiana*.

Paradisaea raggiana [Raggiana Bird of Paradise]

See also: *Paradisaea apoda*; *P. guilielmi*; *P. minor*.

× *Paradisaea rudolphi* [Blue Bird of Paradise] NHR. BRO: Mt. Missim, New Guinea. Captain Blood's Bird of Paradise (*Paradisaea bloodi*), based on a single ♂ specimen, is now known to be a hybrid of this type. Frith and Beehler 1998[†]; Frith and Frith 1997.

Paradisaea rudolphi [Blue Bird of Paradise]
See also: *Paradisaea raggiana*.

× *Parotia lawesii* [Lawe's Parotia] NHR. A bird taken in 1956 (Trepikama, Baiyer Valley, Papua New Guinea) was thought to be a female Lawe's Parotia, but is now known to be this hybrid. Christidis and Schodde 1993; Frith and Beehler 1998[†]; Frith and Frith 1996a.

Parotia carolae [Carola's Parotia]
See: *Lophorina superba*.

Parotia duivenbodei [Duivenbode's Six-wired Bird of Paradise] See: *Lophorina superba* × *Parotia sefilata*.

Parotia lawesii [Lawe's Parotia]
See: *Paradisaea rudolphi*.

Parotia sefilata [Western Parotia] See: *Lophorina superba*; *Paradigalla carunculata*.

Paryphephorus duivenbodei [Van Duivenbode's Bird of Paradise] See: *Lophorina superba* × *Parotia sefilata*.

Pseudastrapia lobata [False-lobed Astrapia]
See: *Epimachus fastuosus* × *Paradigalla carunculata*.

Ptiloris magnificus [Magnificent Riflebird]
See also: *Lophorina superba*; *Paradisaea minor*.

× *Seleucidis melanoleuca* (♂) [Twelve-wired Bird of Paradise] NHR (Arfak Mts., w New Guinea). Based on 12 ♂ specimens, Mantou's Riflebird (*Heteroptilorhis mantoui*) and Bruijn's Riflebird (*Craspedophora bruyini*) are now deemed hybrids of this type. Coates says ♂ Twelve-wired birds were seen courting ♀ Magnificent birds in the wild. Büttikofer 1895; Coates 1990; Frith and Beehler 1998[†]; Sharpe 1891–1898; Stresemann 1930a.

Rhipidornis gulielmi See: *Cicinnurus magnificus* × *C. regius*.

Seleucidis melanoleuca [Twelve-wired Bird of Paradise] See: *Paradisaea minor*; *Ptiloris magnificus*.

Artamids

Family Artamidae

Artamus albiventris [White-vented Wood-swallow]

× *Artamus cinereus* [Black-faced Wood-swallow] ENHR (Queensland, Australia). HPF(vh). In the hybrid zone, the amount of white and black on the vent and undertail coverts varies. Ford 1978c, 1987; Sibley and Monroe 1990.

Artamus cinereus [Black-faced Wood-swallow] See: *Artamus albiventris*.

Artamus personatus [Masked Wood-swallow]

× *Artamus superciliosus* (♀) [White-browed Wood-swallow] CAONHR (se Australia). One reported hybrid looked exactly like a Masked Wood-swallow, except it had a broad white eyebrow. *Avicultural Magazine* 1964 (p. 188), 1965 (pp. 116–117); Barnard 1944; Boehm 1974; McGill 1944; North 1909a, 1909b; Sharland 1972.

Artamus superciliosus [White-browed Wood-swallow] See: *Artamus personatus*.

Note: Two populations, treated as races of *Cracticus nigrogularis*, the large *nigrogularis*, and small *picatus*, hybridize in the sw Kimberley. Ford 1987 (p. 178); Mees 1964a.

Cracticus nigrogularis [Pied Butcherbird]

× *Cracticus torquatus* [Grey Butcherbird] NHR (Australia). Hall 1974.

× *Gymnorhina tibicen* [Black-backed Magpie] NHR (Australia). A hybrid is known from the Tanami Desert. Donato and Potts 2004.

Cracticus torquatus [Grey Butcherbird] See: *Cracticus nigrogularis*.

Note: According to Simpson and Day (1999, pp. 387–388) the following three birds (*Gymnorhina dorsalis*, *G. hypoleuca*, and *G. tibicen*) are often lumped under

Gymnorhina tibicen (Australasian Magpie) due to hybridization.

Gymnorhina dorsalis [Western Magpie]

× *Gymnorhina tibicen* [Black-backed Magpie] ENHR (w Australia). A hybrid zone exists in the Murchison region. Black and Ford say ♀ hybrids are like *G. hypoleuca*. *G. tibicen* includes *terraereginae*. Black and Ford 1982; Ford 1987; Sibley and Monroe 1990; Simpson and Day 1999 (pp. 248, 387–388).

Gymnorhina hypoleuca [White-backed Magpie]

× *Gymnorhina tibicen* [Black-backed Magpie] ENHR (Australia). A narrow hybrid zone extends from e Victoria to e of Mount Lofty Range (along a line roughly following the Great Dividing Range). These birds have been introduced to New Zealand and interbreed there also. Here *G. hypoleuca* includes *leuconota*. *G. tibicen* includes *terraereginae*. Burton and Martin conducted a detailed study of the hybrid zone in Victoria and se New South Wales. The zone appears to be mobile, with *G. tibicen* expanding southward. Birds outside the zone are genetically pure. Amadon 1951; Black and Ford 1982; Burton and Martin 1976; Campbell 1929; Condon 1954; Ford 1974a, 1987; Keast 1961; Mees 1964c; Sibley and Monroe 1990; Simpson and Day 1999 (pp. 248, 387–388); Serventy 1953; Storr 1952; Williams 1968.

Gymnorhina tibicen [Black-backed Magpie]

See: *Cracticus nigrogularis*; *Gymnorhina dorsalis*; *G. hypoleuca*.

Strepera graculina [Pied Currawong]

× *Strepera magnirostris* [Great-billed Currawong] ENHR (Australia). There is a narrow hybrid zone in ne Queensland. Ford 1986, 1987.

Strepera magnirostris [Great-billed Currawong] See: *Strepera graculina*.

Strepera melanoptera [Black-winged Currawong]

× *Strepera versicolor* [Grey Currawong] ENHR (Australia). Hybridization has produced a variably intermediate population in w Victoria and adjacent S. Australia.

S. versicolor is gray and has a large white wing-speculum; *S. melanoptera* is almost black and lacks a white wing patch. The hybrid population was formerly listed as a species under the name Brown Currawong (*S. intermedia*). Due to hybridization, these birds are now often lumped. Amadon 1953; Ford 1987.

Strepera versicolor [Grey Currawong]

See: *Strepera melanoptera*.

Figbirds and Orioles

Family Oriolidae

Oriolus chinensis [Black-naped Oriole]

× *Oriolus tenuirostris* [Slender-billed Oriole]
ENHR (se Asia). Internet: DIGI.

Oriolus larvatus [African Black-headed Oriole]

× *Oriolus nigripennis* [Black-winged Oriole]
ENHI (Uganda, ne Dem. Rep. Congo). The Black-tailed Oriole (*Oriolus percivali*) is intermediate in morphology and range and, thus, a PHP of this cross. Hall and Moreau 1970.

× *Oriolus percivali* [Black-tailed Oriole] ENHR (cen. Kenya). HPF(vh). See: *Oriolus larvatus* × *O. nigripennis*. Dowsett and Dowsett-Lemaire 1993 (p. 391); Prigogine 1978, 1984. Internet: DIGI.

Oriolus nigripennis [Black-winged Oriole]

See: *Oriolus larvatus*.

Oriolus percivali [Black-tailed Oriole]

See: *Oriolus larvatus*.

Oriolus tenuirostris [Slender-billed Oriole]

See: *Oriolus chinensis*.

Sphecotheres flaviventris [Yellow Figbird]

× *Sphecotheres vieilloti* [Green Figbird] ENHR (ne Australia). HPF(vh). Hybrid zone in ne Queensland. *S. vieilloti* is gray throated and green bellied; *S. flaviventris*, yellow throated and yellow bellied. Ford showed that an intermediate population (*stalkerii*) is the product of this cross. He says hybrids are surprisingly like *S. v. salvadorii* of se New Guinea. Due to hybridization, these birds are now usually lumped. Beland 1977; Ford 1975b, 1982a, 1987; Simpson and Day 1999 (pp. 238[†], 387).

Cuckoo-shrikes

Family Campephagidae

Campephaga flava [Black Cuckoo-shrike]

× *Campephaga petiti* [Petit's Cuckoo-shrike] ENHR (w Kenya, e Dem. Rep. Congo, w Angola). HPF(vh). These birds are often treated as conspecific. Dowsett and Dowsett-Lemaire 1993; Hall and Moreau 1970 (p. 52); Prigogine 1984; Sibley and Monroe 1990; Vande weghe 1988. Internet: DIGI.

× *Campephaga phoenicea* [Red-shouldered Cuckoo-shrike] ONHR (w Kenya, Uganda, ne Dem. Rep. Congo). HPF(vh). Hall and Moreau 1970; Sibley and Monroe 1990. Internet: DIGI.

Campephaga petiti [Petit's Cuckoo-shrike]

See: *Campephaga flava*.

Campephaga phoenicea [Red-shouldered Cuckoo-shrike] See: *Campephaga flava*.

Pericrocotus cantonensis [Brown-rumped Minivet]

× *Pericrocotus roseus* [Rosy Minivet] ONHR (s Kwangtung, China). These birds are sometimes lumped. Internet: DIGI.

Pericrocotus cinnamomeus [Small Minivet]

× *Pericrocotus igneus* [Fiery Minivet] NHR (se Asia). Internet: DIGI.

Pericrocotus igneus [Fiery Minivet]

See: *Pericrocotus cinnamomeus*.

Pericrocotus roseus [Rosy Minivet]

See: *Pericrocotus cantonensis*.

Fantails and Drongos

Family Dicruridae

Dicrurus adsimilis [Fork-tailed Drongo]

× *Dicrurus coracinus* [Velvet-mantled Drongo] ENHR (Africa). The hybrid zone largely follows the forest edge. *D. coracinus* is a forest bird. *D. adsimilis* inhabits more open terrain. A population in w Africa (*atacus*), which Vaurie (p. 230) says is intermediate "in every character," is deemed the product of this cross. A population (*modestus*), of Principe I., is also intermediate. These birds are

sometimes lumped. *D. adsimilis* here includes *divaricatus*. Borrow and Demey 2001 (p. 720); Hall and Moreau 1970 (p. 372); Louette 1981; Mayr and Vaurie 1948 (p. 263); Meise 1975; Panov 1989; Vaurie 1949 (pp. 230–231). Internet: DIGI.

Dicrurus andamanensis [Andaman Drongo]
See: *Dicrurus hottentottus* × *D. paradiseus*.

Dicrurus bracteatus [Spangled Drongo]
× *Dicrurus paradiseus* [Greater Racket-tailed Drongo] ENHI. Although Vaurie claims hybridization is impossible, he also says (?) many intermediates occur in the contact region (Borneo, Palawan). He refers to *Dicrurus baliassius*, not *D. bracteatus*, but Sibley and Monroe (1990) break his *D. baliassius* into six separate members of a *baliassius* superspecies, of which *D. bracteatus* is the member residing in the region of contact with *D. paradiseus*. Vaurie 1949 (p. 317).

Dicrurus caerulescens [White-bellied Drongo]
× *Dicrurus paradiseus* [Greater Racket-tailed Drongo] ENHR (Sri Lanka, s India). Hybrid populations occur along wet zone edges. Mayr and Vaurie 1948.

Dicrurus coracinus [Velvet-mantled Drongo]
See: *Dicrurus adsimilis*.

Dicrurus hottentottus [Hair-crested Drongo]
× *Dicrurus paradiseus* [Greater Racket-tailed Drongo] ENHI (Andaman Is.)? Vaurie says the Andaman Drongo (*Dicrurus andamanensis*) combines traits of these two birds and that a hybrid origin would explain why. Mayr and Vaurie 1948 (p. 263); Vaurie 1949 (p. 315).

Dicrurus leucophaeus [Ashy Drongo]
× *Dicrurus longicaudatus* [Grey Drongo] ENHR. Sibley and Monroe (p. 489) say these birds hybridize (“intergrade”) in Sikkim. Sibley and Monroe 1990.
× *Dicrurus macrocerus* [Black Drongo] ONHR (w coast Gulf of Thailand). Mayr and Vaurie 1948 (p. 263).

Dicrurus longicaudatus [Grey Drongo]
See also: *Dicrurus leucophaeus*.

× *Dicrurus macrocerus* [Black Drongo] ONHI. Birds breeding in the w Himalayas

are intermediate. Grimmett et al. 1998 (p. 610).

Note: Two birds that have been treated both as races of *Dicrurus macrocerus* and separately, as *D. albirictus* (North Indian Drongo) and *D. macrocerus* (South Indian Drongo), hybridize in Sind, s Rajahstan, and s Uttar Pradesh. Ali and Ripley 1973 (vol. 5, pp. 114, 117).

Dicrurus macrocerus [Black Drongo] See: *Dicrurus leucophaeus*; *D. longicaudatus*.

Dicrurus paradiseus [Greater Racket-tailed Drongo] See: *Dicrurus bracteatus*; *D. caerulescens*; *D. hottentottus*.

Rhipidura albicollis [White-throated Fantail]
× *Rhipidura albogularis* [Spot-breasted Fantail] ONHR (ne peninsular India). ACZ. These birds have been lumped, but are morphologically, ecologically, and altitudinally distinct. Internet: DIGI.

Ioras

Family Aegithinidae

Aegithina tiphia [Common Iora] Two populations (*scapularis*, *tiphia*) treated as races of this bird hybridize in western Java (Ujung Kulon Peninsula). Another population (*djungkulanensis*) is a PHP of interbreeding between them. Mees (p. 100) suggests that this is clearly a case of “the Sumatran subspecies gaining a foothold ... with resultant hybridization.” Mees 1996 (pp. 49, 99, 100).

Bushshrikes and Helmetshrikes

Families Malaconotidae, Vangidae

Dryoscopus affinis [Zanzibar Puffback]

× *Dryoscopus cubla* [Black-backed Puffback] ENHR (e Dem. Rep. Congo). Due to hybridization, these birds are sometimes lumped. Prigogine 1980b (pp. 316–317); Sibley and Monroe 1990 (p. 498).

Laniarius aethiopicus [Tropical Boubou]

× *Laniarius bicolor* [Gabon Boubou] ENHR (s Africa). Hybrids are common in Namibia near the Zimbabwe border. Dowsett and

Dowsett-Lemaire 1980. Internet: CAMA2, DIGI.

- × *Laniarius ferrugineus* [Southern Boubou] PCZ (s Africa). NHR? Dowsett and Dowsett-Lemaire 1980, 1993. Internet: DIGI.

Laniarius bicolor [Gabon Boubou] See: *Laniarius aethiopicus*.

Laniarius ferrugineus [Southern Boubou] See: *Laniarius aethiopicus*.

Laniarius liberatus [Bulo Burti Boubou] This taxon, based on one specimen, may be a hybrid involving the Red-naped Bushshrike (*Laniarius ruficeps*). Dowsett and Dowsett-Lemaire 1993; Smith et al. 1991.

Laniarius ruficeps [Red-naped Bushshrike] See: *Laniarius liberatus*.

Note: In the following trio, *Nilaus afer* and *N. affinis*, two very similar forms, are geographically separated by *N. nigritemporalis*, with which both hybridize, a possible split range situation (see p. 22).

Nilaus afer [Northern Brubru]

- × *Nilaus nigritemporalis* [Black-browed Brubru] ONHR. BRO: Tanzania. These birds are often lumped. Sibley and Monroe 1990.

Nilaus affinis [Angola Brubru]

- × *Nilaus nigritemporalis* [Black-browed Brubru] ONHR. BRO: s Dem. Rep. Congo. These birds are often lumped. Sibley and Monroe 1990 (p. 497).

Nilaus nigritemporalis [Black-browed Brubru] See: *Nilaus afer*; *N. affinis*.

Prionops cristatus [Curly-crested Helmetshrike]

- × *Prionops plumatus* [Straight-crested Helmetshrike] ENHR. A population (*concinata*) in Cameroon, Cen. Afr. Rep., and s Sudan is intermediate. These birds are sometimes lumped. Hall and Moreau 1970 (p. 81); Sibley and Monroe 1990 (p. 501). Internet: DIGI.

Prionops plumatus [Straight-crested Helmetshrike]

See also: *Prionops cristatus*.

- × *Prionops poliocephalus* [Grey-crested Helmetshrike] ENHR (ne Dem. Rep. Congo, Uganda). Flocks of hybrids mixed with apparent pure *poliophilus* occur around Lake

Nakuru, Kenya. Due to hybridization, these birds are often lumped. Sibley and Monroe 1990 (p. 501). Internet: BRTR.

Prionops poliocephalus [Grey-crested Helmetshrike] See: *Prionops plumatus*.

Tchagra australis [Brown-crowned Tchagra]

- × *Tchagra jamesi* [Three-streaked Tchagra] NHR. A probable hybrid was taken 110 km w of Lodwar, Kenya in June. Keith and Twomey 1968 (p. 545).

Telophorus bocagei [Grey-green Bushshrike]

- × *Telophorus sulfureopectus* [Sulphur-breasted Bushshrike] ONHR (e Uganda). This hybrid has been treated as a species (*Chlorophoneus andaryae*). Sibley and Monroe 1990 (p. 500); Wolters 1975–1982 (p. 233).

Waxwings

Family Bombycillidae

Bombycilla garrulus [Bohemian Waxwing]

See: *Perisoreus infaustus*.

Phainopepla nitens [Phainopepla] Two

populations (*lepida*, *nitens*), treated as races of this bird, hybridize in se Sonora, Mexico. Phillips 1991.

Thrushes

Family Turdidae

Copsychus malabaricus [White-rumped Shama]

- × *Copsychus saularis* [Oriental Magpie-Robin] NHR (Pai, Thailand). BRO: India and se Asia. Internet: ASIA96.

- × *Copsychus stricklandii* [White-crowned Shama] CAENHR. There is a hybrid zone in n Borneo (near the confluence of the Bahau and Kajan). Hervouët et al. 1982; Mees 1996 (p. 58); Stresemann 1938 (p. 138).

Copsychus saularis [Oriental Magpie-Robin]

See: *Copsychus malabaricus*. Two populations (*amoenus*, *musicus*), treated as races of *C. saularis*, hybridize in Java. The hybrid zone is 100–150 km wide. Mees 1986, 1996 (pp. 53, 99, 100).

Copsychus stricklandii [White-crowned Shama] See: *Copsychus malabaricus*.

Luscinia luscinia [Thrush Nightingale]

See: Appendix 1.

- × **Luscinia megarhynchos** (♀) [Common Nightingale] CAENHR. HPF(♂♂). PCZs (e Europe, n Kazakhstan). In one region, Becker (1995) found that 6% of birds were hybrid. Becker 1992, 1995; Belik et al. 1989; Harrison 1982 (Map 543); Kverek 2002; Lille 1988; Mayr 1942; Nöhning 1943; Sorjonen 1983; Stadie 1983.
- × **Luscinia sibilans** [Rufous-tailed Robin] PCZ (s Siberia, upper Yenisei). No hybrids as yet reported. Flint et al. 1984; Harrison 1982 (Map 543).

Luscinia megarhynchos [Common Nightingale]

See: *Luscinia luscinia*; Appendix 1.

Luscinia sibilans [Rufous-tailed Robin]

See: *Luscinia luscinia*.

Lucinia svecica [Bluethroat] A hybrid zone between the red-spotted (*svecica*) and white-spotted (*cyaneula*) forms of this bird stretches from the Baltic to the Sea of Azov. Harrison 1982 (Map 541).

Monticola brevipes [Short-toed Rock-Thrush]

- × **Monticola pretoriae** [Transvaal Rock-Thrush] ENHR (South Africa). Hybrid zone is in cen. and n Cape Province. Clement 2000 (p. 379); Farkas 1966, 1979; White 1967.

Monticola philippensis [Red-bellied Rock-Thrush]

- × **Monticola solitarius** [Blue Rock-Thrush] ENHR. A large intermediate population (*affinis*) exists in se Asia. These birds are often lumped. Clement 2000 (p. 207); Harrison 1982 (Map 520); Meise 1975; Ripley 1982 (p. 475); Sibley and Monroe 1990 (p. 508).

Monticola pretoriae [Transvaal Rock-Thrush]

See: *Monticola brevipes*.

Monticola saxatilis [Rufous-tailed Rock-Thrush]

- × **Monticola solitarius** [Blue Rock-Thrush] ONHR. BRO: Eurasia. Ackermann 1898; Moltoni 1937[†]; Suchetet 1897a.

Monticola solitarius [Blue Rock-Thrush]

See: *Monticola philippensis*; *M. saxatilis*.

Myadestes coloratus [Varied Solitaire]

See: *Myadestes melanops* × *M. ralloides*.

Myadestes lanaiensis [Olomao]

- × **Myadestes oahensis** [Amaui] *M. oahensis* is extinct and *M. lanaiensis* is in danger of extinction. Olson considered these Hawaiian birds conspecific on the basis of two intermediates (recently located museum specimens). Olson 1996.

Myadestes melanops [Black-faced Solitaire]

- × **Myadestes ralloides** [Andean Solitaire] The Varied Solitaire (*Myadestes coloratus*), found on the Panamanian–Colombian border, is geographically intermediate between, and combines traits of, these birds. It is thus a PHP of this cross. Ridgely and Tudor 1989.

Myadestes oahensis [Amaui] See: *Myadestes lanaiensis*.**Myadestes occidentalis** [Brown-backed Solitaire]

- × **Myadestes unicolor** [Slate-colored Solitaire] CHR. BRO: Cen. America. *Agricultural Magazine* 1948 (p. 160).

Myadestes ralloides [Andean Solitaire] See: *Myadestes melanops*.**Myadestes unicolor** [Slate-colored Solitaire] See: *Myadestes occidentalis*.**Myiophonus caeruleus** [Blue Whistling-Thrush]

- × **Myiophonus glaucinus** [Sunda Whistling-Thrush] ACZ (w Indonesia). *M. glaucinus* occurs above the similar *M. caeruleus*. No hybrids as yet reported. Clement 2000; MacKinnon and Phillipps 1993 (p. 326).

Oenanthe chrysopygia [Afghan Wheatear]

- × **Oenanthe xanthopyrmyna** [Rufous-tailed Wheatear] ENHR (sw Iran). There is a hybrid population (*cummingi*). Hybrids have the black throat of *xanthopyrmyna* and the red-cornered tail of *chrysopygia*. Due to hybridization, these birds are sometimes lumped. Erard and Etchecopar 1970; Haffer 1977a; Vaurie 1949a.

Oenanthe finschii [Finsch's Wheatear]

- × **Oenanthe picata** [Variable Wheatear] ENHR (Middle East). Loskot 1980; Panov 1989, 1992, 1993.

Oenanthe hispanica [Black-eared Wheatear]

- × **Oenanthe pleschanka** [Pied Wheatear] ENHR. BRO: Azerbaijan, Turkey, s Russia,

n China. Closer to the hybrid zone, the black-throated form of *O. hispanica* is increasingly common. Chylarecki 1991; Grabovsky and Panov 1992; Grabovsky et al. 1991, 1992; Haffer 1977a; Loskot 1986; Panov 1986, 1989; Panov and Ivanitzkii 1975; Portenko and von Vietinghoff-Scheel 1967; Rubtsov 1995, 1998; Ullman 1992; Wassink 2004.

Note: Extensive hybridization occurs between three populations (*capistrata*, *opistholeuca*, *picata*) treated as races of *Oenanthe picata*. Kostina and Panov 1981; Lubuschenko and Grabovsky 1991; Panov et al. 1993; Panov 1980.

Oenanthe picata [Variable Wheatear]

See: *Oenanthe finschii*.

Oenanthe pleschanka [Pied Wheatear]

See: *Oenanthe hispanica*.

Oenanthe xanthopyrmyna [Rufous-tailed Wheatear] See: *Oenanthe chrysopygia*.

Phoenicurus aureoreus [Daurian Redstart]

× *Phoenicurus phoenicurus* [Common Redstart] NHR. BRO: Siberia (e of Lake Baikal). Internet: KRASU.

Phoenicurus ochruros [Black Redstart]

× *Phoenicurus phoenicurus* (↔ usu. ♀) [Common Redstart] CAENHR. HPF(♂ & ♀). BRO: cen. and s Europe. Frauendorf et al. say the song of hybrids can be very similar to that of a pure Black Redstart. Andersson 1988; Berthold et al. 1996; Blattner and Kestenholz 1993; Brzozowski 1984; Bulgarini and Fraticelli 1998; Dathe 1950a; Ertan 2000; Frauendorf et al. 1997; Grosch 2003, 2004; Hegelbach and Nabulon 1998; Heim de Balsac 1929; Heuer 1999; Hortig 2001; Kleinschmidt 1908[†]; Klose 1986; Lambert 1997; Landmann 1987; Lindholm 2001; Moltoni 1946[†]; Rēbice 1998; Ringleben 1948; Robert and Toulon 1984; Ruppen and Ruppen 1990; Sallermann 1991; Szielasko 1925; Toepfer 2005; Zedler 2004. Internet: BOUG, AVES97.

Phoenicurus phoenicurus [Common Redstart]

See: *Phoenicurus aureoreus*; *P. ochruros*.

Note: Sibley and Monroe (1990) use the name *Saxicola albofasciata* (Ethiopian Stonechat) to

refer to birds breeding in Ethiopia and se Sudan, but assign birds breeding elsewhere in sub-Saharan Africa to *S. torquata*. Here, *S. axillaris* is used for all birds in the complex breeding anywhere s of the Sahara.

Saxicola axillaris [African Stonechat]

× *Saxicola torquata* [Common Stonechat] CHR. HPF(♂ & ♀). DRS. Although they have often been treated as conspecific, recent evidence indicates that these birds are genetically distinct (Wink et al. 2002). Evaluation of a suite of characters showed the hybrids to be consistently intermediate between the parental types. Gwinner and Neußer 1985; Gwinner et al. 1987, 1995; Helm and Gwinner 1999; Starck et al. 1995. Internet: MUEN.

Saxicola caprata [Pied Bushchat] Three populations (*bicolor*; *burmanica*, *rossorum*), treated as races of this bird, hybridize in two long zones of contact. The northern *rossorum* hybridizes with *bicolor* in n Baluchistan, n Kashmir, the Makran, and Punjab; *bicolor* hybridizes with *burmanica* along a line stretching across India from sw Bhutan to the Gulf of Cambay. Ripley 1964; Urquhart 2002 (pp. 235–236); Vaurie 1959a.

Saxicola leucura [White-tailed Stonechat]

× *Saxicola macrorhyncha* [White-browed Bushchat] See: *Saxicola macrorhyncha* × *S. maura*.
 × *Saxicola torquata* [Common Stonechat] ENHI (n India). Birds from Manipur that have been treated as *S. leucura* are geographically and morphologically intermediate and are thus PHPs of this cross. Grimmett et al. 1998 (p. 662).

Saxicola macrorhyncha [White-browed Bushchat]

See also: *Saxicola leucura*.

× *Saxicola maura* [Siberian Stonechat] NHR. BRO: ne India. Wintering birds sighted and photographed yearly in Goa from 1996 to 2000 are probably this hybrid. Alternatively, but less plausibly, the cross in question may be *Saxicola leucura* × *S. macrorhyncha*. Urquhart 2002 (pp. 93–94).

Saxicola maura [Siberian Stonechat]

See also: *Saxicola macrorhyncha*.

- × *Saxicola rubetra* [Whinchat] NHR. BRO: Russia. Hario et al. 1987.
- × *Saxicola torquata* (↔) [Common Stonechat] CAENHR (Caucasus, Transcaucasus, and ne Turkey). A hybrid has also been reported from Finland. Two populations, *variegata* and *armenica*, seem to be of hybrid origin. Helm found that the number of fertile clutches per pair was dramatically reduced in mixed pairs, as opposed to pure parental pairs of either type. These birds have often been lumped, but they are genetically distinct (Wink et al. 2002). They differ in breeding schedule, apparently at the genetic level, with the Common Stonechat laying several clutches/year and the Siberian, just one. Gwinner et al. 1987, 1995; Hario et al. 1987; Helm 2002; Pfeiffer 2000. Internet: SCRI.

Saxicola rubetra [Whinchat]

See also: *Saxicola maura*.

- × *Saxicola torquata* [Common Stonechat] NHR. BRO: w and s Europe. Hario et al. 1987; Uhl 1998.

Saxicola torquata [Common Stonechat]

See: *Saxicola axillaris*; *S. leucura*; *S. maura*; *S. rubetra*.

Sialia currucoides [Mountain Bluebird]

- × *Sialia mexicana* (♂) [Western Bluebird] NHR. BRO: mts of w U.S. A mixed pair in w Montana raised six young. Aylesworth 1987; Toops 1994.
- × *Sialia sialis* (↔) [Eastern Bluebird] ONHR. HPF(♂ & ♀). PCZ on Great Plains (U.S., Canada). Mixed pairs are fairly common in regions of contact. Most reported hybrids occur in sw Manitoba, but observation efforts are more intensive in this area than elsewhere. Bardon 1991; Cavitt et al. 1998; Gatz et al. 1981; Gowati and Karlin 1984; Lane 1968; Millard 1994; Rising 1983a; Rounds and Munro 1982[†]; Sibley 1994; Spear 1975; Steblay 1986; Stokes and Stokes 1991; Toops 1994 (p. 13); Wilson 1985; Wilson et al. 1986.

Sialia mexicana [Western Bluebird]

See also: *Sialia currucoides*.

- × *Sialia sialis* (♀) [Eastern Bluebird] CHR. BRO: Colorado, New Mexico, Texas. Ezra 1938.

Sialia sialis [Eastern Bluebird] See: *Sialia currucoides*; *S. mexicana*.***Tarsiger indicus*** [White-browed Bush-Robin]

- × *Tarsiger johnstoniae* [Collared Bush-Robin] NHR (Taiwan). Three ♂ probable hybrids were ringed at Tsui Feng (Nantou, 2300m). Like *T. johnstoniae*, hybrids had black throats bordered by an orange collar (fainter than *T. johnstoniae*) and white undertail coverts (but the gray face and gray-olive forehead, crown, nape, back, and rump of *T. indicus*). Severinghaus (p. 144) thought hybridization might occur “to a far greater extent” than suggested by the three individuals ringed at Tsui Feng. Severinghaus 1984[†].

Turdus albicollis [Rufous-flanked Thrush]

- × *Turdus phaeopygos* [Grey-flanked Thrush] ENHI (S. America). A population (*contemptus*) in Bolivia and nw Argentina is geographically and morphologically intermediate and, thus, a PHP of this cross. Ridgely and Tudor 1989 (pp. 123–124).

Turdus atrogularis [Black-throated Thrush]

- × *Turdus eunomus* [Dusky Thrush] ENHR (Siberia). HPF(vh). BRO: lower Yenesei basin. See Figure 14. Hybrids resemble *T. eunomus*, but have rust-colored tails and underparts, gray upperparts with diffuse blackish spots, black on the throat, and spots on the underparts. Some individuals have rustiness reduced to tips of some feathers or to a light wash on breast. Clement 2000 (p. 379); Harrison 1982 (p. 260); Panov 1989; Portenko 1981.

- × *Turdus ruficollis* [Red-throated Thrush] ENHR (Siberia). HPF(vh). Hybrid zone stretches from upper Lena and upper Nizhnyaya Tunguska to the Altai and Sayan mts. Within the zone, most birds are hybrid. See Figure 14. This hybrid zone has long been recognized. As a result, these birds, once separately treated, are now usually lumped under “*T. ruficollis*” (“Dark-throated Thrush”). The black-throated population occurs in the western part of the

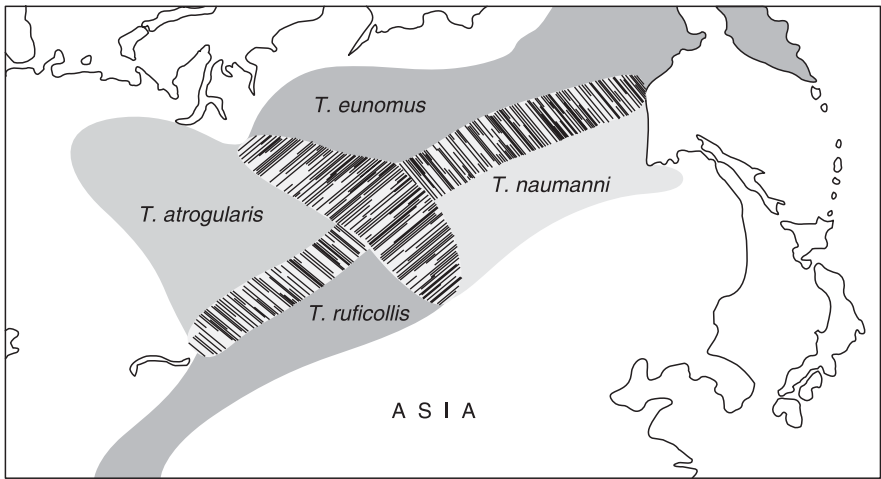


Figure 14. Hybridization between four Asiatic thrushes (genus *Turdus*). Hatched regions: hybrid zones.

“Dark-throated” range, and the red-throated population, in the eastern. Juvenile hybrids are intermediate in tail color, adults, also in color of throat and crop. Clement 2000 (p. 379); Dement’ev and Gladkov 1966–1970 (vol. 6, pp. 523–524); Harrison 1982 (Map 549); Portenko 1981; Rothschild (Lord) 1923; Sibley and Monroe 1990 (p. 517); Stepanyan 1982; Suchetet 1897a; Sushkin 1925, 1929; Szielasko 1925; Zarudnyi and Koreev 1906. Internet: DIGI.

Turdus bouboul [Grey-winged Blackbird]

× ***Turdus fuscater*** (♀) [Great Thrush] CHR. DRS. Suggitt reared hybrids of both sexes. *Bird Notes* 1912 (p. 338), 1913 (p. 49); Hopkinson 1926 (p. 220); Page 1914b (p. 35); Suggitt 1913.

× ***Turdus merula*** (♀) [Common Blackbird] CHR. BRO: n Pakistan to s China. *T. merula* ranges to higher altitudes and latitudes than does *T. bouboul* (so there may be ACZs). Butler 1905, 1906a, 1906b, 1910b (vol. 1, p. 14), 1914; Hopkinson 1926 (p. 220); Page 1913, 1914b (p. 35).

Turdus cardis [Japanese Thrush]

× ***Turdus grayi*** [Clay-colored Thrush] CHR. BRO: DRS. Isenberg 1962.

Turdus chiguanco [Chiguanco Thrush]

× ***Turdus fuscater*** [Great Thrush] ENHR (Bolivia). Fjeldså and Krabbe 1990.

Turdus chrysolais [Brown-headed Thrush]

× ***Turdus pallidus*** (♂) [Pale Thrush] CHR. BRO: e Russia (Tartar Strait region). These birds are sometimes lumped. Hopkinson 1934 (p. 315).

Turdus eunomus [Dusky Thrush]

See also: *Turdus atrogularis*.

× ***Turdus naumanni*** (♂) [Naumann’s Thrush] ENHR (Russia). BRO: upper Vitim R., middle Angara R., middle and upper Podkamennaya Tunguska R., upper Lena R., to Sea of Okhotsk. See Figure 14. HPF(vh). Clements describes the hybrids. Due to hybridization, these birds are now usually lumped, although Flint et al. (1984, pp. 216–217) describe them as “strikingly different” and note that many ornithologists are currently inclined to treat them as separate species. Clement 2000 (pp. 384–385); Dement’ev and Gladkov 1966–1970 (vol. 6, p. 517); Hachisuka (Marquess) 1928; Harrison 1982 (p. 259); Panov 1989; Portenko 1981; Rothschild (Lord) 1923; Suchetet 1897a; Vaurie 1959a. Internet: DIGI.

- × *Turdus pallidus* [Pale Thrush] CHR. DRS. These birds are separated by the range of *T. naumanni*. Gray 1958. Internet: DIGI.
- × *Turdus ruficollis* [Red-throated Thrush] ENHR (Siberia). BRO: lower Tunguska R. See Figure 14. Ackermann 1898; Clement 2000 (p. 379); Panov 1989; Portenko 1981; Suchetet 1897a.
- Turdus fumigatus*** [Cocoa Thrush]
- × *Turdus hauxwelli* [Hauxwell's Thrush] ENHR (upper Amazon Basin). When Snow (1985) found that these birds interbreed, he suggested they be merged, but they are still usually listed as separate species. Ridgely and Tudor 1989.
- × *Turdus obsoletus* [Pale-vented Thrush] ENHI (S. America). A population, *orinocensis*, has been alternately assigned to *T. obsoletus* or *T. fumigatus* by various authors. This fact, together with its geographic intermediacy, suggests *orinocensis* as a PHP of this cross. Meyer de Schauensee and Phelps 1978; Ridgely and Tudor 1989.
- Turdus fuscater*** [Great Thrush] See: *Turdus bouboul*; *T. chiguanco*.
- Turdus grayi*** [Clay-colored Thrush] See: *Turdus cardis*.
- Turdus hauxwelli*** [Hauxwell's Thrush] See also: *Turdus fumigatus*.
- × *Turdus obsoletus* [Pale-vented Thrush] ENHI. Meyer de Schauensee notes the intermediate position and appearance of a population, *columbianus*, Colombian–Ecuadorian border, which suggests it as a PHP of this cross. Ridgely and Tudor 1989; Meyer de Schauensee 1966.
- Turdus iliacus*** [Redwing]
- × *Turdus merula* [Common Blackbird] NHR. BRO: n Europe, w Russia. Carlsson 1998.
- × *Turdus obscurus* [Eyebrowed Thrush] NHR? BRO: Siberia. Martorelli 1901.
- × *Turdus philomelos* (♀?) [Song Thrush] CHR. NHI. BRO: Russia, ne Europe. Carr mentions captive hybrids. The assignment of a ring number suggests that this hybrid also occurs naturally, but there seems to be no published report. Carr 1959 (pp. 48–49). Internet: FOTO5.
- × *Turdus pilaris* [Fieldfare] NHR (n Europe). Old reports. BRO: w Eurasia. Collett 1898b†, 1906; Sclater 1898; Zoologist 1898.
- Turdus leucomelas*** [Pale-breasted Thrush]
- × *Turdus migratorius* (♂) [American Robin] CHR. DRS. Hopkinson 1926 (p. 221); London Zoo 1911; Page 1914b (p. 35).
- Note:** A population (*chobiensis*), often treated as a race of *Turdus libonyanus*, is morphologically and geographically intermediate between two other populations (*tropicalis*, *verreauxi*) also treated as races of *T. libonyanus*. It is therefore a PHP of hybridization between them. Benson et al. 1971 (p. 231).
- Turdus libonyanus*** [Kurrichane Thrush]
- × *Turdus olivaceus* [Olive Thrush] ONHR (S. Africa). In Harare, Paxton observed a mixed-pair with recently fledged hybrid offspring. A hybrid was described as dark above, whole throat speckled white (Olive Thrush features), but with bright orange flanks and bill, and white belly (Kurrichane features). Cowgill and Davis 1994; Hockey et al. 2005; Paxton 1995.
- Turdus merula*** [Common Blackbird] See also: *Turdus bouboul*; *T. iliacus*.
- × *Turdus migratorius* (♀) [American Robin] CHR. DRS. Dilger 1959.
- × *Turdus philomelos* (↔) [Song Thrush] CAONHR. BRO: British Isles to w Asia. This cross has long been recognized. Hybrids are easily obtained, but only about 10% of the eggs are fertile. Hybrids have dark legs, a black-brownish back, and are spangled at the throat. ABA 1941 (p. 59); Ackermann 1898; Adamson 1911; Aplin 1892; Blagg 1911; Butler 1895; Crabbe 1919; Eskildsen 1975; Fulljames et al. 1917; Gerrard 1917; Gray 1958; Hopkinson 1917a, 1926 (p. 221); Suchetet 1897a. Internet: GEOC†.
- × *Turdus pilaris* (♂) [Fieldfare] CAONHR (n Europe). Collett 1906; Fontaine 1955; Freitag 1971; Martorelli 1901. Internet: GEOC†.
- × *Turdus poliocephalus* [Island Thrush] ENHR (Australia). Hybridization with the Common Blackbird is thought to have contributed to

the decline of the Grey-headed Blackbird (*T. p. poliocephalus*), now extinct. Garnett and Crowley 2000; Schodde and Mason 1999.

- × *Turdus torquatus* (♂) [Ring Ouzel] NHR (England). Old reports. Hybrids are apparently larger than either parent. Ackermann 1898; Bonhote 1910; Kirkpatrick 1907; Suchetet 1895, 1897a.
- × *Turdus viscivorus* [Mistle Thrush] NHR?? Old reports. BRO: Eurasia. Ackermann 1898; Suchetet 1897a.

Turdus migratorius [American Robin]
See also: *Turdus leucocelas*; *T. merula*.

- × *Turdus philomelos* [Song Thrush] Some cite Gray (1958), but she merely notes that Dilger (1959) observed a mixed pair (♂ Robin × ♀ Song Thrush).

Turdus naumanni [Naumann's Thrush]
See also: *Turdus eunomus*.

- × *Turdus ruficollis* [Naumann's Thrush] ENHR (Siberia). The hybrid zone is near Lake Baikal. See Figure 14. Clement 1999, 2000 (p. 379).

Turdus obscurus [Eyebrowed Thrush]
See also: *Turdus iliacus*.

- × *Turdus pallidus* [Pale Thrush] PCZ (ne China, se Russia). No hybrids as yet reported. These birds are sometimes lumped. Harrison 1982 (Map 551).

Turdus obsoletus [Pale-vented Thrush]
See: *Turdus fumigatus*; *T. hauxwelli*.

Turdus olivaceus [Olive Thrush] See: *Turdus libonyanus*.

Turdus pallidus [Pale Thrush] See: *Turdus chrysolaus*; *T. eunomus*; *T. obscurus*.

Turdus phaeopygos [Grey-flanked Thrush]
See: *Turdus albicollis*.

Turdus philomelos [Song Thrush] See: *Turdus iliacus*; *T. merula*; *T. migratorius*.

Turdus pilaris [Fieldfare]
See also: *Turdus iliacus*; *T. merula*.

- × *Turdus viscivorus* [Mistle Thrush] CANHR. BRO: Eurasia. *Bird Notes* 1914; Panov 1989. Internet: GEOC[†].

Turdus poliocephalus [Island Thrush] See: *Turdus merula*.

Turdus ruficollis [Red-throated Thrush] See: *Turdus atrogularis*; *T. eunomus*; *T. naumanni*.

Turdus torquatus [Ring Ouzel]
See also: *Turdus merula*.

- × *Turdus viscivorus* [Mistle Thrush] CHR. BRO: Europe. Lippens 1957.

Turdus viscivorus [Mistle Thrush] See: *Turdus merula*; *T. pilaris*; *T. torquatus*.

Zoothera piaggiae [Abyssinian Ground-Thrush]

- × *Zoothera tanganyicae* [Kivu Ground-Thrush] ACZ. BRO: sw Uganda, e Dem. Rep. Congo (at ~2,000 m). No hybrids as yet reported, but a population (*hadii*) may be intermediate. Clement 2000 (p. 241); Dowsett and Dowsett-Lemaire 1993 (p. 354); Prigogine 1977.

Old World Flycatchers

Families Monarchidae, Muscicapidae

Catharus fuscescens [Veery]

- × *Catharus minimus* [Grey-cheeked Thrush] NHR. BRO: n Canada. Phillips 1991; Pyle 1997.

- × *Catharus ustulatus* [Swainson's Thrush] NHR. BRO: mts of e and w U.S., s Canada. Phillips 1991; Pyle 1997.

Catharus minimus [Grey-cheeked Thrush]
See: *Catharus fuscescens*.

Catharus ustulatus [Swainson's Thrush]
See: *Catharus fuscescens*.

Cossypha albigularis [MacClounie's Robin-Chat] See: *Cossypha anomala* × *C. mbuluensis*.

Cossypha anomala [Malawi Robin-Chat]

- × *Cossypha mbuluensis* [Mbulu Robin-Chat] ENHI (s Tanzania, n Malawi). MacClounie's Robin-Chat (*Cossypha albigularis*) is intermediate in morphology and range and, thus, a PHP of this cross. These birds are often lumped. Sibley and Monroe 1990 (p. 534).

Cossypha dichroa [Chorister Robin-Chat]

- × *Cossypha natalensis* [Red-capped Robin-Chat] ONHR (Zimbabwe, s Mozambique, S. Africa). BRO: East Cape coastal forests. ACZ (*dichroa* occurs above *natalensis*). Hybrids have orange superciliaries over incomplete black facial masks. Clancey 1982, 1986; Hockey et al. 2005; Oatley 1998.

Cossypha mbuluensis [Mbulu Robin-Chat]

See: *Cossypha anomala*.

Cossypha natalensis [Red-capped Robin-Chat]

See: *Cossypha dichroa*.

Ficedula albicilla [Taiga Flycatcher]× ***Ficedula parva*** [Red-breasted Flycatcher]

ONHR (Korea). BRO: e Asia. Although *albicilla* is sometimes treated as conspecific with *parva*, morphological, vocal, molt and mtDNA differences have prompted the British Ornithologists' Union to recommend a split. Sibley and Monroe (1990) do not list *albicilla*. Internet: BKOR2.

Ficedula albicollis [Collared Flycatcher]

× ***Ficedula hypoleuca*** [Pied Flycatcher] ENHR (Germany to w Russia and island of Gotland, Baltic Sea). HPF(♂♂). Saetre et al. (2003) show that not only hybridization, but also extensive backcrossing occurs in this cross. The song of hybrids becomes more like that of either parent as the range of that parent is approached. The Semi-collared Flycatcher (*Ficedula semitorquata*) is morphologically intermediate and, thus, a PHP of this cross (see Jonsson 1993, p. 456). Alatalo et al. 1982a, 1982b, 1984; Alatalo et al. 1990; Alerstam et al. 1978; Borge 2004; Bureš 1995; Christensen 1998; Gelter 1987, 1989; Gelter and Tegelström 1991; Gelter et al. 1992; Gustafsson 1989; Gustafsson and Part 1991; Holt 2000; Jonsson 1993; Král 1991; Kruszewicz 1993; Leyshon and Kerr 1996; Lissak 1988; Löhrl 1950, 1955; Lundberg and Alatalo 1992; Merila et al. 2003; Mild 1993, 1994, 1996; Monzиков 1991; Müller 1966; Muller 1985; Olioso 1991; Oreel 1991; Panov 1989; Ringleben et al. 1992; Saetre et al. 1997; Saetre et al. 1999; Saetre et al. 2001; Saetre et al. 2003; Schlegel and Schlegel 1999, 2003; Smith and Rohwer 2000; Sombrutzki 1992; Stra 1997; Sylvén 1974; Tegelström and Gelter 1990; Ulfstrand 2001; Ullman 1982; Veen et al. 2001; Vepsäläinen and Jarvinen 1977; von Boetticher 1925. Internet: MYST3.

Ficedula hypoleuca [Pied Flycatcher]

See: *Ficedula albicollis*.

Ficedula narcissina [Narcissus Flycatcher]

× ***Ficedula zanthopygia*** [Yellow-rumped Flycatcher] ONHI. BRO: ne China (Hebei, Shaanxi Provinces). The occurrence of many intermediate birds ("F. *zanthopygia*" individuals with yellow supercilia) suggests that ongoing hybridization is occurring. Panov 1989; Zheng 1976.

Ficedula parva [Red-breasted Flycatcher]

See: *Ficedula albicilla*.

Ficedula semitorquata [Semi-collared Flycatcher]

See: *Ficedula albicollis* × *F. hypoleuca*.

Ficedula zanthopygia [Yellow-rumped Flycatcher]

See: *Ficedula narcissina*.

Muscicapa aquatica [Swamp Alseonax]

× ***Muscicapa olivascens*** [Olivaceous Alseonax] Sibley and Monroe (p. 526) say Chapin's Alseonax (*Muscicapa lendu*) is sometimes considered to be this hybrid, but that "*lendu* is a distinct species." Chapin first described this bird, from a single specimen taken in 1926 w of Lake Albert (nw Zaire). Vaurie diagnosed this bird as a hybrid. A second specimen was taken from the nearby Impenetrable Forest (e Uganda, Kigesi Game Reserve). Only two specimens are known. Chapin 1932; Hall and Moreau 1970 (p. 206); Keith and Twomey 1968 (p. 543); Sibley and Monroe 1990; Vaurie 1953 (p. 521).

Muscicapa lendu [Chapin's Alseonax]

See: *Muscicapa aquatica* × *M. olivascens*.

Muscicapa olivascens [Olivaceous Alseonax]

See: *Muscicapa aquatica*.

Myiagra rubecula [Leaden Flycatcher]× ***Myiagra yorkei*** [York Flycatcher]

ENHR (Australia, Macpherson Range). These birds are now usually treated as conspecific. Ford 1987 (p. 187); Keast 1958b.

Terpsiphone albigenter Wolters

1975–1982 (p. 247) says this name refers to hybrids derived from the cross *T. emini* × *T. viridis*.

Terpsiphone batesi [Bates's Paradise-Flycatcher]

× ***Terpsiphone rufocinerea*** [Rufous-vented Paradise-Flycatcher] ENHR (Africa). HPF

BRO: Guineo-Congolian region. In nw Congo 35% of birds sampled by Dowsett-Lemaire were hybrid. One hybrid taken at Odzala sang the song of *T. viridis* and may have been a three-way hybrid. Due to hybridization these birds are sometimes lumped. Brosset and Erard 1977; Chapin 1948; Dowsett and Dowsett-Lemaire 1993 (p. 364); Dowsett-Lemaire 1999; Prigogine 1976, 1984; Sibley and Monroe 1990 (p. 491); Wolters 1975–1982 (p. 247).

Terpsiphone bedfordi [Bedford's

Paradise-Flycatcher]

- × *Terpsiphone rufiventer* [Black-headed Paradise-Flycatcher] ENHR. BRO: Dem. Rep. Congo. These birds hybridize wherever they meet and are often lumped. Dowsett and Dowsett-Lemaire 1993 (p. 364); Prigogine 1976, 1980b (pp. 342–344), 1980c (p. 94); Sibley and Monroe 1990 (p. 491).

Terpsiphone emini [Uganda Paradise-Flycatcher] See: *Terpsiphone rufiventer* × *T. viridis*.

- Terpsiphone poliothorax*** Wolters 1975–1982 (p. 247) says this name refers to hybrids derived from the cross *T. emini* × *T. viridis*.

Terpsiphone rufiventer [Black-headed Paradise-Flycatcher]
See: *Terpsiphone bedfordi*.

- × *Terpsiphone rufocinerea* [Rufous-vented Paradise-Flycatcher] ENHR (Africa). BRO: Gabon, Cameroon. Chapin 1948; Meise 1975.
- × *Terpsiphone tricolor* [Ashy-tailed Paradise-Flycatcher] ENHR (s Congo). BRO. Dowsett and Dowsett-Lemaire 1993; Dowsett-Lemaire and Dowsett 1991; Prigogine 1985; Wolters 1975–1982 (p. 247).
- × *Terpsiphone viridis* [African Paradise-Flycatcher] ENHR (Uganda, Kenya, Gambia). HPF(vh). These birds have a contact zone stretching across most of sub-Saharan Africa. *T. viridis* is associated with dense savanna woodland while *T. rufiventer* favors forested habitats.

These separating factors, however, are known to break down in some regions. Thus, hybrids are common, both in the w end of their ranges (Gambia, s Senegal), and in the e (n of L. Victoria). The hybrid population in Gambia is highly variable (e.g., with respect to the amount of white in the wing, and the extent of black and rufous on the underparts and head). Birds with part gray and part rufous underparts are hybrids. Sibley and Monroe (1990) say the Uganda Paradise-Flycatcher (*Terpsiphone emini*) is a stabilized hybrid population derived from this cross. Wolters says *T. rufiventer* itself is probably a stabilized population derived from the cross *T. tricolor* × *T. viridis*. Barlow and Wacher 1998; Carswell 1984; Chapin 1948; Meise 1975; Prigogine 1984; Sibley and Monroe 1990; Wolters 1975–1982 (p. 247).

Terpsiphone rufocinerea [Rufous-vented Paradise-Flycatcher]

See also: *Terpsiphone batesi*; *T. rufiventer*.

- × *Terpsiphone viridis* [African Paradise Flycatcher] ENHR. BRO: Angola, Gabon, Congo. Chapin 1948[†]; Meise 1975; Sibley and Monroe 1990.

Terpsiphone tricolor [Ashy-tailed Paradise-Flycatcher] See: *Terpsiphone rufiventer*.

Terpsiphone viridis [African Paradise-Flycatcher] See: *Terpsiphone batesi* × *T. rufiventer*; *Terpsiphone rufiventer*; *T. rufocinerea*.

Starlings and Mynas

Family Sturnidae

Acridotheres cristatellus [Crested Myna]

- × *Acridotheres tristis* (↔) [Common Myna] CHR. BRO: se Asia, s China (Szechwan, Hainan). *Avicultural Magazine* 1898 (p. 137), 1969 (p. 277); IZY 1983.

Acridotheres fuscus [Jungle Myna]

- × *Sturnus erythropygius* [White-headed Starling] CHR. DRS. A hybrid occurred at Morecambe Winged World in 1970. IZY 1972.

Acridotheres ginginianus [Bank Myna]

× *Sturnus erythropygius* [White-headed Starling] CHR. DRS. IZY 1974, 1975.

× *Sturnus pagodarum* [Brahminy Starling] CHR. BRO: s Asia. Leipzig Zoo (Germany) had three hybrids in 1980 and 1981. IZY 1982, 1983.

Acridotheres tristis [Common Myna] See:

Acridotheres cristatellus. A population (*melanosternus*) in s India and Sri Lanka, formerly known as the Ceylon Myna, hybridizes extensively with the northern *tristis* in s India (Kerala Prov.). Due to hybridization, these birds are now usually treated as conspecific. Ali and Ripley 1973.

Buphagus africanus [Yellow-billed Oxpecker]

× *Buphagus erythrorhynchus* [Red-billed Oxpecker] NHR. BRO: e and s Africa. Mundy 1998; Mundy et al. 2000.

Cosmopsarus regius [Golden-breasted Starling]

× *Lamprotornis superbus* (♀) [Superb Starling] CHR. BRO: e Ethiopia, s Somalia, Kenya, n Tanzania. *Avicultural Magazine* 1965 (p. 117); Delacour 1930; Ezra 1937, 1938, 1940a; Hopkinson 1931a (p. 226), 1932c.

Lamprotornis australis

[Burchell's Glossy-Starling]

× *Onychognathus morio* (♀) [Red-winged Starling] CHR. BRO: s Africa. Delacour 1930; Hopkinson 1930; Seth-Smith 1926, 1927.

Lamprotornis caudatus

[Long-tailed Glossy-Starling]

× *Lamprotornis purpuropterus* [Rueppell's Long-tailed Glossy-Starling] ENHI. A population in se Sudan (*aenocephalus*) is intermediate in morphology and range and, thus, a PHP of this cross. These birds are sometimes lumped. Feare and Craig 1999 (p. 209); Sclater 1930; White 1962.

Lamprotornis chalybaeus

[Greater Blue-eared Glossy-Starling]

× *Lamprotornis purpureus* [Purple Glossy-Starling] CHR. BRO: sub-Saharan Africa (*sahel*). *Avicultural Magazine* 1977 (p. 23).

× *Spreo bicolor* [African Pied Starling] CHR. BRO: s Africa. Three hybrids occurred at the Dallas Zoo (U.S.) in 1980. IZY 1982.

Lamprotornis purpureus

[Purple Glossy-Starling] See: *Lamprotornis chalybaeus*.

Lamprotornis purpuropterus [Rueppell's Long-tailed Glossy-Starling]

See: *Lamprotornis caudatus*.

Lamprotornis superbus [Superb Starling]

See: *Cosmopsarus regius*.

Mino anais [Western Golden-Myna]

× *Mino dumontii* [Eastern Golden-Myna] ENHI (w New Guinea). A population (*orientalis*) in the Onin Peninsula and Wandamann area of Geelvink Bay (also Japen I.) is intermediate in morphology and range and, thus, a PHP of this cross (personal observation of the author based on illustrations in Feare and Craig and distributional data in Rand and Gilliard). These birds are usually treated as conspecific. Feare and Craig 1999 (Plate 7); Rand and Gilliard 1968 (p. 448).

Onychognathus morio [Red-winged Starling]

See: *Lamprotornis australis*.

Spreo albicapillus

[White-crowned Starling]

× *Sturnus pagodrum* [Brahminy Starling] CHR. DRS. Petzsch 1951.

Spreo bicolor [African Pied Starling] See:

Lamprotornis chalybaeus.

Sturnus burmannicus

[Vinous-breasted Starling]

× *Sturnus erythropygius* [White-headed Starling] CHR. DRS. A hybrid was produced at the Berlin Zoo in 1977. IZY 1979.

× *Sturnus malabaricus* [Chestnut-tailed Starling] CHR. BRO: se Asia. IZY 1967.

Note: Formerly *Sturnus erythropygius* was often listed as *S. andamanensis* or *S. erythropygius andamanensis*.

Sturnus erythropygius [White-headed Starling]

See also: *Acridotheres fuscus*; *A. ginginianus*; *Sturnus burmannicus*.

× *Sturnus malabaricus* (♀) [Chestnut-tailed Starling] CHR. DRS. Anonymous 1908b; *Avicultural Magazine* 1905 (p. 287); Gray 1958 (p. 204), Hopkinson 1926 (p. 219); Page 1914b.

× *Sturnus pagodarum* (↔) [Brahminy Starling] CHR. BRO: India, Myanmar, s China. IZY 1973.

Sturnus malabaricus [Chestnut-tailed Starling]
See also: *Sturnus burmannicus*;
S. erythrogygius.

× *Sturnus pagodarum* (↔) [Brahminy Starling] CHR. BRO: India, Myanmar, s China. *Avicultural Magazine* 1957 (p. 47); Coupe 1966; Hopkinson 1930, 1931a; IZY 1968; Purves 1972; van Oosten 1956.

× *Sturnus roseus* (♂) [Rosy Pastor] A mixed pair nested together in captivity, but no hybrids have been reported. DRS. *Bird Notes* 1910 (p. 199).

Sturnus melanopterus [Black-winged Starling] Mees (p. 94) says a population, *tricolor*, treated as a race of this bird, probably originated from hybridization between two other populations treated as races, *melanopterus* and *tertius*. Both *tertius* and *tricolor* were formerly treated as species (*Gracupica tertia*, *Pastor tricolor*). Mees 1996 (pp. 94, 99).

Sturnus pagodarum [Brahminy Starling]
See also: *Acridotheres ginginianus*; *Spreo albicapillus*; *Sturnus erythrogygius*; *S. malabaricus*.

× *Sturnus roseus* (♂) [Rosy Pastor] CHR. BRO: Tadzhikistan? Afghanistan? *Avicultural Magazine* 1960 (p. 235); Hopkinson 1926 (p. 219); Jourdain 1875, 1877.

× *Sturnus vulgaris* (♀) [Common Starling] CHR. BRO: Afghanistan, Pakistan? des Abbayes 1912.

Sturnus roseus [Rosy Pastor] See: *Sturnus malabaricus*; *S. pagodarum*.

Sturnus unicolor [Spotless Starling]

× *Sturnus vulgaris* (♀) [Common Starling] CAENHR. Hybrid zone is in ne Spain. Hybridization probable also near Strait of Messina. These birds are sometimes lumped. Anonymous 1975; Berthold 1971; Caton 1998; Crewe 1998; de la Cruz Cardiel et al. 1997; Eens et al. 1992; Gantlett and Millington 1998; Motis 1992; Short 1972a.

Sturnus vulgaris [Common Starling]
See: *Sturnus pagodarum*; *S. unicolor*.

Mimids

Family Mimidae

Mimus gilvus [Tropical Mockingbird]

× *Mimus polyglottos* [Northern Mockingbird] ENHR (Veracruz, Mexico). Miller et al. 1957; Meise 1975; Meyer de Schauensee 1966 (p. 409).

Mimus polyglottos [Northern Mockingbird]
See also: *Mimus gilvus*.

× *Toxostoma bendirei* (♀) [Bendire's Thrasher] CHR. BRO: sw U.S., nw Mexico. A hybrid hatched July 17, 1989, at the Arizona-Sonora Desert Museum, Tucson, AZ. Reported missing May 9, 1993. Walkosak 2004.

× *Toxostoma curvirostre* (♀) [Curve-billed Thrasher] CHR. BRO: sw U.S., Mexico. A hybrid hatched Dec. 31, 1989 at the Arizona-Sonora Desert Museum, Tucson, AZ. Walkosak 2004.

Toxostoma bendirei [Bendire's Thrasher] See: *Mimus polyglottos*.

Toxostoma curvirostre [Curve-billed Thrasher]
See also: *Mimus polyglottos*.

× *Toxostoma palmeri* [Palmer's Thrasher] ENHR (sw U.S.). HPF(vh). Van Rossem notes that specimens from the ne boundary of the range of *T. palmeri* (s New Mexico–Arizona border), where its range approaches that of *T. curvirostre* are variably intermediate. Specifically, he says *palmeri* approaches *celsum* (which is usually placed in the *curvirostre* group). Although these birds have usually been lumped, on the basis of morphometric and genetic data, recent analyses suggest they be awarded separate specific status. *Toxostoma palmeri* is not listed by Sibley and Monroe (1990). Friedmann et al. 1950; Phillips 1986; Rojas-Soto 1998, 2003; Tweit 1996; van Rossem 1945 (p. 194); Zink and Blackwell-Rago 2000 (p. 885).

× *Toxostoma rufum* [Brown Thrasher] NHR. PCZ, se Colorado, w Oklahoma, n and e Texas. Stevenson and Anderson 1994 (p. 514); Weston 1952.

Toxostoma lecontei [Leconte's Thrasher]

× *Toxostoma redivivum* [California Thrasher] NHR. BRO: sw U.S., nw Mexico.

Grinnel and Swarth reported a suspected hybrid taken in May, San Gorgonio Pass, Riverside, California. Grinnell and Swarth 1913.

Toxostoma palmeri [Palmer's Thrasher]

See: *Toxostoma curvirostre*.

Toxostoma redivivum [California Thrasher]

See: *Toxostoma lecontei*.

Toxostoma rufum [Brown Thrasher]

See: *Toxostoma curvirostre*.

Nuthatches

Family Sittidae

Sitta caesia [Southern Nuthatch]

× *Sitta europaea* [Eurasian Nuthatch] ENHR (e Europe). A hybrid zone stretches between the Baltic and Black seas.

See Figure 15. Due to hybridization, these birds are sometimes treated as conspecific. Alex 1994; Harrison 1982 (p. 270 and Map 271); Løppenthin 1932; Matthyssen 1998 (pp. 25–26); Taczanowski 1882; Voous and van Marle 1953.

Note: Numerous ACZs exist between the various Asiatic nuthatches. Lack 1971.

Sitta cashmirensis [Kashmir Nuthatch]

× *Sitta castanea* [Chestnut-bellied Nuthatch] CHR. PCZ/ACZ (n India, Myanmar).

See Figure 15. These birds are sometimes lumped. Löhrl 1988; Ripley 1982 (p. 505).

× *Sitta himalayensis* [White-tailed Nuthatch] PCZ in Nepal. No hybrids as yet reported. Inskipp and Inskipp 1985.

× *Sitta sinensis* (♀) [Oriental Nuthatch] CHR. DRS. These birds are often treated as conspecific. Löhrl 1988.

Sitta castanea [Chestnut-bellied Nuthatch]
See also: *Sitta cashmirensis*.

× *Sitta nagaensis* [Chestnut-vented Nuthatch] ACZ in se Asia (*nagaensis* occurs above *castanea*). No hybrids as yet reported.

See Figure 15. Matthyssen 1998 (p. 31).

× *Sitta sinensis* [Oriental Nuthatch] CHR. DRS. These birds are often treated as conspecific. Löhrl 1988.

Note: Hybridization occurs between two populations (*affinis*, *europaea*),

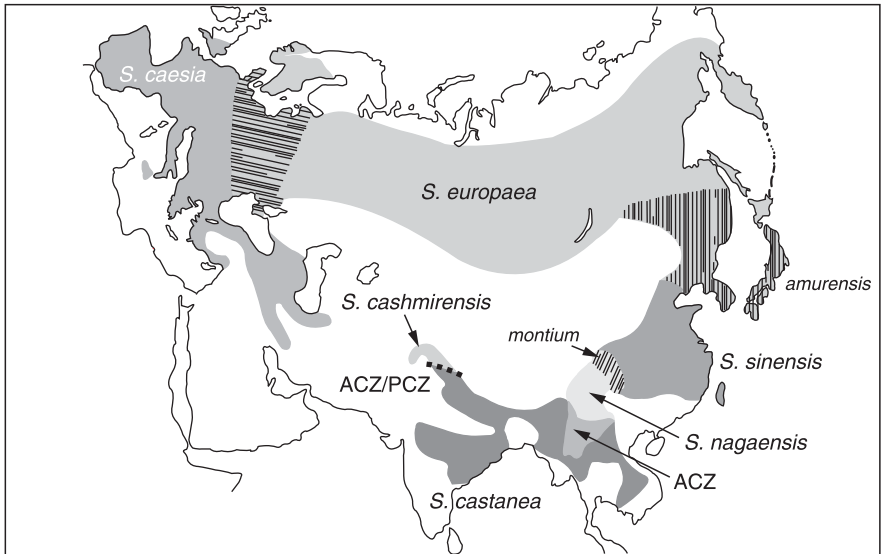


Figure 15. Contact zones between Eurasian nuthatches (genus *Sitta*). Hatched regions: PHPs (or wide hybrid zones).

formerly treated as separate species, but now sometimes as races of *S. europaea*. Gray 1958; Reichenow 1918; Suchetet 1897a.

Sitta europaea [Eurasian Nuthatch]

See also: *Sitta caesia*.

× ***Sitta sinensis*** [Oriental Nuthatch]

ENHR (ne China). A hybrid zone stretches along the northern coast of the Gulf of Chihli. See Figure 15. Stresemann suggested a population, *amurensis*, often treated as a race of *S. europaea*, as a PHP of this cross. If this population is considered to be included in the hybrid zone, then the zone is greatly broadened, stretching into the Amur region of Russia. Due to hybridization, these birds are sometimes treated as conspecific. Harrison 1982 (p. 270 and Map 271); Matthyssen 1998 (p. 26); Stresemann 1919c.

Sitta himalayensis [White-tailed Nuthatch]

See: *Sitta cashmirensis*.

Sitta nagaensis [Chestnut-vented Nuthatch]

See also: *Sitta castanea*.

× ***Sitta sinensis*** [Oriental Nuthatch] ENHI (s China). A population (*montium*) of *S. nagaensis* is geographically and morphologically intermediate, which suggests it as a PHP of this cross. See Figure 15. Due to hybridization, these birds are sometimes lumped. ACZ (*nagaensis* occurs above *sinensis*). Matthyssen 1998 (pp. 30, 227); Vaurie 1957b.

Sitta sinensis [Oriental Nuthatch] See: *Sitta cashmirensis*; *S. castanea*; *S. europaea*; *S. nagaensis*.

Wrens, Treecreepers, and Gnatcatchers

Families Certhiidae, Troglodytidae

Campylorhynchus sp.

× ***Thryomanes bewickii*** [Bewick's Wren]

ENHI? BRO: sw U.S., Mexico. Barker found that mtDNA and nuclear markers imply two inconsistent patterns of relationship for three wren genera (*Campylorhynchus*, *Thryomanes*, *Thryothorus*). He says the nature of their

relation needs to be reevaluated and that “extensive hybridization between the common ancestor of *Campylorhynchus* and that of *T. [hryothorus] ludovicianus* and *Thryomanes [bewickii]* could provide an alternative explanation for this pattern.”

However, Barker himself felt that such an explanation was unlikely since intergeneric hybridization has not otherwise been reported for wrens (though it is common in birds as a whole). Barker 2004 (p. 500).

× ***Thryothorus ludovicianus*** [Carolina Wren]

See: *Campylorhynchus* sp. × *Thryomanes bewickii*.

Campylorhynchus albobrunneus

[White-headed Wren]

× ***Campylorhynchus zonatus*** [Band-backed Wren] ENHR (nw Colombia). A population, *aenigmaticus*, in sw Nariño, is thought to be the product of this cross. A second hybrid zone exists on the Pacific slope of the Andes (Ecuador–Colombia border). *C. albobrunneus* is often lumped with *C. turdinus* (Thrush-like Wren), but not with *C. zonatus*. Haffer 1975; Ridgely and Tudor 1989; Sibley and Monroe 1990 (p. 558). Internet: DIGI.

Campylorhynchus capistratus [Rufous-backed Wren]

× ***Campylorhynchus rufinucha*** [Rufous-naped Wren] ENHR (s Mexico). Hybrid zone is in sw Chiapas. These birds are sometimes lumped. Selander 1964, 1965; Sibley and Monroe 1990 (p. 558).

Campylorhynchus rufinucha [Rufous-naped Wren] See: *Campylorhynchus capistratus*.

Campylorhynchus zonatus [Band-backed Wren] See: *Campylorhynchus albobrunneus*.

Certhia brachydactyla [Short-toed Treecreeper]

× ***Certhia familiaris*** [Eurasian Treecreeper] ONHR. BRO: e Europe and n Turkey. Dobbick 1924; Sick 1939; Stresemann 1919a.

Cyphorhinus aradus [Musician Wren] In

S. America several populations belonging to the Musician Wren Complex (*aradus*, *griseolateralis*, *interpositus*, *modulator*, *phaeocephalus*, *thoracicus*, *transfluvialis*), which are

definable on the basis of morphology, geographic distribution, and song, hybridize where they interface (*transfluvialis* and *interpositus* are probably PHPs of crossing between *modulator* and *griseolateralis*, whereas *griseolateralis* itself shows signs of gene flow from *aradus*). Some of these populations have been treated as separate species. Ridgely and Tudor describe the variation within the complex as a “stepped clinal situation.” That is, from a geographic perspective, traits are fairly constant within each population, but shift abruptly across narrow hybrid zones. Ridgely and Tudor 1989 (p. 94); Sibley and Monroe 1990 (p. 564).

Henicorhina leucophrys [Grey-breasted Wood-Wren]

× ***Henicorhina leucosticta*** [White-breasted Wood-Wren] NHI. BRO: n Peru. The Bar-winged Wood-Wren (*Henicorhina leucoptera*) is rare and intermediate and, thus, a PHP of this cross. Sibley and Monroe 1990.

Poliophtila californica [California Gnatcatcher]

× ***Poliophtila melanura*** [Black-tailed Gnatcatcher] NHR. BRO: s California, n Baja California. These birds are often lumped. Atwood 1988; Grinnell 1926.

Thryomanes bewickii [Bewick’s Wren] See: *Campylorhynchus* sp.

Thryothorus coraya [Coraya Wren]

× ***Thryothorus rufalbus*** [Rufous-and-white Wren] PCZ in Colombia. No hybrids as yet reported. Hilty and Brown 1986 (Maps 1124, 1129).

Thryothorus leucotis [Buff-breasted Wren]

× ***Thryothorus longirostris*** [Long-billed Wren] ONHR (ne Brazil). Hybrids occur in Piauí. Ridgely and Tudor 1989 (p. 80); Sibley and Monroe 1990 (p. 562). Internet: DIGI.

Thryothorus longirostris [Long-billed Wren]

See: *Thryothorus leucotis*.

Thryothorus ludovicianus [Carolina Wren]

See: *Campylorhynchus* sp.

Thryothorus maculipectus [Spot-breasted Wren]

× ***Thryothorus rutilus*** [Rufous-breasted Wren] PCZ in w Costa Rica. No hybrids as yet reported. Sibley and Monroe 1990 (p. 561).

Thryothorus rufalbus [Rufous-and-white Wren] See: *Thryothorus coraya*.

Thryothorus rutilus [Rufous-breasted Wren]

See: *Thryothorus maculipectus*.

Troglodytes aedon [Northern House-Wren]

× ***Troglodytes brunneicollis*** [Brown-throated Wren] ENHR (U.S.). HPF(vh). A variably intermediate population exists in se Arizona. These birds are often lumped. Brumfield and Capparella 1996 (p. 554); Marshall 1956 (pp. 93–96); Meyer de Schauensee 1966 (p. 407); Paynter 1957; Sibley 2000 (p. 386).

Troglodytes troglodytes [Winter Wren] Swarth (1931, 1934, p. 43) argued that Asiatic, Bering Sea, and North American populations of the Winter Wren, now subsumed under *T. troglodytes*, are morphologically distinct and that they should not be lumped due to hybridization.

Tits, Chickadees and Their Allies

Families Aegithalidae, Paridae

Note: Due to hybridization *Aegithalos alpinus*, *A. caudatus*, and *A. europaeus* are often treated as conspecific.

Aegithalos alpinus [Alpine Tit]

× ***Aegithalos europaeus*** [European Tit] ENHR (e Europe). A hybrid zone extends from Portugal to the Bosphorus. These birds are often lumped. Harrison 1982 (Map 559); Sibley and Monroe 1990 (p. 572).

Aegithalos caudatus [Long-tailed Tit]

× ***Aegithalos europaeus*** [European Tit] ENHR (e Europe). A hybrid zone extends from s Denmark to the Black sea. These birds are often lumped. Harrison 1982 (Map 559); Sibley and Monroe 1990 (p. 572).

× ***Parus cyanus*** [Azure Tit] NHR? Old records. Stresemann 1919b; Suchetet 1897a.

Aegithalos europaeus [European Tit] See: *Aegithalos alpinus*; *Aegithalos caudatus*.

Note: Birds listed here as members of genus *Parus* are often divided into *Baeolophus* and *Poecile*. Use of *Parus* here follows Sibley and Monroe (1990).

Parus afer [Grey Tit]

- × *Parus cinerascens* [Ashy Tit] PCZ in s Namibia and n S. Africa. No hybrids as yet reported. Tricot 1967.

Parus ater [Coal Tit]

- × *Parus cristatus* [Crested Tit] NHR. BRO: Europe. Tricot 1967.
- × *Parus melanolophus* [Black-crested Tit] ONHR. BRO: Asia (Himalayas, Tian Shan Mountains) Diesselhorst and Martens 1972; Harrison 1982 (Map 565); Löhrl 1994; Martens 1975. Internet: DIGI.
- × *Parus montanus* [Willow Tit] NHR. BRO: Eurasia. Hildén 1983; Mattes and Bürkli 1986.

Parus atricapillus [Black-capped Chickadee]

- × *Parus bicolor* [Tufted Titmouse] NHR? BRO: ne U.S. Old records. Ridgway 1876; Suchetet 1897a (p. 301).
- × *Parus carolinensis* [Carolina Chickadee] ENHR (e U.S.). HPF(♂&♀). Hybridization occurs along a narrow zone passing through Kansas, Missouri, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey. It occurs also further s along the Appalachian Mountains (ACZ with *P. atricapillus* occurring above *P. carolinensis*). Over the last century this zone has been moving northwards. According to Brown et al. (2003), both Carolina and Black-capped ♀♀ prefer to mate with *P. carolinensis* ♂♂. The parental types look similar and can best be told apart by their songs. However, in areas near the hybrid zone, identification on this basis is more difficult (where any bird singing the song of both parents or singing an atypical song should probably be identified as hybrid). Molecular genetic discrimination is most reliable. Bronson, Grubb, and Braun (2003) monitored the reproductive success of mated pairs of the two types and their hybrids within the zone. Although environmental conditions were comparable, hybrid pairs produced fewer nestlings and fledglings than did unmixed pairs, even though clutch sizes were similar (i.e., less than half as many). This finding, based on natural observations, is consistent with the plethora of data from captive breeding, indicating hybrids are often

less fertile than pure parental types. The Smithsonian has more than 200 hybrid specimens (taken in Virginia and W. Virginia). Braun and Robbins 1986; Brewer 1961; Bronson, Grubb, and Braun 2003; Bronson, Grubb, Sattler, and Braun 2003; Chapman 1924; Dixon 1955[†]; Eck 1980; Gill 1998; Gill et al. 1993; Johnston 1971; LeGrand 1974; Rising 1968, 1983a; Robbins et al. 1986; Sattler 1996; Sattler and Braun 1992, 2000; Tanner 1952; Yunick 2003.

- × *Parus gambeli* [Mountain Chickadee] ENHR. BRO: w U.S., sw Canada. Hybridization occurs over a broad geographic region. Banks 1970; Braun and Robbins 1986; Howe 1985; Hubbard 1978; Martin and Martin 1996; McCallum et al. 1999; Suchetet 1897a (p. 300).

Parus atricristatus [Black-crested Titmouse]

- × *Parus bicolor* [Tufted Titmouse] ENHR (U.S.). Though they are genetically distinct, these birds are now often treated as conspecific due to hybridization. A narrow hybrid zone exists in Texas and Oklahoma. On the Texas coast, this zone has moved little, if any, in more than a century. *P. bicolor* birds possess a gray crest; *P. atricristatus* birds, a black one. In appearance, hybrids are more similar to Black-crested Titmouse than to Tufted Titmouse. Specimens collected outside the zone show no morphological indication of hybridization. Major suggests that maintenance of this hybrid zone may involve factors characteristic of both the bounded hybrid superiority and tension zone models (see pp. 22–23). Some hybrids sing a song that the parental birds don't. Allen 1907; Avise and Zink 1988; Braun et al. 1984; Dixon 1955, 1978, 1990; Gill and Slikas 1992; Major 1998; Miller et al. 1957; Ridgway 1901–1950 (Part 3, p. 386); Rising 1983a; Sennett 1887. Internet: DIGI.

Parus bicolor [Tufted Titmouse] See: *Parus atricristatus*.***Parus bokharensis*** [Turkestan Tit]

- × *Parus cinereus* [Cinereous Tit] ENHR (sw Asia). Hybrid zone is in s Kazakhstan,

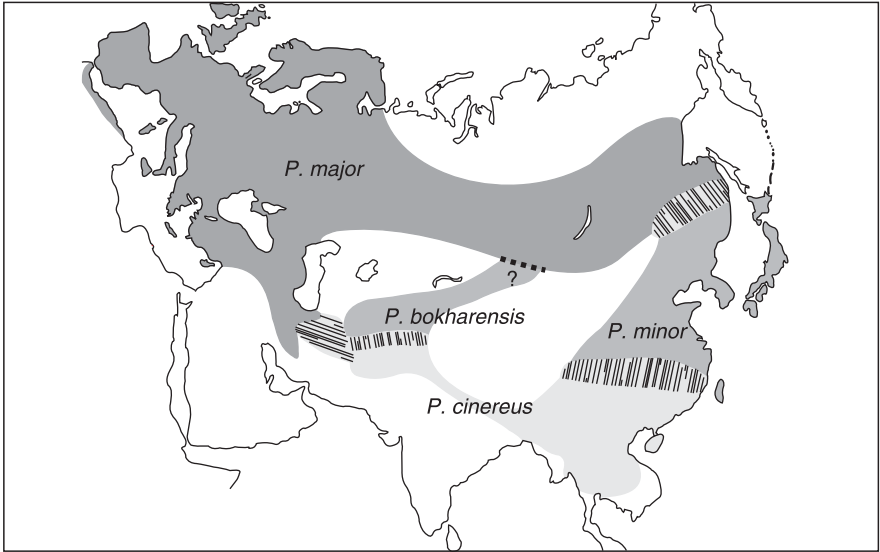


Figure 16. Hybridization in the Great Tit Complex (genus *Parus*). Hatched regions: hybrid zones. Dotted line: PCZ (possible hybridization indicated by question mark).

n Afghanistan, and Tadjikistan. See note immediately preceding cross *Parus cinereus* × *P. major* and Figure 16. Due to hybridization, these birds are now sometimes treated as conspecific. Chalikova 2001; Formozov et al. 1993; Harrison 1982 (Map 571); Kvist et al. 2003; Sklyarenko and Lopatin 1989.

× *Parus major* [Great Tit] ENHR. Hybrid zone is in w Mongolia, nw China. See note immediately preceding cross *Parus cinereus* × *P. major* and Figure 16. Due to hybridization, these birds are now sometimes treated as conspecific. Eck and Piechocki 1977; Formozov 1994; Formozov et al. 1993; Harrison 1982 (Map 571); Kvist et al. 2003; Piechocki et al. 1982.

Parus caeruleus [Blue Tit]

× *Parus cyanus* (↔) [Azure Tit] ENHR (w Russia, Europe). HPF Pleske (1912) suggested a bird then listed as a species, *Parus pleskei* (Pleske's Tit), to be the product of this cross, as is now thought to be the case. Becker et al. 1980; Boon 1994; Breusing and Barthel 1993; Finn 1911; Forsten and

Numminen 1992; Godin 1974; Harrap 1995; Holyński 1975; Hopkinson 1926 (p. 220); Legendre 1936; Mayr 1942; Meise 1936a, 1975; Neunzig 1913 (p. 210); Olioso 2003; Page 1911, 1912a, 1914b (p. 44); Panov 1989; Pleske 1912; Potvliege 1979, 1996; Sibley and Monroe 1990 (p. 571); Suchetet 1897a; Ullman 2003.

× *Parus major* (♂) [Great Tit] NHR. BRO: Europe, w Asia. The Slagsvold studies report on cross-fostering and mixed pairing, not hybridization. Surprisingly, Slagsvold et al. showed that none of the offspring of six *P. major*/*P. caeruleus* pairs were hybrid. Genetic tests showed them all to be pure Blue Tits, presumably resulting from extra-pair copulations of the ♀ (Blue Tit) parent with other Blue Tits. Ackermann 1898; Arrigoni Degli Oddi 1931a⁺; Godin 1974; Slagsvold 1998; Slagsvold and Hansen 2001; Slagsvold et al. 2002; Suchetet 1897a.

Parus carolinensis [Carolina Chickadee]

See: *Parus atricapillus*. Murphy reports a case of a *P. carolinensis* pair incubating

and raising a bluebird (*Sialis sialis*).
Murphy 1968.

Parus cinctus [Siberian Tit]

× *Parus hudsonicus* [Boreal Chickadee] NHR. ENHI. BRO: n Alaska; nw Canada. Sibley says Alaskan populations of Boreal Chickadee resemble adj. Siberian Tit. This fact suggests extensive hybridization. Miller 1943; Sibley 2000 (p. 376).

× *Parus montanus* (♂) [Willow Tit] ENHR (n Scandinavia, n Russia). HPF BRO: n Eurasia. Hilden and Ketola 1985; Järvinen 1987, 1989, 1997; Järvinen et al. 1985; Panov 1989; Shutova 1986; Thingstad and Vie 2003.

Parus cinerascens [Ashy Tit] See: *Parus afer*.

Note: The Great Tit Complex is divided into four populations (*bokharensis*, *cinereus*, *major*, and *minor*), each of which has been treated both as a race of *Parus major* and as a separate species (see Figure 16.). They differ markedly in morphological, vocal, and behavioral characters. Hybridization occurs wherever they meet. In a genetic study Kvist et al. (2003) say these four birds have had long-independent evolutionary histories and that whether they should be treated as separate species is a matter of definition—according to the phylogenetic species concept, all four could be treated separately, but under the biological species concept, none could, since hybridization does occur.

Parus cinereus [Cinereous Tit]

See also: *Parus bokharensis*.

× *Parus major* [Great Tit] ENHR. HPF(vh). Hybrid zone is along the borders of Iran, Kazakhstan, and Afghanistan. See Figure 16. Two populations, *intermedius* and *conmixtus*, treated as races of *P. major*, are PHPs of this cross. Due to extensive hybridization, these birds are now often lumped. Harrison 1982 (Map 571); Kerimov, and Formozov 1985; Kerimov and Formozov 1994; Kvist et al. 2003; Panov 1989; Vaurie 1950, 1959a. Internet: DIGI.

× *Parus minor* [Japanese Tit] ENHR. HPF(vh). Hybrid zone is in se China (Guangdong). Due to extensive hybridization these birds

are now often lumped. Harrison 1982 (Map 571); Kerimov and Formozov 1994; Kvist et al. 2003; Panov 1989. Internet: DIGI.

Parus cristatus [Crested Tit]

See also: *Parus ater*.

× *Parus montanus* [Willow Tit] NHR. BRO: n Europe. Backe describes a probable hybrid ringed near Gällivare, n Sweden. Backe 2001; Pleske 1887, 1922.

× *Parus palustris* [Marsh Tit] NHR. Old record, Suchetet 1897a.

Parus cyanus [Azure Tit]

See also: *Aegithalos caudatus*; *Parus caeruleus*.

× *Parus flavipectus* [Yellow-breasted Tit] ENHR (se Kazakhstan, Tadjikistan). Due to hybridization, these birds are sometimes treated as conspecific. Panov 1989. Internet: DIGI.

× *Parus palustris* [Marsh Tit] NHR?? BRO: Eurasia. Suchetet 1897a.

Parus flavipectus [Yellow-breasted Tit]

See: *Parus cyanus*.

Parus gambeli [Mountain Chickadee]

See: *Parus atricapillus*.

Parus guineensis [White-shouldered Black-Tit]

× *Parus leucomelas* [White-winged Black-Tit] NHR. Hybrids have been reported from Uganda, where these birds occur in mixed flocks. *Guineensis* and *leucomelas* are often treated as conspecific. White 1963.

Parus hudsonicus [Boreal Chickadee]

See: *Parus cinctus*.

Parus inornatus [Plain Titmouse]

× *Parus ridgwayi* (♀) [Ridgway's Titmouse] ONHR. There is a PCZ ne of Mt. Shasta (ne California), where mtDNA haplotype shifts abruptly from that of *inornatus* to that of *ridgwayi*. Cicero found mixed pairs there, as well as both *ridgwayi*-like (large) birds with *inornatus* mtDNA and *inornatus*-like (small) birds with *ridgwayi* mtDNA. Cicero says gene flow is toward *ridgwayi*. She ascribed the abrupt change in mtDNA haplotypes to selection, but such shifts are often seen, too, if ♀ hybrids are infertile or inviable. These birds were recently split by the AOU. Cicero 2004.

Parus leucomelas [White-winged Black-Tit]

See also: *Parus guineensis*.

× *Parus niger* [Southern Black-Tit] PCZ (Malawi, Zambia). Benson et al. say the contact zone is about 100 km wide. No hybrids as yet reported, but a population (*carpi*) may be intermediate. Benson and Benson 1977; Benson et al. 1971 (p. 205); Dowsett and Dowsett-Lemaire 1993 (pp. 367–369); Hall and Moreau 1970; White 1963.

Parus major [Great Tit] PCZ (s Africa). See also: *Parus bokharensis*; *P. caeruleus*; *P. cinereus*.

× *Parus minor* [Japanese Tit] ENHR. HPF(vh). Hybrid zone is in Priamur region (e Russia). See Figure 16. Due to hybridization these birds are often lumped. Harrison 1982 (Map 571); Kerimov and Formozov 1994; Kvist et al. 2003; Nazarenko et al. 1999; Panov 1989. Internet: DIGI.

× *Parus palustris* [Marsh Tit] NHR (France). Duquet 1995.

Parus melanolophus [Black-crested Tit]
See: *Parus ater*.

Parus minor [Japanese Tit] See: *Parus cinereus*; *P. major*.

Note: Two populations (*montanus*, *salicarius*) treated as races of *P. montanus*, differ in song and have a narrow hybrid zone in the foothills of the Alps in Austria and Bavaria. Internet: DIGI.

Parus montanus [Willow Tit]
See also: *Parus ater*; *P. cinctus*; *P. cristatus*.

× *Parus palustris* (♀) [Marsh Tit] NHR (w Europe). Dhondt and Huble 1969; Löhrl 1987; Romanowski 1979.

× *Parus varius* [Varied Tit] NHR (Japan). Kuroda 1937[†]; Mishima 1968a.

Parus niger [Southern Black-Tit] See: *Parus leucomelas*.

Parus pallidiventris [Cinnamon-breasted Tit]
× *Parus rufiventris* [Rufous-bellied Tit] ONHR (Zimbabwe, e Zambia). Hybrids are known from the vicinity of Harare (Hunyari R.) and Chipata. These birds are often treated as conspecific. Dowsett and Dowsett-Lemaire 1993 (p. 369); Hall and Moreau 1970 (p. 234); Sibley and Monroe 1990 (p. 570). Internet: DIGI.

Parus palustris [Marsh Tit] See: *Parus cristatus*; *P. cyanus*; *P. major*; *P. montanus*.

Parus pleskei [Pleske's Tit]
See: *Parus caeruleus* × *P. cyanus*.

Parus ridgwayi [Ridgway's Titmouse]
See: *Parus inornatus*.

Parus rufescens [Chestnut-backed Chickadee]
A population, usually lumped with this bird (*barlowi*), is sometimes treated as a separate species (Santa Cruz Chickadee). A hybrid population exists in Marin Co., California. Internet: SIB.

Parus rufiventris [Rufous-bellied Tit]
See: *Parus pallidiventris*.

Parus varius [Varied Tit]
See: *Parus montanus*.

Psaltriparus melanotis [Black-eared Bushtit]

× *Psaltriparus minimus* [Common Bushtit] ENHR (n Mexico, s Texas). These birds are often lumped. Miller et al. 1957; Raitt 1967, Sibley 2000 (p. 379).

× *Psaltriparus plumbeus* [Lead-colored Bushtit] ENHI (w Texas, nw Mexico).

A population, *lloydi*, has been treated as a race of both these birds and is morphologically intermediate. It is thus a PHP of this cross. These birds are often treated as conspecific. Phillips 1986 (p. 96); Sloane 2001 (p. 4).

Psaltriparus minimus [Common Bushtit]
See: *Psaltriparus melanotis*.

Psaltriparus plumbeus [Lead-colored Bushtit]
See: *Psaltriparus melanotis*.

Remiz coronatus [White-crowned Penduline-Tit]

× *Remiz pendulinus* [White-throated Penduline-Tit] NHR (Hungary). BRO: w Asia. These birds are sometimes treated as conspecific. Wagner and Molnar 1997.

Remiz macronyx [Black-headed Penduline-Tit]

× *Remiz pendulinus* [White-throated Penduline-Tit] ENHR (s Russia, Kazakhstan). Hybridization occurs along a line passing e from the northern Caspian, n of the Aral Sea, to the Lake Balkhash region. Panov 1989; Vaurie 1957a.

Remiz pendulinus [White-throated Penduline-Tit] See: *Remiz coronatus*; *R. macronyx*.

Swallows

Family Hirundinidae

Delichon dasypus [Asian House-Martin]

× *Delichon urbica* [Northern House-Martin] PCZ along Sino-Indian frontier. No hybrids as yet reported, but they would be difficult to detect in these similar birds. *D. dasypus* and *D. urbica* are often lumped. MacKinnon and Phillipps 2000 (Plate 89); Sibley and Monroe 1990 (p. 580).

Delichon urbica [Northern House-Martin]

See also: *Delichon dasypus*.

× *Hirundo rustica* (♀) [Barn Swallow] ENHR. HPF(♂♂). BRO: Eurasia. Hybrids have been widely reported (Russia and Scandinavia to Zambia). Hybridization seems to occur on an ongoing basis over the entire broad region of sympatry, but at low levels (less than 1% of general population is hybrid). Kabus says hybrids are easily confused with Red-rumped Swallow (*Hirundo daurica*). Ackermann 1898; Ash 1985; Baker 1998; Bengtsson and Larsson 1992; Bennett 1981; Berndt 1931; Cox 1993; Cudworth 1982; de Lope Rebollo and Sanabria Tienza 1985; Dowsett 1975, 1978; Elsner 1951; Ferianc and Brtek 1974; Girard 1985; Grech 1983; Grundler et al. 1991; Hachisuka (Marquess) 1928; Hampe 1928, 1931[†]; Henry and Kayser 1998; Kabus 2002; Kihlén 1933; Loparev 1996; Loske 1979; Mayr 1942; Meise 1936a; Menzel 1984; Michaelsen 1970; Nicolau-Guillaumet 1998; Olsson 1994; Pritchard 1997; Raick 1981; Ringleben 1948; Roberts 1980; Rothschild (Lord) 1923; Saurola 2000, 2002[†], 2003; Spanneut 1997; Stephenson and Dorma 1982; Suchetet 1897a; Turrian 2004; van Spijk 1937; van den Brink 1988, 1990, 1995, 1999; Vansteenwegen 1981; Yosef 2000; Wiprachtiger 1987.

× *Riparia riparia* [Sand Martin] NHR. BRO: Eurasia. Heneberg 1997; Myrbach 1975; Phillips 1986.

Hirundo daurica [Red-rumped Swallow]

See: *Delichon urbica* × *Hirundo rustica*.

× *Hirundo domicella* [West African Swallow] PCZ in s Asia. No hybrids as yet reported. These birds are sometimes lumped. Sibley and Monroe 1990.

× *Hirundo rustica* [Barn Swallow] NHR?? A sighted bird (Tresco, Isles of Scilly, U.K.) may have been this hybrid. Flumm 1975.

× *Hirundo striolata* [Striated Swallow] PCZ in s Asia. No hybrids as yet reported. These birds are sometimes lumped. Sibley and Monroe 1990.

Hirundo domicella [West African Swallow]

See: *Hirundo daurica*.

Hirundo fuligula [Rock Martin]

× *Hirundo obseleta* [Pale Crag-Martin] ENHR (Africa). Intermediate populations exist in the Sahara. Due to hybridization, these birds are sometimes lumped. Dowsett and Dowsett-Lemaire 1993 (pp. 348–349); Hall and Moreau 1970 (p. 31); Prigogine 1984; Sibley and Monroe 1990 (p. 576).

Hirundo fulva [Cinnamon-throated Swallow]

× *Hirundo pelodoma* [Cave Swallow] ENHI. A population in Chiapas, Mexico is intermediate. These birds are usually treated as conspecific. Miller et al. 1957; Sibley and Monroe 1990 (p. 579).

× *Hirundo rustica* [Barn Swallow] ONHR (s Texas, U.S.). Martin 1980.

Hirundo neoxena [Welcome Swallow]

× *Hirundo rustica* [Barn Swallow] NHR (se Australia)? Conole and Baverstock (1994) observed a probable hybrid at Linton, Victoria (Clarkesdale Bird Reserve).

Hirundo obseleta [Pale Crag-Martin]

See also: *Hirundo fuligula*.

× *Hirundo rupestris* [Eurasian Crag-Martin] NHR (s Morocco). PCZ (Middle East, n Africa). Dorst and Pasteur 1954; Voous 1960 (p. 188), 1977 (p. 231).

Hirundo pelodoma [Cave Swallow]

See also: *Hirundo fulva*.

× *Hirundo pyrrhonota* (♀) [Cliff Swallow] NHR (s N. America)? BRO: se Arizona, s Texas, Mexico. Huels reports a mixed pair that hatched nestlings, which died before definite identification as hybrids. Huels 1985.

- × *Hirundo rustica* (♀) [Barn Swallow] ONHR (U.S.) BRO: sw Texas, New Mexico. These birds breed together in highway culverts. Brown and Brown say hybridization between these birds was the reason for merging *Petrochelidon* into *Hirundo*. Brown and Brown 1995 (p. 4); Hubbard 1983; Martin 1980, 1982; Martin and Selander 1975.
- Hirundo pyrrhonota*** [Cliff Swallow]
See also: *Hirundo pelodoma*.
- × *Hirundo rustica* [Barn Swallow] ONHR (w U.S.). Trotter (1878) and Mearns describe hybrids. These birds breed together in highway culverts. Rogers and Jaramillo say probable hybrids have been repeatedly sighted in California (in San Bernardino, Riverside, Kern, Ventura, and Imperial cos.) and that they are similar, but not identical to, Cave Swallows. Brown and Brown 1995 (p. 4); Huels 1985; Martin 1980; Mearns 1902; Rogers and Jaramillo 2002; Suchetet 1897a; Trotter 1878, 1887.
- × *Tachycineta bicolor* [Tree Swallow] NHR (ne U.S.). Chapman describes a ♂ hybrid taken in Springfield, Massachusetts. Chapman 1902.
- × *Tachycineta thalassina* [Violet-green Swallow] NHR (w Canada, British Columbia). BRO: w N. America. An apparent hybrid was like *T. thalassina* in size and shape, but less green above; tail unforked, rump sides mottled white; head, chin, and throat ochre-buff, iridescent green crown patch. There was a partial collar of white extending around the nape; irides dark brown, bill and feet dark. Unlike *T. thalassina*, the bird was silent. Whittington 2000[†], 2003[†].
- Hirundo rupestris*** [Eurasian Crag-Martin]
See: *Hirundo obsoleta*.
- Hirundo rustica*** [Barn Swallow]
See also: *Delichon urbica*; *Hirundo daurica*; *H. fulva*; *H. neoxena*; *H. pelodoma*; *H. pyrrhonota*; Appendix 2.
- × *Riparia riparia* [Sand Martin] NHR. BRO: Eurasia, N. America, n Africa. Heneberg 1997.
- Hirundo striolata*** [Striated Swallow]
See: *Hirundo daurica*.
- Progne chalybea*** [Grey-breasted Martin]
- × *Progne elegans* [Southern Martin] ONHR (nw Argentina). Rarely, these birds are lumped. Eisenmann and Haverschmidt 1970; Meyer de Schauensee 1966; Phillips 1986 (p. 11).
- Progne elegans*** [Southern Martin]
See also: *Progne chalybea*.
- × *Progne modesta* [Galapagos Martin] NHI. The Peruvian Martin (*P. murphyi*), often lumped with these two birds, is extremely rare. On an Internet site now defunct, T. S. Schulenberg said only nine specimens are known. It is also intermediate in morphology and range (Ridgely and Tudor 1989). These facts suggest *murphyi* as a PHP of this cross (i.e., of occasional hybridization between vagrant Southern and Galapagos martins along the coast of Peru).
- Progne modesta*** [Galapagos Martin]
See: *Progne elegans*.
- Progne sinaloae*** [Sinaloa Martin]
- × *Progne subis* [Purple Martin] NHR (nw Mexico). BRO: e Sonora. Van Rossem (p. 165, footnote) says a bird taken at Agiabampo (s Sonora) in May was probably hybrid because “the extremely small size [for a Purple Martin] (wing, 137; tail, 71) is combined with conspicuously white-margined undertail coverts and an occasional concealed white feather on the abdominal regions.” The Dickey Collection has a hybrid (#32053). Miller et al. note other intermediates from La Laja (e.g., AMNH #107073). These birds are often lumped. Miller et al. 1957; Phillips 1959 (pp. 351–352); van Rossem 1945.
- Progne subis*** [Purple Martin] See: *Progne sinaloae*.
- Riparia riparia*** [Sand Martin] See: *Delichon urbica*; *Hirundo rustica*.
- Stelgidopteryx ruficollis*** [Southern Rough-winged Swallow]
- × *Stelgidopteryx serripennis* [Northern Rough-winged Swallow] ENHR (s Pacific Costa Rica, w Panama). HPF(vh). These birds were recently split. *S. serripennis* is uniformly brown above and mainly whitish below. *S. ruficollis* is more colorful, with a white rump, yellowish underparts, and rufous

throat. The latter occurs at lower elevations. A highly variable population, *decolor*, has been described both as a population produced from crossing of these birds and as a hybrid zone. Bangs 1906; Griscom 1929; Hellmayr et al. 1918–(Part VIII); Sibley and Monroe 1990 (p. 575); Wetmore et al. 1984 (pp. 36–37).

Tachycineta bicolor [Tree Swallow]

See also: *Hirundo pyrrhonota*.

- × *Tachycineta thalassina* [Violet-green Swallow] BRO: w. U.S., sw Canada. A mixed pair nested in Shirland, Illinois (U.S.). Eggs were laid, but no hybrids were reported. Johnson and Moskoff 1995.

Tachycineta leucorrhoa [White-rumped Swallow]

- × *Tachycineta meyeni* [Chilean Swallow] NHR. BRO: s S. America. Shirihai 2002 (p. 264).

Tachycineta meyeni [Chilean Swallow] See: *Tachycineta leucorrhoa*.

Tachycineta thalassina [Violet-green Swallow] See: *Hirundo pyrrhonota*; *Tachycineta bicolor*.

Regulids

Family Regulidae

Regulus calendula [Ruby-crowned Kinglet]

- × *Regulus satrapa* [Golden-crowned Kinglet] NHR. Cockrum notes this hybrid is “known only from Audubon’s description [1832, p. 288] and figure of the original specimen, killed in June, 1812, on the banks of the Schuylkill River, in Pennsylvania.” BRO: s Canada, ne and w U.S. Audubon 1831–1839; Cockrum 1952 (p. 147).

Regulus ignicapillus [Firecrest]

- × *Regulus regulus* (♀) [Goldcrest] CAENHR. BRO: Europe. Adams 1980; Baker 1997; Becker 1977a, 1977b; Cobb 1976; Jennings 1985; Lovaty 2000; Thaler-Kottek 1979, 1981; Thorpe 1983.

Regulus regulus [Goldcrest] See: *Regulus ignicapillus*.

Regulus satrapa [Golden-crowned Kinglet] See: *Regulus calendula*.

Bulbuls and Greenbuls

Family Pycnonotidae

Andropadus kakamegae [Kakamega Greenbul]

- × *Andropadus masukuensis* [Shelley’s Greenbul] ONHR (se Tanzania). Hybridization occurs in the Udzungwa Mts. Hall and Moreau 1970 (p. 61); Sibley and Monroe 1990 (p. 589).

Criniger barbatus [Bearded Bulbul]

- × *Criniger chloronotus* [Green-backed Bulbul] ENHR (s Nigeria). Today a gap exists between these birds in the densely populated regions of s Nigeria. Birds w of the gap (*C. barbatus*) have a yellow throat and mostly olive-green tail. To the east (*C. chloronotus*), birds have a white throat and rufous tail. However, the easternmost populations of *C. barbatus* have a paler throat and a more rufous tail which indicate former hybridization between these two birds. These birds are sometimes treated as conspecific. Hall and Moreau 1970 (p. 68).

Criniger calurus [Red-tailed Bulbul]

- × *Criniger ndussumensis* [White-bearded Bulbul] ENHR (e Dem. Rep. Congo). The hybrid zone is in the vicinity of Angume, w of Lake Edward. Hall and Moreau 1970 (p. 69); Sibley and Monroe 1990 (p. 589).

Criniger chloronotus [Green-backed Bulbul] See: *Criniger barbatus*.

Criniger ndussumensis [White-bearded Bulbul] See: *Criniger calurus*.

Phyllastrephus albigula [Usambara Greenbul]

- × *Phyllastrephus debilis* [Tiny Greenbul] NHR. BRO: w Tanzania. Sibley and Monroe 1990 (p. 588).

Phyllastrephus cabanisi [Cabanis’s Greenbul]

- × *Phyllastrephus placidus* [Placid Greenbul] ENHR. BRO: highlands of e Africa. A population in Rwanda (*sucosus*) is intermediate. These birds are usually lumped. Dowsett 1972; Dowsett and Dowsett-Lemaire 1993 (p. 391); Sibley and Monroe 1990 (p. 587).

Phyllastrephus debilis [Tiny Greenbul] See: *Phyllastrephus albigula*.

Phyllastrephus placidus [Placid Greenbul]

See: *Phyllastrephus cabanisi*.

Pycnonotus atriceps [Black-headed Bulbul]

× *Pycnonotus cyaniventris* [Grey-bellied Bulbul] NHR (Borneo). The rare Blue-wattled Bulbul (*Pycnonotus nieuwenhuisii*) is probably this hybrid. It is known from two type specimens from Borneo and Sumatra, and sightings at Kuala Belalong Field Centre, Batu Apoi Forest Reserve, Brunei. Dickinson and Dekker 2002 (p. 100); Williams 2002.

Pycnonotus aurigaster [Sooty-headed Bulbul]

× *Pycnonotus cafer* [Red-vented Bulbul] ENHR (Myanmar–Thailand border). In se China (Yunnan) and ne Myanmar a hybrid population (*burmanicus*) has been produced by this cross (*nigropileus* also refers to hybrids derived from this cross). This population has also been described as a hybrid zone.

See Figure 17. Sibley and Monroe note that *P. aurigaster* “consists of several variable populations that may reflect a hybrid origin.” Deignan 1949; Dickinson and Dekker 2002; Hall and Moreau 1970 (pp. 56–57); Harrison 1982 (p. 211); Meise 1975; Sibley and Monroe 1990 (p. 584); Wolters 1975–1982 (p. 238).

Pycnonotus barbatus [Garden Bulbul]

× *Pycnonotus capensis* [Cape Bulbul] ENHR (E. Cape Prov., S. Africa). HPF(vh). Hybrid

zone is on the e side of the Sundays River Valley. Harrison 1982 (p. 211); Hockey et al. 2005; Lawson 1962; Liversidge 1970; Lloyd et al. 1997; Martin 1996.

× *Pycnonotus nigricans* (♂) [Black-fronted Bulbul] ENHR. HPF(vh). A long hybrid zone extends from Angola across e Botswana, through the highveld and E. Cape Prov. of S. Africa. In the E. Cape, the zone is 20–30 km wide. Lloyd et al. (p. 97) say hybrids usually have *P. barbatus* mtDNA. Brown 1998; Clancey 1960, 1980; Hockey et al. 2005; Irwin 1958; Lawson 1962; Liversidge 1985; Lloyd et al. 1997 (p. 94); Markus 1963, 1966, 1967; Sibley and Monroe 1990 (p. 583); White 1956.

× *Pycnonotus tricolor* [Dark-capped Bulbul] ENHR. Hybrid zone is in w cen. Africa, in Cameroon and n Gabon. Due to hybridization, these birds are sometimes lumped. Hall and Moreau 1970 (p. 56); Sibley and Monroe 1990 (p. 583).

× *Pycnonotus xanthopygos* [White-spectacled Bulbul] NHR?? BRO: ne Egypt. Figure 17. Sibley and Monroe say *P. xanthopygos* has hybridized with *P. barbatus* in Egypt. They probably rely on Hall and Monroe, who mention a single hybrid and cite Meinertzhagen. However, Meinertzhagen himself merely notes the occurrence a single

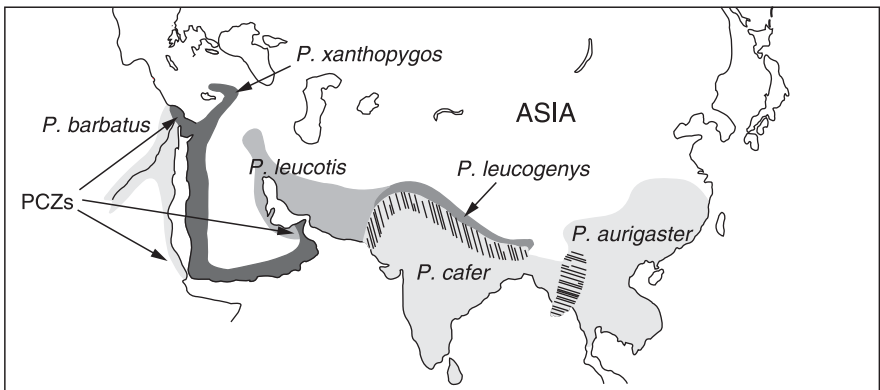


Figure 17. Eurasian Bulbul Complex (genus *Pycnonotus*). Hatched regions: hybrid zones.

mixed pair (*P. xanthopygos* ♂ × *P. barbatus* ♀) in the Nile Delta in 1920. Indeed, Goodman and Meiniger say “no clear *P. xanthopygos* × *P. barbatus* hybrid specimens have been examined from Egypt.” Goodman and Meiniger 1989 (p. 379); Hall and Moreau 1970; Meinertzhagen 1930 (p. 187); Sibley and Monroe 1990 (p. 583).

Pycnonotus bimaculatus [Orange-spotted Bulbul]

× *Pycnonotus cafer* (♀) [Red-vented Bulbul] *Avicultural Magazine* 1940 (p. 162).

Note: Sibley and Monroe (1990) say the African members of the *cafer* group (*Pycnonotus barbatus*, *P. capensis*, *P. dodsoni*, *P. nigricans*, *P. somaliensis*, *P. xanthopygos*) exhibit “varying levels of hybridization; they are frequently treated as a single species *P. barbatus*.”

Pycnonotus cafer [Red-vented Bulbul]

See also: *Pycnonotus aurigaster*; *P. bimaculatus*.

× *Pycnonotus jocosus* (♀) [Red-whiskered Bulbul] CHR. BRO: ne and s India. *Avicultural Magazine* 1938 (p. 285); *Bird Notes* 1915; Hopkins 1926 (p. 221); Page 1915, 1922; Smyth 1914a, 1914b. Internet: ASIA96.

× *Pycnonotus leucogenys* [Himalayan Bulbul] CAENHR (n Pakistan, n India). HPF(♂ & ♀). Contact occurs also in Nepal and Sikkim. See Figure 17. ACZ (*leucogenys* occurs above *leucotis*). The hybrid has been treated as a species (*Molpastes magrathi*). Hybrids resemble Red-vented, but may show a crest. Armitage 1978; *Bird Notes* 1912; Grimmett et al. 1998 (p. 697); Hall and Moreau 1970 (pp. 56–57); IZY 1982; Meise 1975; Roberts 1992 (p. 85 and Plate 29[†]); Sharpe 1909[†]; Sibley and Monroe 1990 (p. 584); Sibley and Short 1959a; Whistler 1911; Whitehead 1908, 1909; Wolters 1975–1982 (p. 238). Internet: BDTR.

× *Pycnonotus leucotis* [White-eared Bulbul] ENHR. HPF(vh). A hybrid zone exists in nw Pakistan (e.g., vicinity of Kohat, Bannu), s Pakistan (Sindh) and nw India (Punjab). See Figure 17. Whitehead describes a variable series of hybrids from Kohat and says

they are so common that they are known to the locals, who call them “neemchi” (half-breeds). They resemble Red-vented, but have paler brownish-white ear-coverts. The hybrid zone is mobile, with Red-vented replacing White-eared in Sindh. In Oman escaped Red-vented Bulbuls have hybridized with both White-spectacled Bulbul (*P. xanthopygos*) and White-eared Bulbuls, which have a PCZ there. Grimmett et al. 1998 (p. 697); Harrison 1982 (p. 211); Roberts 1992 (p. 85); Ticehurst 1922 (p. 345); Whistler 1922 (p. 289); Whitehead 1909 (p. 111–112).

× *Pycnonotus xanthopygos* [White-spectacled Bulbul] NHR. In Oman escaped Red-vented Bulbuls have hybridized with both White-spectacled Bulbuls and White-eared Bulbuls (*P. leucotis*), which have a PCZ there. Harrison 1982 (p. 211).

Pycnonotus capensis [Cape Bulbul]

See also: *Pycnonotus barbatus*.

× *Pycnonotus nigricans* [Black-fronted Bulbul] ENHR (S. Africa). HPF(vh). Lawson notes that specimens of “*P. capensis*” from Graaff-Reinet, adjacent to the range of *P. nigricans*, approach *P. nigricans* in appearance. Hybrids are also known from the vicinity of Somerset East, Prince Albert, and Klaarstroom. Hockey et al. 2005; Keith 1992; Lawson 1962; Liversidge 1970; Lloyd et al. 1997.

Pycnonotus cyaniventris [Grey-bellied Bulbul]

See: *Pycnonotus atriceps*.

Pycnonotus dodsoni [Dodson’s Bulbul]

× *Pycnonotus tricolor* [Dark-capped Bulbul] ENHR (se Kenya). Due to hybridization, these birds are sometimes lumped. Hall and Moreau 1970 (p. 56); Sibley and Monroe 1990 (p. 583).

Note: Whitelaw (1975) reports hybridization between *Otocompsa jocosus* (i.e., *Pycnonotus jocosus*) and “*Otocompsa emeria*” (which probably refers to *Pycnonotus jocosus emeria*).

Pycnonotus jocosus [Red-whiskered Bulbul]

See also: *Pycnonotus cafer*.

× *Pycnonotus leucogenys* (♂) [Himalayan Bulbul] CHR. BRO: n India, Himalayan foothills. *Avicultural Magazine* 1938 (p. 285).

- × *Pycnonotus leucotis* (♂) [White-eared Bulbul] CHR. BRO: nw India. Neunzig describes two hybrids reared by Kuntzendorff-Frohnau. Neunzig 1921 (p. 152).
- × *Pycnonotus melanicterus* (♀) [Black-crested Bulbul] NHR. BRO: Thailand. Erlanger reported that a mixed pair of bulbuls, after nesting together for several years, finally hatched and reared a single offspring. Erlanger 1951.
- × *Pycnonotus xanthopygos* [White-spectacled Bulbul] CHR. DRS. Anonymous 1910.
- × *Pycnonotus xanthorrhous* [~~Brown-breasted Bulbul~~] Some cite Rutgers and Norris for this cross, but they don't list it. Rutgers and Norris 1970.

Pycnonotus leucogenys [Himalayan Bulbul]

See also: *Pycnonotus cafer*; *P. jocosus*.

- × *Pycnonotus leucotis* [White-eared Bulbul] ENHR. HPF(vh). Hybrid zone is in n Punjab and n Pakistan. Hybrids also occur in Afghanistan (Jahalabad). See Figure 17. Due to hybridization, these birds are sometimes lumped. Sibley and Short (p. 178) note that hybrids in the zone “are highly variable and bridge the morphological gap between *leucogenys* and *leucotis* in both size and color.” According to these two authors, the hybrid population, which is known as *humii*, “occupies the triangle of country extending northwest of the Salt Range to the Afghan ranges and to the Himalayas.” These birds are sometimes treated as conspecific. Briggs and Osmant 1928; Harrison 1982 (p. 211); Roberts 1992 (p. 82); Sibley and Monroe 1990 (p. 584); Sibley and Short 1959a; Stuart-Baker et al. 1922–1930; Vaurie 1958, 1959a (p. 191); Whistler 1941.

Pycnonotus leucotis [White-eared Bulbul] See also: *Pycnonotus cafer*; *P. jocosus*; *P. leucogenys*.

- × *Pycnonotus xanthopygos* [White-spectacled Bulbul] PCZ in Oman. No hybrids as yet reported. See Figure 17. Harrison 1982 (Map 430); Sibley and Monroe 1990.

Pycnonotus melanicterus [Black-crested Bulbul] See: *Pycnonotus jocosus*.

Pycnonotus nieuwenhuisii [Blue-wattled Bulbul] See: *Pycnonotus atriceps* × *P. priocephalus*.

Pycnonotus nigricans [Black-fronted Bulbul]

See: *Pycnonotus barbatus*; *P. capensis*.

Pycnonotus sinensis [Light-vented Bulbul]

- × *Pycnonotus taivanus* (↔) [Styan's Bulbul] CAENHR (Taiwan). HPF(♂&♀). Hybrids are common and variably intermediate. Pure Styan's Bulbuls now occur in only a few areas. Introduction of Light-vented Bulbuls resulted from releases for religious purposes. Many hybrids occur in Taroko Gorge National Park. Hsiao-Wei and Severinghaus 2004 (p. 639); Severinghaus 2005. Internet: BTAI, SINI.

Pycnonotus taivanus [Styan's Bulbul]

See: *Pycnonotus sinensis*.

Pycnonotus tricolor [Dark-capped Bulbul]

See: *Pycnonotus barbatus*; *P. dodsoni*.

Pycnonotus xanthopygos [White-spectacled Bulbul] See: *Pycnonotus barbatus*; *P. cafer*; *P. jocosus*; *P. leucotis*.

Pycnonotus xanthorrhous [Brown-breasted Bulbul] See: *Pycnonotus jocosus*.

Cisticolids

Family Cisticolidae

Note: A controversy exists in the literature as to whether many of the types within the genus *Apalis* should be treated as conspecific, in large part because extensive hybridization is known to occur. For example, Sibley and Monroe (1990, p. 598) say hybridization usually occurs between the following types where they are in contact (in e and s Africa): *A. griseiceps* (Grey-headed Apalis), *A. fuscicularis* (Teita Apalis), *A. murina* (Mouse Apalis), *A. flavicularis* (Yellow-throated Apalis), *A. lynesi* (Namuli Apalis), *A. thoracica* (Bar-throated Apalis). They are distinct in appearance and song.

Apalis alticola [Brown-headed Apalis]

- × *Apalis cinerea* [Grey Apalis] ENHI (e Africa). BRO: s Kenya, n Tanzania. Due to hybridization, these birds are sometimes treated as conspecific. A population in se Dem. Rep. Congo (*dowsetti*) is intermediate in morphology and range and, thus, a PHP of this cross. Dowsett and Dowsett-Lemaire 1980 (p. 174),

1993 (p. 361); Sibley and Monroe 1990 (p. 600).

Apalis cinerea [Grey Apalis] See: *Apalis alticola*.

Apalis flavida [Yellow-breasted Apalis]

× *Apalis viridiceps* [Brown-tailed Apalis] ENHR (ext. ne Tanzania), In the Usambara Mountains, a population, *golzi*, usually treated as a race of *A. flavida*, hybridizes with another population, *flavocincta*, usually treated as a race of *A. viridiceps*. The transition between the two forms is quite abrupt. These birds are often treated as conspecific. Peters 1986 (p. 162); Sibley and Monroe 1990 (p. 599).

Apalis viridiceps [Brown-tailed Apalis] See: *Apalis flavida*.

Calamonastes simplex [Grey Wren-Warbler]

× *Calamonastes stierlingi* [Stierling's Wren-Warbler] ENHR (sw Tanzania, Malawi, Zambia). PCZ. Benson et al. (p. 249) say that these birds "fill an identical ecological niche and are accordingly mutually exclusive geographically, but there exists a narrow zone of hybridization, probably no more than 10 miles [16 km] wide." In Zambia hybrids are known from the Kanchibiya River, nw Serenje, Mwekera, and East Lunga Pontoon. Benson and Benson 1975; Benson et al. 1971 (pp. 249, 250); Clancey 1986; Dowsett and Dowsett-Lemaire 1980 (p. 179).

Camaroptera brachyura [Green-backed Camaroptera]

× *Camaroptera brevicaudata* [Grey-backed Camaroptera] ENHR. BRO: s Africa. Benson and Benson 1977 (p. 239); Dowsett and Dowsett-Lemaire 1980; Sibley and Monroe 1990 (p. 600).

Cisticola aberrans [Lazy Cisticola]

× *Cisticola emini* [Rock-loving Cisticola] PCZ in Malawi? No hybrids as yet reported. Benson and Benson 1977; Sibley and Monroe 1990 (p. 593).

Cisticola angolensis [Angola Cisticola]

× *Cisticola awemba* [Awemba Cisticola] ENHR. Narrow (~15 km wide) hybrid zone in Dem. Rep. Congo. Dowsett and Dowsett-Lemaire 1980 (pp. 181–182).
× *Cisticola robustus* [Stout Cisticola] ENHI. BRO: cen. Africa. A population, *santae*, which

is known as the Bamenda Stout Cisticola, is vocally and geographically intermediate, which suggests it as a PHP of this cross. Dowsett and Dowsett-Lemaire 1993 (p. 360).

Cisticola angusticauda [Tabora Cisticola]

× *Cisticola fulvicapillus* [Piping Cisticola] ENHR. BRO: Zambia, se Dem. Rep. Congo, s Tanzania. These birds interbreed wherever they meet. Benson et al. say that these birds have a narrow (less than 16 km wide) hybrid zone in Zambia (se Ndola) and that birds in east Mwinilunga may also be hybrids. Benson et al. 1971 (p. 265); Dowsett and Dowsett-Lemaire 1980 (pp. 183–184), 1993 (p. 360).

Cisticola awemba [Awemba Cisticola] See: *Cisticola angolensis*.

Cisticola chubbi [Chubb's Cisticola]

× *Cisticola hunteri* [Hunter's Cisticola] ACZ in e Africa (at 2,700 m on Mt. Elgon). No hybrids as yet reported. Sibley and Monroe 1990 (p. 592).

Cisticola emini [Rock-loving Cisticola] See: *Cisticola aberrans*.

Cisticola fulvicapillus [Piping Cisticola] See also: *Cisticola angusticauda*.

× *Cisticola melanurus* [Black-tailed Cisticola] ONHR (Angola). Dowsett and Dowsett-Lemaire 1993 (p. 360).

Cisticola hunteri [Hunter's Cisticola] See: *Cisticola chubbi*.

Cisticola melanurus [Black-tailed Cisticola] See: *Cisticola fulvicapillus*.

Cisticola robustus [Stout Cisticola] See: *Cisticola angolensis*.

Prinia bairdii [Banded Prinia]

× *Prinia melanops* [Black-faced Prinia] ONHR (Kamituga, e Dem. Rep. Congo). ACZ at 3,000 m. These birds are often lumped, however, Dowsett and Dowsett-Lemaire (1993) say they would likely be treated separately on the basis of morphology if Prigogine had not found hybridization between them. Sibley and Monroe subsume two populations mentioned by Hall and Monroe (*melanops* and *obscura*) under *Prinia melanops*. Reported hybridization is with Hall and Moreau's *obscura*. Hall and Moreau 1970 (p. 177); Prigogine 1979; Sibley and Monroe 1990.

Prinia flavicans [Black-chested Prinia]

× *Prinia maculosa* [Karoo Prinia] NHR. PCZ. Hybridization has been reported from S. Africa (Vanwyksvlei, S. Cape Prov.) and s Namibia. Brooke 1993; Hall and Moreau 1970 (p. 175); Rowan 1962.

Prinia hypoxantha [Drakensburg Prinia]

× *Prinia maculosa* [Karoo Prinia] ENHR, PCZ (e S. Africa, s Namibia). Due to hybridization, these birds are often treated as conspecific. Clancey 1957, 1986; Clancey et al. 1991; Dowsett and Dowsett-Lemaire 1993 (p. 361); Sibley and Monroe 1990.

Prinia maculosa [Karoo Prinia] See: *Prinia flavicans*; *P. hypoxantha*.

Prinia melanops [Black-faced Prinia]

See: *Prinia bairdii*.

White-eyes

Family Zosteropidae

Zosterops flavifrons [Yellow-fronted White-eye]

× *Zosterops lateralis* (♂) [Grey-breasted Silver-eye] CHR. BRO: Banks Islands. Baker and Ranson 1938; Drake 1936.

Note: *Zosterops gouldi*, *Z. halmaturinus*, and *Z. lateralis* were formerly treated as separate species, but are now usually lumped due to hybridization.

Zosterops gouldi [Western Silver-eye]

× *Zosterops halmaturinus* [Grey-backed Silver-eye] ENHR (s Australia).

There is a narrow hybrid zone on the e side of Great Australian Bight (near Streaky Bay). *Z. gouldi* is yellow-throated and green-backed, while *Z. halmaturinus* is gray-throated and gray-backed. Ford 1987; Mees 1969.

Zosterops halmaturinus [Grey-backed Silver-eye]

See also: *Zosterops gouldi*.

× *Zosterops lateralis* [Grey-breasted Silver-eye] ENHR (se Australia). Sibley and Monroe 1990.

Zosterops japonicus [Japanese White-eye]

× *Zosterops palpebrosus* (♂) [Oriental White-eye] CHR. BRO: s China, n Vietnam. Clare 1971.

Zosterops lateralis [Grey-breasted Silver-eye]

See also: *Zosterops flavifrons*; *Zosterops halmaturinus*.

× *Zosterops luteus* [Australian Yellow White-eye] ENHR (ne Australia). Eastern populations of *Z. luteus* (adj. to *Z. lateralis*) have mtDNA haplotypes that are more closely related to *Z. lateralis* than to w populations of *Z. luteus*, which indicates extensive hybridization. Degnan and Moritz suggest that hybridization between these birds, though extensive, occurred at some time in the past and is probably not ongoing. Degnan 1993; Degnan and Moritz 1992.

× *Zosterops tenuirostris* [Slender-billed White-eye] NHR (Norfolk Island). Gill notes that these hybrids resemble the Lord Howe White-eye (*Zosterops tephropleurus*), a bird often treated as a race of *Z. lateralis*. These hybrids may be partially fertile since one of the hybrids discussed by Gill was more similar to *Z. lateralis* than were the other hybrids (which suggests that it might be a backcross). Gill 1970; Mees 1969.

Zosterops luteus [Australian Yellow White-eye] See: *Zosterops lateralis*.

Zosterops pallidus [Pale White-eye]

× *Zosterops virens* [Green White-eye] ENHR. BRO: S. Africa. Due to hybridization, these birds are now often treated as conspecific. Clancey 1967, 1986.

Zosterops palpebrosus [Oriental White-eye]

See: *Zosterops japonicus*. Two populations (*buxtoni*, *melanura*), treated as races of *Z. palpebrosus*, have a narrow (less than 50 km wide) hybrid zone in nw Java. These birds are quite well differentiated; *melanura* has entirely yellow underparts, while *buxtoni* has light gray flanks. Mees 1996 (pp. 89, 99, 100).

Zosterops tenuirostris [Slender-billed White-eye] See: *Zosterops lateralis*.

Zosterops tephropleurus [Lord Howe White-eye] See: *Zosterops lateralis* × *Z. tenuirostris*.

Zosterops virens [Green White-eye]

See also: *Zosterops pallidus*.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Old World Warblers
*Family Sylviidae**Acrocephalus agricola* [Paddyfield Warbler]

× *Acrocephalus scirpaceus* (♂) [Eurasian Reed-Warbler] NHR (ne Kazakhstan). BRO: Kazakhstan. Panov 1989.

Acrocephalus arundinaceus [Great Reed-Warbler]

× *Acrocephalus scirpaceus* (♂) [Eurasian Reed-Warbler] NHR (Germany, Belgium). BRO: e Europe, sw Asia, nw Africa. Beier et al. (1997) describe a ♂ hybrid taken in Bavaria in June and discuss other, probable hybrids. The hybrid sang a mixed song. Great Reed Warblers are 2.7 times as large as Eurasian Reed Warblers. Beier et al. 1996, 1997; Hansson et al. 2004; Panov 1989.

× *Acrocephalus stentoreus* (♀?) [Clamorous Reed-Warbler] ENHR (se Kazakhstan). BRO: Middle East, s Asia. A hybrid population exists in the vicinity of Sorbulak Lake. Hybrid song is intermediate. Haffer 1991 (p. 214); Hansson et al. 2003; Panov 1989.

Acrocephalus baeticatus [South African Reed-Warbler]

× *Acrocephalus scirpaceus* [Eurasian Reed-Warbler] ENHI (sub-Saharan Africa)? The Rufescent Reed-Warbler (*A. cinnamomeus*) is geographically intermediate and its history of treatment as conspecific with *A. baeticatus* and/or *A. scirpaceus* suggests it as a PHP of this cross. Clancey 1975; Dowsett and Dowsett-Lemaire 1987, 1993 (p. 358); Sibley and Monroe 1990 (p. 614).

Acrocephalus cinnamomeus [Rufescent Reed-Warbler] See: *Acrocephalus baeticatus* × *A. scirpaceus*.*Acrocephalus dumetorum* [Blyth's Reed-Warbler]

× *Acrocephalus palustris* (♀) [Marsh Warbler] ONHR (Holland). BRO: e Europe, w Russia. Haffer 1991 (p. 215); Koskimies 1980; Poot et al. 2000; Trnka 2004; van Loon and Keijl 2001.

× *Acrocephalus scirpaceus* [Eurasian Reed-Warbler] ONHR? BRO: w Eurasia. Baker (p. 177) says some birds are indistinguishable

in the field. On an Internet site (IRA2) an intermediate bird sighted at Arjan L., Iran in March was described as like *dumetorum*, but rusty rumped: uniform brown-green olive, supercilium well-marked before the eye, orange lower mandible, and gray-flesh legs. Yet, like *scirpaceus*, the primary projection was long, and the alula well visible. Baker 1997.

Acrocephalus orinus [Large-billed Reed-Warbler] This bird, which is known only from its type specimen (BMNH #1886.7.8.1742) may be a hybrid of unknown parentage. It was collected in n India in November 1867 (near Rampur, Sutlej Valley, Himachal Pradesh). Bensch and Pearson 2002 (p. 262).

Acrocephalus palustris [Marsh Warbler]See also: *Acrocephalus dumetorum*.

× *Acrocephalus scirpaceus* [Eurasian Reed-Warbler] ONHR. BRO: w Eurasia. Baker (p. 177) notes that some birds described as Marsh Warblers “are so similar [to Reed-Warblers] as to make separation in the field impossible.” Baker 1997; Catchpole 1973; Lemaire 1977; Pukas 1989; von Boxberger 1949.

Acrocephalus schoenobaenus

[Sedge Warbler]

× *Acrocephalus scirpaceus* [Eurasian Reed-Warbler] NHR (Netherlands). BRO: Europe, sw Asia. Van Eerde 1999. Internet: WRMW⁷.

Acrocephalus scirpaceus [Eurasian Reed-Warbler] See: *Acrocephalus agricola*; *A. arundinaceus*; *A. baeticatus*; *A. cinnamomeus*; *A. dumetorum*; *A. palustris*; *A. schoenobaenus*.

Actinodura nipalensis [Hoary-throated Barwing]

× *Actinodura waldeni* [Streak-throated Barwing] NHR. ENHI. BRO: e Bhutan. Three hybrids are in the collection of the British Museum. A population (*daflaensis*), treated as a race of *A. waldeni*, is geographically and morphologically intermediate and, thus, a PHP of this cross. Grimmett et al. 1998 (pp. 771–772); Harrison 1985.

Cettia cetti [Cetti's Warbler]

- × *Scotocerca inquieta* [Streaked Scrub-Warbler]
Three PCZs (nw Africa, Israel, Iran). No hybrids as yet reported. Faivre et al. 1999.

Eremomela canescens [Green-backed Eremomela]

- × *Eremomela pusilla* [Senegal Eremomela]
ONHR. BRO: s Chad. Dowsett and Dowsett-Lemaire 1993 (p. 358); Louette 1981; Sibley and Monroe 1990 (p. 618).

Garrulax affinis [Black-faced Laughingthrush]

- × *Garrulax erythrocephalus* [Chestnut-crowned Laughingthrush] ONHR. BRO: e Himalayas, se China. Meise 1975.

Garrulax canorus [Hwamei] Hybrids

between two types usually treated as races of this bird, *canorus* and *taewanus*, occur in Taiwan, where *canorus* is introduced. The latter type has a white eye ring and eye line (both are partial in hybrids). Hsiao-Wei and Severinghaus 2004[†]; Huang et al. 2004.

Garrulax erythrocephalus [Chestnut-crowned Laughingthrush] See: *Garrulax affinis*.*Garrulax maximus* [Giant Laughingthrush]

- × *Garrulax ocellatus* [Spotted Laughingthrush] ONHR (se Tibet). Hybrids occur around Tsela Dzong and Kongbo (between upper Subansiri and Tsangpo valleys). These birds are sometimes lumped. Ali and Ripley 1973 (vol. 7, p. 30); Ludlow 1944 (p. 74); Ripley 1982 (p. 355).

Garrulax ocellatus [Spotted Laughingthrush]

See: *Garrulax maximus*.

Hippolais caligata [Booted Warbler]

- × *Hippolais rama* [Syke's Warbler]
ENHR (cen. Asia). Hybrid zone is in Kyzyl-kum, Syr Daria, Zharkent, Tarbagatai, sw Altai, and n Mongolia. *H. obseleta* and *H. r. annectens* are taxa based on hybrids of this type. Hybrids occur in India in winter. Due to hybridization, these taxa are sometimes lumped. Panov 1989; Ripley 1982 (p. 426).

Hippolais icterina [Icterine Warbler]

- × *Hippolais polyglotta* [Melodious Warbler]
ENHR. Long, mobile hybrid zone in Belgium, ne France, Switzerland, and n Italy. Faivre and Ferry 1989; Faivre et al. 1999;

Ferry 1989; Nilsson 2005; Secondi et al. 1999, 2003.

Hippolais olivetorum [Olive-tree Warbler]

- × *Hippolais polyglotta* [Melodious Warbler]
PCZ on n coast of Adriatic. No hybrids as yet reported. Harrison 1982 (p. 226).

Hippolais pallida [Olivaceous Warbler]

- × *Hippolais rama* (♀) [Syke's Warbler] NHR. Old record. BRO: Iran, Kazakhstan, Afghanistan. Panov 1989.

Hippolais polyglotta [Melodious Warbler]

See: *Hippolais icterina*; *H. olivetorum*.

Hippolais rama [Syke's Warbler]

See: *Hippolais caligata*; *H. pallida*.

Leiothrix argentauris [Silver-eared Mesia]

- × *Leiothrix lutea* (♀) [Red-billed Leiothrix]
CHR. BRO: s Asia. Hervouët 1968.

Leiothrix lutea [Red-billed Leiothrix]

See also: *Leiothrix argentauris*; Appendix 2.

- × *Minla cyanouoptera* (♀) [Blue-winged Minla] CHR. BRO: s Asia. Barnicoat 1975.

Locustella certhiola [Pallas's Warbler]

- × *Locustella ochotensis* [Middendorff's Warbler] ENHR (e Russia). BRO: Sea of Okhotsk region. Kalyakin et al. 1993; Panov 1989.

Minla cyanouoptera [Blue-winged Minla]

See: *Leiothrix lutea*.

Paradoxornis alphonsianus [Ashy-throated Parrotbill]

- × *Paradoxornis webbianus* [Vinous-throated Parrotbill] ONHR. BRO: s China. Sibley and Monroe 1990 (p. 645). Internet: DIGI.

Paradoxornis brunneus [Brown-winged Parrotbill]

- × *Paradoxornis webbianus* [Vinous-throated Parrotbill] ONHR. BRO: s China (PCZ). Sibley and Monroe 1990 (p. 645). Internet: DIGI.

Paradoxornis flavirostris [Black-breasted Parrotbill]

- × *Paradoxornis guttaticollis* [Spot-breasted Parrotbill] ACZ in ne India and n Myanmar (*guttaticollis* occurs above *flavirostris*). No hybrids as yet reported. These birds are sometimes lumped. Ali and Ripley 1973 (vol. 6, p. 445); Sibley and Monroe 1990 (p. 645).

Paradoxornis guttaticollis [Spot-breasted Parrotbill] See: *Paradoxornis flavirostris*.

Paradoxornis nipalensis [Ashy-eared Parrotbill]

× *Paradoxornis poliotis* [Blyth's Parrotbill]
ONHR. BRO: ne India. Sibley and Monroe 1990 (p. 646).

Paradoxornis poliotis [Blyth's Parrotbill]
Paradoxornis nipalensis.

Paradoxornis webbianus [Vinous-throated Parrotbill] See: *Paradoxornis alphonisianus*; *P. brunneus*.

Phylloscopus bonelli [Bonelli's Warbler]

× *Phylloscopus sibilatrix* (♀) [Wood Warbler]
ONHR. BRO: s Europe. Bremond 1972; Fouarge 1972; Hackenburg et al. 2004; Moon and Herbert 1989; Schneider 1969; van der Elst 1989.

Phylloscopus brehmii [Iberian Chiffchaff]

× *Phylloscopus collybita* (♂) [Common Chiffchaff] ENHR. HPF(♂♂). A narrow (~20 km wide) hybrid zone exists in the ext. w Pyrenees (sw France, nw Spain). Within it, mixed matings, individuals singing the songs of both taxa, and hybrids are common (24%, 8.6%, and 10% respectively). Most mixed pairs are *collybita* ♂ × *brehmii* ♀. The mtDNA haplotypes of the Common and the Iberian segregate spatially on either side of the zone, which suggests that ♀ hybrids are relatively infertile and/or inviable since mtDNA is maternally inherited (see p. 9). Nuclear gene flow is about 75 times higher than mitochondrial gene flow. Sibley and Monroe (1990) lump these birds. Bensch et al. 2002; Helbig et al. 1996, 2001; Salomon 1987, 1990.

Note: In Russia w of the Urals, two populations, *tristis* and *abietinus*, which have both been treated as species (known respectively as the Siberian and Eastern European chiffchaffs), and as races of *P. collybita*, are known to hybridize. Two other populations sometimes also treated as races of *P. collybita* (*caucasica*, *fulvescens*) are deemed products of this hybridization. Baker 1997 (p. 258); Helbig et al. 1996; Marova 1991; Marova and Leonovich 1993.

Phylloscopus collybita [Common Chiffchaff]
See also: *Phylloscopus brehmii*.

× *Phylloscopus lorenzii* [Lorenz's Warbler]
ENHI (sw Asia). A population in ne Turkey (*brevisrostris*) is a PHP of this cross. ACZ in the Caucasus at ~1,000 m (*lorenzii* occurs above *collybita*). Baker 1997 (p. 258).

× *Phylloscopus trochilus* (♀) [Willow Warbler]
ENHR. BRO: n Eurasia. Asteling and Strandberg 1998; Ausobsky 1960; Bensch et al. 2001; Bernis 1945; da Prato and da Prato 1983, 1986; Fritz and Hernborg 1990; Gaginskaya and Rychkova 1999; Gwinner and Dorka 1965; Nilsson et al. 2001; Norman 1985; Norman 1994; Schuster 1904.

Phylloscopus humei [Hume's Warbler]

× *Phylloscopus inornatus* [Inornate Warbler]
ENHR (cen. Asia). Sibley and Monroe (1990) lump *humei* under *inornatus*. Redkin and Konovalova 2004.

Phylloscopus inornatus [Inornate Warbler]
See: *Phylloscopus humei*.

Phylloscopus lorenzii [Lorenz's Warbler]
See: *Phylloscopus collybita*. *P. lorenzii* has been treated as a race of *Phylloscopus sibilatrix* (Mountain Warbler).

Phylloscopus nitidus [Yellowish-breasted Warbler]

× *Phylloscopus trochiloides* [Greenish Warbler]
ENHR (mts of sw Asia). The Smithsonian has hybrid specimens. These birds are sometimes lumped. Ali and Ripley 1973 (vol. 8, p. 171); Ripley 1982 (p. 438).

Phylloscopus sibilatrix [Wood Warbler]
See: *Phylloscopus bonelli*.

Note: Two populations (*plumbeitarsus*, *viridanus*), treated as races of *Phylloscopus trochiloides*, hybridize in a 200 km-wide region in the w Himalayas. They differ in morphology, plumage, and song. Irwin et al. 2001 (p. 8); Ticehurst 1938.

Phylloscopus trochiloides [Greenish Warbler]
See also: *Phylloscopus nitidus*.

× *Phylloscopus trochilus* [Willow Warbler]
NHR (U.K.). BRO: Eurasia. Dickson 1988.

Phylloscopus trochilus [Willow Warbler]
See: *Phylloscopus collybita*; *P. trochiloides*. Two populations (*acredula*, *yakutensis*), treated as

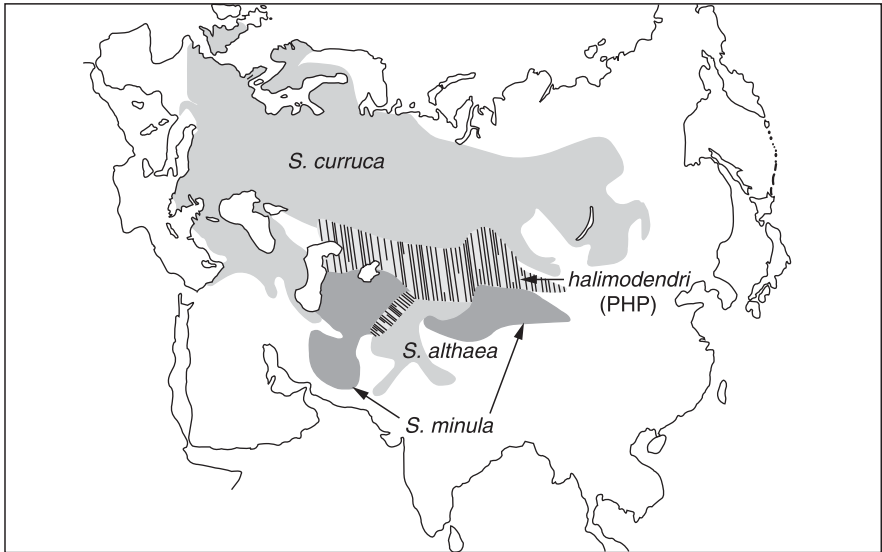


Figure 18. A population in central Asia, *halimodendri* (large hatched region), is a PHP of crossing between *Sylvia curruca* and *S. minula*. *S. minula* hybridizes with *S. althaea* in Kazakhstan (small hatched region).

racess of the Willow Warbler, hybridize in Siberia (Yenesei River Valley). Baker 1997 (p. 255).

Pomatorhinus montanus [Chestnut-backed Scimitar-Babbler] Probable hybrids have been reported between two populations (*montanus*, *ottolanderi*) treated as races of this bird. Mees 1996 (pp. 67–68).

Scotocerca inquieta [Streaked Scrub-Warbler]
See: *Cettia cetti*.

Sylvia althaea [Hume’s Whitethroat]
× *Sylvia minula* [Small Whitethroat] ONHR (Kazakhstan). See Figure 18. *S. althaea* splits the range of *S. minula*. See: *Sylvia curruca* × *S. minula*. These birds are sometimes lumped. An apparent hybrid was sighted at Geno, Iran. Shirihai et al. 2001 (pp. 133–135 and Fig. 11b). Internet: DIGI, IRA2.

Sylvia atricapilla [Blackcap]
× *Sylvia borin* [Garden Warbler] There are old reports of captive mixed-pair nest building and mating, but not of hybrids. BRO: Europe and w Asia. Blankenburg 1906a; Braune 1910a.

× *Sylvia communis* (prob. ♀) [Common Whitethroat] NHR. Blankenburg reported a fertile egg, but it is unknown whether it hatched. BRO: Europe and w Asia. Blankenburg 1906b.

Sylvia borin [Garden Warbler]
See also: *Sylvia atricapilla*.

× *Sylvia communis* [Common Whitethroat] BRO: Europe and w Asia. No hybrids as yet reported, but birds appearing to be *S. communis* have been reported to sing a mixed song combining elements of that of *S. communis* with *S. borin*. Mixed song is often a sign of hybridity. Fitter 1996.

× *Sylvia nisoria* [Barred Warbler] NHR. BRO: Europe and w Asia. Jukema and van Loon 1993.

Sylvia crassirostris [Eastern Orphean Warbler]
× *Sylvia hortensis* [Western Orphean Warbler] ENHI. Although they differ genetically about as much as do most pairs of *Sylvia* warblers, these birds are usually lumped. Populations at the eastern and western extremes of the complex (*jerdoni* and *hortensis*, respectively) are connected by a huge morphologically

intermediate population stretching from Iran to the Balkans, a PHP of this cross. Shirihai et al. 2001 (p. 168 and Fig. 9).

Sylvia communis [Common Whitethroat]

See: *Sylvia atricapilla*; *S. borin*.

Sylvia curruca [Lesser Whitethroat]

× *Sylvia minula* [Small Whitethroat] ENHI.

Shirihai et al. treat a population in cen. Asia, *halimodendri*, as a race of *S. curruca*.

However, birds in the n portion of this population are similar to the adj. *S. curruca*, while those to the s are like the adj. *S. minula*, thus *halimodendri* lies between two populations (*S. curruca* and *S. minula*) and is a clinally varying population connecting the two, which suggests that it should be viewed as a clinally varying hybrid zone (i.e., a PHP of this cross). *S. althaea* also borders on *halimodendri* and may interbreed with it. See Figure 18. These birds are sometimes lumped. Shirihai et al. 2001 (pp. 133, 143, and Fig. 11b). Internet: DIGI.

Sylvia deserticola [Tristram's Warbler]

× *Sylvia nana* [Desert Warbler] NHR?

Although Sibley and Monroe (1990, p. 648) say *Sylvia ticehursti* (Meinertzhagen's Warbler) "appears to be a well-defined race of *S. deserticola*," Shirihai et al. (2001, p. 332) say *S. ticehursti* was described from a single bird that may have been this hybrid.

Sylvia hortensis [Western Orphean Warbler]

See: *Sylvia crassirostris*.

Sylvia minula [Small Whitethroat]

See: *Sylvia althaea*; *S. curruca*.

Sylvia nana [Desert Warbler] See: *Sylvia deserticola*.

Sylvia nisoria [Barred Warbler] See: *Sylvia borin*.

Sylvia ticehursti [Meinertzhagen's Warbler]

See: *Sylvia deserticola* × *S. nana*.

Sylvia undata [Dartford Warbler] In w

Europe broad hybrid zones exist between three populations (*dartfordiensis*, *toni*, *undata*), treated as races of this bird. The one between *dartfordiensis* and *undata* is in s France and n Spain; that between *dartfordiensis* and *toni*, in s Spain. Shirihai et al. 2001.

Turdoides hindei [Hinde's Pied-Babbler]

See: *Turdoides hypoleucus* × *T. jardineii*.

Turdoides hypoleucus [Northern Pied-Babbler]

× *Turdoides jardineii* [Arrow-marked Babbler] ENHR (Kenya). HPF(vh). Hinde's Pied-Babbler (*Turdoides hindei*) is often regarded as a hybrid population from this cross. Hall and Moreau 1970 (p. 147); Meise 1975; Sibley and Monroe 1990 (p. 639). Internet: DIGI.

Turdoides somervillei [Deccan Babbler]

× *Turdoides striatus* [Jungle Babbler] ENHR (coastal sw India). These birds are often lumped. Sibley and Monroe 1990 (p. 638).

Turdoides striatus [Jungle Babbler]

See: *Turdoides somervillei*.

Larks

Family Alaudidae

Alauda arvensis [Eurasian Skylark]

× *Alauda japonica* [Japanese Skylark] NHR.

BRO: Japan (Tsushima and Izuhara Is.), e Russia (Sakalin I., Kuril Is.). These birds are sometimes lumped. Vaurie 1959a (p. 59, footnote); Panov 1989; Sibley and Monroe 1990.

Certhilauda albescens [Karoo Lark]

× *Certhilauda barlowi* [Barlow's Lark] ENHR

(w S. Africa). A hybrid zone extends from Port Nolloth to Alexander Bay. Detectable hybrids have flank streaking (which can be faint). Cohen 1998. Internet: UCT.

Certhilauda barlowi [Barlow's Lark] See:

Certhilauda albescens.

Eremophila alpestris [Horned Lark]

× *Eremophila bilopha* [Temminck's Lark]

ENHI. A population (*bicornis*) in Lebanon is geographically and morphologically intermediate and, thus, a PHP of this cross. These birds are sometimes lumped. Cramp et al. 1977–1994.

Galerida cristata [Crested Lark]

× *Galerida theklae* [Thekla Lark] NHR.

BRO: n Africa, s Europe. Abs 1963.

Mirafra africana [Rufous-naped Lark]

× *Mirafra hypermetra* [Red-winged Lark]

ENHR (e Africa). Hybrid zone is w of Lake Turkana in se Sudan and ne Uganda (Nangeya Mts.). *M. hypermetra* in adjacent Kenya shows no sign of hybridization. Hall

and Moreau 1970 (p. 7); Prigogine 1984; Sibley and Monroe 1990 (p. 649).

Mirafra hypermetra [Red-winged Lark] See: *Mirafra africana*.

Mirafra naevia [Bradfield's Lark]

× *Mirafra sabota* [Sabota Lark] ENHR (Botswana). Hybrid zone is in the Kalahari Desert. These birds are sometimes lumped. Hall and Moreau 1970 (p. 9); Sibley and Monroe 1990 (p. 650).

Mirafra sabota [Sabota Lark] See: *Mirafra naevia*.

Sunbirds and Their Allies

Family Nectariniidae

Anthreptes axillaris [Grey-headed Sunbird]

× *Anthreptes fraseri* [Scarlet-tufted Sunbird] PCZ (Africa, lower Congo and Ubangi).

Head color abruptly shifts from dull green to dark gray across the contact zone. No hybrids as yet reported.

Cheke and Mann 2001.

Anthreptes fraseri [Scarlet-tufted Sunbird] See: *Anthreptes axillaris*.

Anthreptes longuemarei [Western Violet-backed Sunbird]

× *Anthreptes orientalis* [Kenya Violet-backed Sunbird] PCZ (n Uganda, w Kenya). No hybrids as yet reported, but they would be hard to detect between such similar birds. Males are almost identical and ♀♀ differ only in vent color (pale yellow vs. white). Borrow and Demey 2001; Cheke and Mann 2001.

Anthreptes metallicus [Nile Valley Sunbird]

× *Anthreptes platurus* [Pygmy Sunbird] These similar birds have a poorly studied PCZ in w and cen. Sudan. No hybrids as yet reported. Cheke and Mann 2001 (pp. 201, 203).

Anthreptes orientalis [Kenya Violet-backed Sunbird] See: *Anthreptes longuemarei*.

Anthreptes platurus [Pygmy Sunbird] See: *Anthreptes metallicus*.

Anthreptes simplex [Plain Sunbird]

× *Nectarinia asiatica* [Purple Sunbird] PCZ at head of Malay Penin., just w of Bangkok. No hybrids as yet reported. Cheke and Mann 2001 (pp. 183, 316).

Anthreptes singalensis [Ruby-cheeked Sunbird] Two populations (*bantenensis*, *phoenicotis*), treated as races of this bird, hybridize in w Java (Udjung Kulon Peninsula). Mees 1996 (pp. 99, 100).

Dicaeum cruentatum [Scarlet-backed Flowerpecker]

× *Dicaeum ignipectus* [Fire-breasted Flowerpecker] NHR (Fokien, s China). BRO: se Asia, Sumatra. Male hybrid has scarlet crown, back, and rump (mixed with some glossy blue-black, the color of these regions in Fire-breasted), sides of face and neck black; underparts buff, with broad red band on chest. Cheke and Mann 2001 (p. 169); Hachisuka (Marquess) 1928 (p. 57).

× *Dicaeum trochileum* [Scarlet-headed Flowerpecker] NHR (Samarinda, Kalimantan Timur, Borneo). BRO: s Borneo. PCZ in s Sumatra. Cheke and Mann 2001 (p. 176); Voous and van Bemmelen 1949.

Dicaeum geelvinkianum [Red-capped Flowerpecker]

× *Dicaeum pectorale* [Olive-crowned Flowerpecker] PCZ (New Guinea, 135°E). No hybrids as yet reported. Cheke and Mann 2001 (pp. 162–163).

Dicaeum ignipectus [Fire-breasted Flowerpecker] See: *Dicaeum cruentatum*.

Dicaeum pectorale [Olive-crowned Flowerpecker] See: *Dicaeum geelvinkianum*.

Dicaeum trochileum [Scarlet-headed Flowerpecker] See: *Dicaeum cruentatum*.

Note: The following three birds differ markedly in appearance. *Leptocoma sperata* is largely red, *L. henkei*, black-backed, *L. juliae*, yellow-breasted. They were long treated as separate species. Yet, since they were found to hybridize, they have usually been lumped.

Leptocoma henkei [Henke's Sunbird]

× *Leptocoma sperata* [Van Hasselt's Sunbird] ONHR (Philippines, Luzon). Cheke and Mann 2001; Peters 1967 (pp. 237–238); Sibley and Monroe 1990. Internet: SCRI.

Leptocoma juliae [Mindanao Sunbird]

× *Leptocoma sperata* [Van Hasselt's Sunbird] ONHR (Philippines, se Mindanao). Cheke

and Mann 2001; Peters 1967 (pp. 237–238); Sibley and Monroe 1990. Internet: SCRI.

Leptocoma sperata [Van Hasselt's Sunbird]

See: *Leptocoma henkei*; *L. juliae*.

Nectarinia adelberti [Buff-throated Sunbird]

× *Nectarinia rubescens* [Green-throated Sunbird] ENHR (w Africa). The hybrid zone is on the Bight of Biafra along the border of Nigeria and Cameroon. A population, *crossensis*, which has been treated as a race of *N. rubescens*, is thought to be a product of this cross. Borrow and Demy 2001; Louette 1982; Panov 1989.

Nectarinia afra [Greater Double-collared Sunbird] Two populations (*afra*, *saliens*), treated as races of this bird, hybridize in S. Africa (E. Cape Prov. between Great Fish R. and Great Kei R.). Cheke and Mann 2001 (p. 274).

Nectarinia albiventris [White-bellied Sunbird]

× *Nectarinia venusta* [Variable Sunbird] ENHR (sw Ethiopia, nw Kenya). The hybrid zone is in near L. Turkana. Due to hybridization, these birds are sometimes lumped. Hall and Moreau 1970 (p. 244); Sibley and Monroe 1990.

Nectarinia alinae [Blue-headed Sunbird]

× *Nectarinia verticalis* [Green-headed Sunbird] NHR (w equatorial Africa). A population, *marungensis*, usually treated as a race of *N. alinae*, is thought to be a stabilized hybrid population produced from this cross. Prigogine 1984.

Note: Two populations (*deminuta*, *kirkii*), were once treated as species, but now, usually as races of *Nectarinia amethystina*. They hybridize where they meet (se Dem. Rep. Congo and ne Zambia from about Bunkeya to L. Mweru and Petauke). Cheke and Mann 2001; Mackworth-Praed and Grant 1962 (p. 501).

Nectarinia amethystina [Amethyst Sunbird]

× *Nectarinia fuliginosa* [Carmelite Sunbird] ONHR. BRO: Angola and Dem. Rep. of Congo. Chapin 1954; Louette 1982, 1989; Meise 1975.

× *Nectarinia senegalensis* (♂) [Scarlet-chested Sunbird] CANHR. BRO: Zimbabwe.

A captive Amethyst ♀ responded to and copulated with a Scarlet-chested ♂, even though a ♂ of her own kind was also present. Irwin and Tree 1983; Reed 1971.

Nectarinia asiatica [Purple Sunbird]

See also: *Anthreptes simplex*.

× *Nectarinia osea* [Palestine Sunbird] PCZ (Oman). No hybrids as yet reported.

These birds are rather similar, so intermediates might easily go unnoticed. Cheke and Mann 2001.

Nectarinia bouvieri [Orange-tufted Sunbird]

× *Nectarinia talatala* [White-breasted Sunbird] ENHR (cen. Angola). Oustelet's Sunbird (*Nectarinia ousteleti*) is probably the product of this cross. Hall and Moreau 1970 (p. 245); Sibley and Monroe 1990 (p. 664).

Nectarinia chalybea [Southern Double-collared Sunbird] Two populations (*chalybea*, *subularis*) usually treated as races of this bird hybridize near Knysna (s Cape Prov, S. Africa). Mackworth-Praed and Grant 1962 (p. 494).

Nectarinia coccinogastra [Splendid Sunbird]

× *Nectarinia johannae* [Johanna's Sunbird] A PCZ runs through Sierra Leone, Guinea, and Ivory Coast, and another through Cameroon, and n Dem. Rep. Congo. No hybrids as yet reported. Cheke and Mann 2001.

Nectarinia fuliginosa [Carmelite Sunbird]

See: *Nectarinia amethystina*.

Nectarinia hunteri [Hunter's Sunbird]

× *Nectarinia senegalensis* [Scarlet-chested Sunbird] ENHI? PCZ (Kenya, w Uganda, s Ethiopia, ne Tanzania). A population (*cruenta*) may be intermediate. Cheke and Mann 2001; Stevenson and Fanshawe 2002.

Nectarinia johannae [Johanna's Sunbird] See: *Nectarinia coccinogastra*.

Nectarinia loveridgei [Loveridge's Sunbird]

× *Nectarinia mediocris* [Eastern Double-collared Sunbird] ENHR (e Tanzania)? HPF(♂ & ♀). It has been suggested that Moreau's Sunbird (*Nectarinia moreaui*) is a stabilized hybrid population produced from this cross. It is intermediate in morphology and range. Fuggles-Couchman reported a pair of Moreau's Sunbirds with nestlings.

Chapin 1954; Cheke and Mann 2001 (p. 279); Fuggles-Couchman 1986 (p. 24); Meise 1975; Stuart and van der Willigen 1980.

Nectarinia manoensis [Miombo Double-collared Sunbird]

× ***Nectarinia pintoi*** [Pinto's Double-collared Sunbird] ENHR (S. Africa). Hybridization occurs in Dabaga. These birds are usually lumped. Here, *pintoi* is Mackworth-Praed and Grant's *intermedius* (see Sibley and Monroe 1990, p. 664). Cheke and Mann 2001 (p. 264); Mackworth-Praed and Grant 1962 (p. 495).

Nectarinia mediocris [Eastern Double-collared Sunbird]

See also: *Nectarinia loveridgei*.

× ***Nectarinia stuhlmanni*** [Stuhlmann's Double-collared Sunbird] ENHR (se Dem. Rep. Congo). Prigogine's Double-collared Sunbird (*Nectarinia prigoginei*) is probably the product this cross. Benson and Prigogine 1982; Bowie et al. 2004; Cheke and Mann 2001.

× ***Nectarinia moreaui*** [Moreau's Sunbird] ONHR (Tanzania). Hybrids occur in the Rubeho and Udzungwa Mts. They are darker than typical *N. moreaui* and have a scarlet, not orange, breast bar separating the yellow lateral tufts. See: *Nectarinia loveridgei* × *N. mediocris*. Cheke and Mann 2001 (p. 279); Jensen and Brogger-Jensen 1992.

Nectarinia moreaui [Moreau's Sunbird]

See: *Nectarinia loveridgei* × *N. mediocris*; *N. mediocris*

Nectarinia obscura [Western Olive Sunbird]

× ***Nectarinia olivacea*** [Eastern Olive Sunbird] ENHI. A population (*granti*) on Pemba I. and Zanzibar is intermediate. Sibley and Monroe (1990) lump these birds. Cheke and Mann 2001 (p. 224).

Nectarinia olivacea [Eastern Olive Sunbird]

See: *Nectarinia obscura*.

Nectarinia osea [Palestine Sunbird]

See: *Nectarinia asiatica*.

Nectarinia ousteleti [Oustelet's Sunbird]

See: *Nectarinia bouvieri* × *N. talatala*.

Nectarinia pintoi [Pinto's Double-collared Sunbird] See: *Nectarinia manoensis*.

Nectarinia prigoginei [Prigogine's Double-collared Sunbird] See: *Nectarinia mediocris* × *N. stuhlmanni*.

Nectarinia rubescens [Green-throated Sunbird] See: *Nectarinia adelberti*.

Nectarinia senegalensis [Scarlet-chested Sunbird] See: *Nectarinia amethystina*; *N. hunteri*.

Nectarinia stuhlmanni [Stuhlmann's Double-collared Sunbird] See: *Nectarinia mediocris*.

Nectarinia talatala [White-breasted Sunbird] See: *Nectarinia bouvieri*.

Nectarinia venusta [Variable Sunbird] See: *Nectarinia albiventris*.

Nectarinia verticalis [Green-headed Sunbird] See: *Nectarinia alinae*.

Note: *Promerops* has been placed variously in Meliphagidae, Sturnidae, Nectariniidae, or in its own family Promeropidae.

Promerops cafer [Cape Sugarbird]

× ***Promerops gurneyi*** [Gurney's Sugarbird] ONHR (E. Cape Prov., S. Africa).

These birds hybridize in the mountains above Alice and King William's Town (~27°E, 33°S). Cheke and Mann 2001 (p. 129); Sinclair 1984 (p. 292); Skead 1964.

Old World Sparrows

Family Passeridae

Passer castanopterus [Somali Sparrow]

× ***Passer domesticus*** [House Sparrow] NHR (Somalia). Ash and Colston 1981; Lewis 1984.

Passer diffusus [Cape Sparrow]

× ***Passer domesticus*** (♀) [House Sparrow] CHR. DRS. Shore-Baily says a mixed pair raised a ♀ hybrid after nesting 2 years without issue. *Bird Notes* 1916 (p. 20); Hopkinson 1926 (p. 186); Shore-Baily 1917 (p. 14).

× ***Passer griseus*** (♂) [Grey-headed Sparrow] ENHR (n Zimbabwe, e Mozambique).

Hybrids are common on the Zambezi (from L. Kariba to Tete), and are reported also from Malawi. Dowsett and Dowsett-Lemaire 1980; Hall and Moreau 1970 (p. 312); Irwin and Benson 1967; White and Moreau 1958.

- × *Passer luteus* (♀) [Sudan Golden-Sparrow] CHR. DRS. Hopkinson says "Yellow Sparrow" but equates this name with *luteus* on p. 185. *Bird Notes* 1910 (p. 198); Hopkinson 1926 (p. 186); Page 1914b (p. 39); Silver 1911 (p. 351).
- Passer domesticus*** [House Sparrow]
See also: *Passer castanopterus*; *P. diffusus*; Appendix 2.
- × *Passer hispaniolensis* [Spanish Sparrow] CAENHR (w Eurasia, n Africa). HPF (♂ & ♀). These birds are sometimes lumped. Hybrids are locally abundant. The Italian Sparrow, *Passer italiae*, which has long been treated as a species, is now sometimes treated as a race of *P. domesticus* because it is derived from this cross. *P. italiae* occurs in Italy and other localities in the Mediterranean Basin including Crete, Malta, Corsica, and n Africa. Alonso 1984, 1985; Baumgart and Stephan 1974; Bernis 1966; Bulatova 1973; Cheke 1966; Fulgione et al. 2000, 2001; Gray 1958; Heim de Balsac 1929; Jiguet 2003a; Johnston 1977; Lansdown 1998[†]; Macke 1965; Massa 1989; Mayr 1942; Meise 1934, 1936b, 1975; Metzmacher 1986; Panov and Rhadzhblu 1972; Papadopol 1966; Saccarão 1986; Schifferli and Schifferli 1980; Sibley and Monroe 1990; Stephan 1986; Sultana 1978; Summers-Smith and Vernon 1972; Walter 1967.
- × *Passer indicus* [Indian Sparrow] ENHR (Middle East). These birds are sometimes lumped. Hybrid zones occur where their ranges meet. Gavrilov 1965; Panov 1989; Stephan 1982, 1984. Internet: DIGI.
- × *Passer italiae* [Italian Sparrow] ENHR (ne Mediterranean). These birds are sometimes lumped. See: *Passer domesticus* × *P. hispaniolensis*. Ackermann 1898; Lockley 1992, 1996; Massa 1989; Meise 1936a, 1936b; Neithammer 1958; Panov 1989; Stephan 2004; Suchetet 1897a (p. 279).
- × *Passer luteus* (♀) [Sudan Golden-Sparrow] CHR. BRO: ne Africa. Common in captivity. *Bird Notes* 1908 (p. 105), 1911 (p. 36); Braun 1984; Gray 1958; Hopkinson 1926 (p. 185); Neunzig 1921; Suggitt 1907.
- × *Passer melanurus* (↔) [Mossie] CHR. DRS. Gray 1958; Hopkinson 1926 (p. 224), 1931a; Shore-Baily 1916a, 1917.
- × *Passer montanus* (↔) [Eurasian Tree Sparrow] CAENHR. HPF BRO: Europe. Hybrid ♂♂ resemble the Tree Sparrow, but ♀♀, the House Sparrow. Lang describes a case of hybridization in N. America (Manitoba). Ackermann 1898; Albrecht 1983; Andersen 1978; Anonymous 2000[†]; Bulatova 1973; Bulatova et al. 1972; Cheke 1969; Cordero 1990a, 1990b, 1991; Crew 1996; Eigenhuis 1990; Gray 1958; Grošelj 1981, 1985; Harris et al. 1989[†]; Harting 1894; Hume 1983; IZY 1962; Jenni and Schaffner 1984; Lang 1992; Macpherson 1919; Meise 1951; Nichols 1919; Nyholm 1966; Orłowski 2003; Page 1914b; Panov 1989; Passig 1906; Richardson 1957[†]; Rooke 1957[†]; Ruprecht 1967; Silver 1911; Solberg et al. 2000; Solberg and Ringsby 1996; Stepniewski 1992; Suchetet 1897a; Summers-Smith 1995; Taylor 1998; Tuck 1894; van den Berg and Groenendijk 1991.
- × *Serinus domesticus* [Domestic Canary]
See: Appendix 1.
- × *Spizella passerina* (♂) [Chipping Sparrow] Mixed copulation observed. No hybrids as yet been reported. Robinson 1959.
- Passer gongonensis*** [Parrot-billed Sparrow]
- × *Passer suahelicus* [Swahili Sparrow] NHR (Tanzania, e of L. Victoria). Hall and Moreau 1970 (p. 312); Prigogine 1984; Sibley and Monroe 1990. Internet: SCRI.
- × *Passer swainsonii* [Swainson's Sparrow] NHR (s Ethiopia)? Sibley and Monroe 1990. Internet: SCRI.
- Passer griseus*** [Grey-headed Sparrow]
See also: *Passer diffusus*.
- × *Passer melanurus* (♀) [Mossie] CHR. DRS. *Bird Notes* 1912 (pp. 338–339); Brickell 1989 (p. 232); Hopkinson 1938a; Page 1914b; Rattigan 1913.
- × *Passer suahelicus* [Swahili Sparrow] ONHR (s Tanzania). Sibley and Monroe 1990 (p. 671). Internet: SCRI.

- × *Passer swainsonii* [Swainson's Sparrow] ONHR (w Ethiopia)? Sibley and Monroe 1990 (p. 670). Internet: SCRI.
- Passer hispaniolensis*** [Spanish Sparrow]
See also: *Passer domesticus*.
- × *Passer indicus* [Indian Sparrow] ONHR. BRO: Iran, Afghanistan, w Pakistan, and s Kazakhstan. Panov 1989; Schalow 1908 (p. 202); Stephan 1982, 1984; Stephan and Gavrilov 1980.
- × *Passer italiae* [Italian Sparrow] ENHR (s Italy). See: *Passer domesticus* × *P. hispaniolensis*. Cheke 1966; Johnston 1969; Stephan 2004; Suchetet 1897a.
- × *Passer montanus* [Eurasian Tree Sparrow] NHR (Malta). Smith and Borg 1976[†].
- Passer indicus*** [Indian Sparrow]
See also: *Passer domesticus*; *P. hispaniolensis*.
- × *Emberiza bruniceps* (♀) [Red-headed Bunting] Old reports of natural mixed pairs. No hybrids were reported. Suchetet 1897a.
- Passer italiae*** [Italian Sparrow]
See also: *Passer domesticus* × *P. hispaniolensis*; *P. hispaniolensis*; Appendix 2.
- × *Passer montanus* [Eurasian Tree Sparrow] NHR. Suchetet 1897a (p. 278).
- Passer luteus*** [Sudan Golden-Sparrow]
See also: *Passer diffusus*; *P. domesticus*.
- × *Passer melanurus* (♂) [Mossie] CHR. DRS. *Bird Notes* 1910 (pp. 198, 231, 363–364); Hopkinson 1926; Pennant 1910; Silver 1911; Suggitt 1907.
- × *Passer montanus* (♂) [Eurasian Tree Sparrow] CHR. DRS. Hopkinson 1926; Pennant 1910; Silver 1911; Suggitt 1907.
- Passer melanurus*** [Mossie]
See also: *Passer domesticus*; *P. griseus*; *P. luteus*.
- × *Passer montanus* [Eurasian Tree Sparrow] CHR. DRS. Hopkinson 1938a.
- Passer montanus*** [Eurasian Tree Sparrow]
See also: *Passer domesticus*; *P. hispaniolensis*; *P. italiae*; *P. luteus*; *P. melanurus*; Appendix 1.
- × *Passer rutilans* (prob. ♂) [Russet Sparrow] CHR? BRO: s Asia. Weidle 1911.
- Passer rutilans*** [Russet Sparrow]
See: *Passer montanus*.
- Passer suahelicus*** [Swahili Sparrow]
See: *Passer gongonensis*; *P. griseus*.

- Passer swainsonii*** [Swainson's Sparrow]
See: *Passer gongonensis*; *P. griseus*.
- Petronia superciliaris*** [Yellow-throated Petronia] Two populations (*flavigula*, *rufitergum*), treated as races of this bird, hybridize in Zambia. Benson et al. 1971.
- Petronia xanthocollis*** [Chestnut-shouldered Petronia]
- × ~~*Rhodopechys githaginea*~~ [Trumpeter Finch]
Mixed mating has been observed, but hybrids have not been reported. Bright (E.H.) 1916; Gray 1958.
- × *Serinus domesticus* [Domestic Canary]
See: Appendix 1.

Pipits and Wagtails

Family Motacillidae

- Note:** Pipets (*Anthus*) are notoriously difficult to identify because populations treated as separate species are often very similar. Since hybrids between similar types are harder to identify, hybridization is likely underreported in this group.
- Anthus leucophrys*** [Plain-backed Pipit]
 - × *Anthus vaalensis* [Buffy Pipit] Hall and Moreau seem to suggest that a population in ne Africa that Sibley and Monroe call Goodson's Pipit (*Anthus goodsoni*), is variably intermediate between these two birds. Hall and Moreau 1970 (p. 39).
 - Anthus petrosus*** [Rock Pipit]
 - × *Anthus spinoletta* [Water Pipit] ONHI. Intermediates (probable hybrids) occur in n Europe. Alström and Mild 2003 (pp. 153, 154).
 - Anthus pratensis*** [Meadow Pipit]
 - × *Anthus spinoletta* [Water Pipit] ONHR. BRO: Europe. Bureš et al. 2002; Elfstrom 1980.
 - × *Anthus trivialis* [Tree Pipit] NHR. BRO: Europe. Rowan 1919.
 - Anthus richardi*** [Richard's Pipit]
 - × *Anthus rufulus* [Paddy-field Pipit] ENHI. Populations in e China and se Asia are intermediate and thus PHPs of this cross. Sibley and Monroe 1990.
 - Anthus rufulus*** [Paddy-field Pipit] See: *Anthus richardi*.

Anthus spinoletta [Water Pipit] See: *Anthus petrosus*; *A. pratensis*.

Anthus trivialis [Tree Pipit] See: *Anthus pratensis*.

Anthus vaalensis [Buffy Pipit] See: *Anthus leucophrys*.

Motacilla aguimp [African Pied Wagtail]

× *Motacilla alba* [White Wagtail] Smith suggested that the Moroccan Wagtail (*Motacilla subpersonatus*) may have arisen through interbreeding between *M. alba* and *M. aguimp* when birds of the later type were cut off n of the Sahara during the most recent cycle of aridity in that region. Smith 1968.

Note: The next group of crosses includes several birds sometimes treated as races of *Motacilla alba*, and sometimes as separate species.

Motacilla alba [White Wagtail]

See also: *Motacilla aguimp*.

× *Motacilla cinerea* (♀) [Grey Wagtail] NHR. BRO: Eurasia. Dornbusch reported a mixed pair, and a Grey Wagtail helping at a White Wagtail pair's nest. Abelsnes 2000; Dornbusch 1968; IZY 1983; Panov 1989. Internet: SCRI.

× *Motacilla lugens* (♀) [Black-backed Wagtail] ENHR. BRO: e Russia, w Alaska. HPF These birds are sometimes lumped. Sibley says hybrids may not be safely identifiable in the field. They occur in the w U.S. Badyaev et al. 1996 (p. 5); Nazarenko 1968; Panov 1989; Sibley 2000 (p. 419); Sibley and Howell 1998. Internet: SCRI.

× *Motacilla personata* [Masked Wagtail] ENHR (s Russia). HPF Hybridization occurs with a population, *dukhunensis*, treated as a race of *M. alba*. The hybrid zone extends from nw Mongolia through the Altai Mts. to sw Siberia. Due to hybridization, these birds are often lumped. Haffer 1977a; Meise 1975; Panov 1989. Internet: SCRI.

× *Motacilla yarrelli* [British Pied Wagtail] CAENHR (nw France). HPF These birds are often lumped. Hybrid zone is adj. to English Channel. Hybrids occur also in sw Norway. Ackermann 1898; Harrison 1982; Hens 1950; Rayfield 1948; Suchetet 1897a; Sueur 1982. Internet: SCRI.

Motacilla cinerea [Grey Wagtail]

See also: *Motacilla alba*.

× *Motacilla flava* (♀) [Blue-headed Wagtail] CANHR. BRO: e Europe, Russia. A likely natural hybrid was sighted in Denmark (Køge Sydstrand). Hopkinson 1926; Jørgensen 1996; Page 1914b; St. Quintin 1907.

× *Motacilla yarrelli* [Pied Wagtail] CHR. BRO: British Isles. *Avicultural Magazine* 1895 (p. 6); Hopkinson 1926.

Motacilla cinereocapilla [Ashy-headed Wagtail]

× *Motacilla flava* [Blue-headed Wagtail] ENHR (Switzerland). These birds are at times lumped. Kinznerbach 1967; Sibley and Monroe 1990 (p. 674).

Motacilla citreola [Yellow-hooded Wagtail]

× *Motacilla flava* [Blue-headed Wagtail] ONHR (w Siberia). Balatsky 1992; Lehto and Lehto 1997; Shirihai 1990. Internet: SCRI.

Motacilla feldegg [Black-headed Wagtail]

× *Motacilla flava* [Blue-headed Wagtail] ENHR. HPF(vh). Hybrid zone stretches some 4,000 km from the Balkans to the Altai Mountains. Hybrid populations occur in the lower Danube basin and s Ukraine. Migrants in Greece are variably intermediate. Birds described from Kenya under the name *superciliaris* are now known to be derived from this cross. Hybrids vary in head color (black or gray nape and/or cheeks), short or long, white or yellow supercilium; yellow or white throat. These birds are now usually lumped. Ackermann 1898; Czikeli 1985a, 1985b; Handrinos and Akriotis 1997 (p. 228); Harrison 1982 (p. 209); Johansen 1946; Panov 1989; Pleske 1887⁺; Stevenson and Fanshawe 2002 (p. 300).

Motacilla flava [Blue-headed Wagtail]

See also: *Motacilla cinerea*; *M. cinereocapilla*; *M. citreola*; *M. feldegg*.

× *Motacilla flavissima* [Yellowish-crowned Wagtail] NHR (England). BRO: coastal nw Europe. Swaine 1975; Wheatley 1979.

× *Motacilla lutea* (♂) [Yellow-browed Wagtail] ONHR (Europe and sw Asia). These birds are sometimes lumped. Antikainen and Sorvari 1985; Mayaud 1949; Milne 1959; Panov 1989.

- × *Motacilla taivana* [Green-crowned Wagtail] ONHR (e Russia). These birds are sometimes lumped. Babenko 1981; Panov 1989.
- × *Motacilla thunbergi* [Grey-headed Wagtail] ENHR. There is a narrow (10–20 km n to s) hybrid zone in s Finland. Hybridization probably also occurs in a long PCZ extending from the Baltic Sea to Lake Baikal. Hybrid ♂♂ are said to outcompete both parental forms on treeless bogs and marshes, but not pine peat-bogs and mountains. They have a higher tolerance to cold at the nestling stage and so are more common in years following a cold nesting season. However, reports suggest that hybrid ♀♀ either have no such advantage or are rare within the zone. Northward invasion of hybrids is reported to mostly involve ♂♂. This bias may be a manifestation of Haldane's Rule. Unlike parents, hybrids have some or even considerable white on chin and throat. Sammalisto says interbreeding of *flava* and *thunbergi*, which are sometimes lumped, is known to have produced variants almost identical to 9 of 13 birds commonly treated as races of these birds. Harrison 1982; Mayr 1956b; Sammalisto 1958, 1961, 1968; Sibley and Monroe 1990 (p. 674); Vepsäläinen 1968. Internet: SWIP.
- × *Motacilla yarrelli* (♀) [British Pied Wagtail] CHR. DRS. Pied's colors predominate in the hybrid. Carr notes that the hybrids were similar to certain winter migrants he had seen. *Avicultural Magazine* 1958 (p. 65); Carr 1959 (p. 50).
- Motacilla flavissima*** [Yellowish-crowned Wagtail] See: *Motacilla flava*.
- Motacilla lugens*** [Black-backed Wagtail] See: *Motacilla alba*.
- Motacilla lutea*** [Yellow-browed Wagtail] See: *Motacilla flava*.
- Motacilla personata*** [Masked Wagtail] See: *Motacilla alba*.
- Motacilla simillima*** [Siberian Yellow-Wagtail]
- × *Motacilla tschutschensis* [Alaska Yellow-Wagtail] ENHR (Siberia). These birds are often lumped. Balatsky 1992; Kistchinski 1980.

Motacilla subpersonata [Moroccan Wagtail]

See: *Motacilla aguimp* × *M. alba*.

Motacilla taivana [Green-crowned Wagtail]

See: *Motacilla flava*.

Motacilla thunbergi [Grey-headed Wagtail]

See: *Motacilla flava*.

Motacilla tschutschensis [Alaska Yellow-Wagtail] See: *Motacilla simillima*.

Motacilla yarrelli [British Pied Wagtail] See:

Motacilla alba; *M. cinerea*; *M. flava*.

Weavers and Their Allies

Family Ploceidae

Euplectes afer [Yellow-crowned Bishop]

- × *Euplectes taha* [Taha Bishop] CHR. BRO: Angola, Zaire. Shore-Baily says hybrids have occurred between *P. taha* and “*P. afra*.” Although Hopkinson interpreted “*P. afra*” as the Orange Bishop (*Euplectes franciscanus*), it seems more likely to refer to *Euplectes afer*, a bird often lumped with *E. taha*. Hopkinson 1926 (p. 199); Shore-Baily 1923 (p. 136).

Euplectes albonotatus [White-shouldered Widowbird]

- × *Euplectes eques* [Cinnamon-shouldered Widowbird] ONHR (s Tanzania). These birds are sometimes lumped. Sibley and Monroe 1990 (p. 688).
- × *Euplectes orix* (♀) [Red Bishop] CHR. BRO: s Africa. *Avicultural Magazine* 1932 (p. 191); Hopkinson 1938b (p. 239).

Euplectes ardens [Red-collared Widowbird]

- × *Euplectes axillaris* (prob. ♀) [Fan-tailed Widowbird] CHR. BRO: sub-Saharan Africa. Brooksbank 1949 (p. 158).
- × *Euplectes concolor* [Black Widowbird] ONHR (Angola, Zimbabwe, Tanzania). Due to hybridization, these birds are sometimes lumped. Sibley and Monroe 1990 (p. 688).
- × *Euplectes hordeaceus* (♂) [Black-winged Bishop] CHR. BRO: sub-Saharan Africa. Shore-Baily 1916b.
- × *Euplectes macrourus* (♀) [Yellow-mantled Widowbird] CANHR. BRO: sub-Saharan Africa. Hopkinson (1926) says skins of probable hybrids are in the British Museum. Colahan and Craig 1981; Hopkinson

1926 (p. 198), 1938b (p. 239); Shore-Baily 1918b; Silver 1954a.

Euplectes axillaris [Fan-tailed Widowbird]

See also: *Euplectes ardens*.

× *Euplectes capensis* (♂) [Yellow Bishop] CHR. BRO: s and e Africa. Hopkinson lists "*Ploceus capensis*" for this cross, but gives the name "Cape Bishop" which is *Euplectes capensis*. Hopkinson 1938b (p. 239).

× *Euplectes macrourus* (♀) [Yellow-mantled Widowbird] CHR? BRO: sub-Saharan Africa. The cross might have been *Euplectes ardens* × *E. macrourus*. Gray 1958; Hopkinson 1926 (pp. 198–199), 1938b; Shore-Baily 1916b.

Euplectes capensis [Yellow Bishop]

See: *Euplectes axillaris*.

Euplectes concolor [Black Widowbird]

See: *Euplectes ardens*.

Euplectes eques [Cinnamon-shouldered Widowbird] See: *Euplectes albonotatus*.

Euplectes franciscanus [Orange Bishop] See also: *Amadina fasciata*.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Euplectes hordeaceus [Black-winged Bishop] See also: *Euplectes ardens*.

× *Euplectes orix* [Red Bishop] CHR. BRO: equatorial Africa. IZY 1998.

Euplectes macrocercus [Yellow-shouldered Widowbird]

× *Euplectes macrourus* [Yellow-mantled Widowbird] ONHR (w Kenya, Uganda). These birds are sometimes lumped. Sibley and Monroe 1990.

Euplectes macrourus [Yellow-mantled Widowbird] See: *Euplectes ardens*; *E. axillaris*; *E. macrocercus*.

Euplectes orix [Red Bishop]

See: *Euplectes albonotatus*; *E. hordeaceus*.

Euplectes taha [Taha Bishop] See: *Euplectes afer*.

Foudia madagascariensis [Red Fody]

× *Foudia omissa* [Rothschild's Fody] NHR (se Madagascar) A hybrid was seen at Ranamofana National Park in 2003. Internet: MAD03.

× *Foudia sechellarum* [Seychelles Fody] ONHR (Aride I.) BRO: Seychelles. Lucking 1997.

× *Ploceus vitellinus* (♀) [Vitelline Masked-Weaver] CHR. DRS. Hopkinson says ♀ hybrids are "exactly like" *F. madagascariensis* ♀♀. Delacour 1920; Hopkinson 1926 (p. 218); Shore-Baily 1923 (p. 145).

× *Pyrrhula pyrrhula* [Eurasian Bullfinch] Some cite Gray (1958) for this cross, but she only says mating has been observed, not that hybrids have been reported.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Foudia omissa [Rothschild's Fody] See: *Foudia madagascariensis*.

Foudia sechellarum [Seychelles Fody] See: *Foudia madagascariensis*.

Note: Four weavers hybridize extensively: the Baglafaecht Weaver (*Ploceus baglafaecht*), Emin's Weaver (*P. emini*), Reichenow's Weaver (*P. reichenowi*), and Stuhlmann's Weaver (*P. stuhlmanni*). They are often lumped. Sibley and Monroe 1990.

Ploceus benghalensis [Black-breasted Weaver] See: *Ploceus manyar* × *P. philippinus*.

Ploceus bicolor [Dark-backed Weaver]

× *Ploceus stictifrons* [Spot-headed Weaver] ENHR (se Mozambique). Due to hybridization, these birds are now often lumped. Sibley and Monroe 1990.

Ploceus brachypterus [Swainson's Weaver]

× *Ploceus nigricollis* [Black-necked Weaver] ENHR (Cameroon). Due to hybridization, these birds are now often lumped. Sibley and Monroe 1990.

Ploceus capensis [Cape Weaver]

× *Ploceus velatus* [Southern Masked-Weaver] CHR. BRO: S. Africa. These birds are often considered conspecific. Page 1914b.

Ploceus castaneofuscus [Chestnut-and-black Weaver]

× *Ploceus nigerrimus* [Vieillot's Black Weaver] ENHR (s Nigeria). These birds are often considered conspecific. Sibley and Monroe 1990.

Ploceus castanops [Northern Brown-throated Weaver]

× *Ploceus melanocephalus* [Black-headed Weaver] ONHI. BRO: Uganda. Dowsett and Dowsett-Lemaire suggest that the Victoria Masked-Weaver (*Ploceus victoriae*), known

from one Ugandan specimen and others sighted, is probably this hybrid (they say it is less likely to be *Ploceus castanops* × *P. jacksoni*). Dowsett and Dowsett-Lemaire 1993 (p. 375).

Note: *Ploceus collaris*, *P. cucullatus*, *P. nigriceps*, and *P. spilonotus*, say Sibley and Monroe (1990, p. 683), all hybridize where they meet. They are often lumped.

Ploceus collaris [Mottled Weaver]

× *Ploceus cucullatus* [Village Weaver] ENHR (equatorial Africa). These birds are often lumped due to hybridization. Sibley and Monroe 1990.

× *Ploceus nigriceps* [Layard's Weaver] ENHR (equatorial Africa). These birds are often lumped due to hybridization. Sibley and Monroe 1990.

Ploceus cucullatus [Village Weaver]

See also: *Ploceus collaris*.

× *Ploceus heuglini* (♀) [Heuglin's Masked-Weaver] Neunzig says these birds “nested successfully together” (“nistete erfolgreich”) in captivity. It is unclear whether this means hybrids were produced. BRO: n sub-Saharan Africa. See *Ploceus cucullatus* × *P. vitellinus*. Neunzig 1921 (p. 435).

× *Ploceus nigerrimus* [Vieillot's Black Weaver] NHR (w equatorial Africa). Colston and Curry-Lindahl 1986; Prigogine 1984.

× *Ploceus nigriceps* [Layard's Weaver] ENHR (equatorial Africa). These birds are often lumped due to hybridization. Sibley and Monroe 1990.

× *Ploceus spilonotus* (♀) [Spot-backed Weaver] CHR. DRS. These birds are often lumped. Holden 1910, 1915; Hopkinson 1938b (p. 244).

× *Ploceus vitellinus* (♀) [Vitelline Masked-Weaver] CHR? HPF. Neunzig mentions a three-way hybrid with a ♀ *P. heuglini*. Hopkinson 1938b (p. 244); Neunzig 1921 (p. 434); Sauer mann 1890.

Ploceus heuglini [Heuglin's Masked-Weaver]

See: *Ploceus cucullatus*; *Ploceus cucullatus* × *P. vitellinus*.

Ploceus intermedius [Lesser Masked-Weaver]

Ploceus luteolus × *P. melanocephalus*.

Ploceus jacksoni [Golden-backed Weaver]

See: *Ploceus castanops* × *P. melanocephalus*.

Ploceus luteolus [Little Weaver]

× *Ploceus melanocephalus* [Black-headed Weaver] ENHI (equatorial Africa)? *Ploceus intermedius* (Lesser Masked-Weaver) is morphologically intermediate and has been treated as a race of *P. luteolus* and *P. melanocephalus*, which suggests it as a PHP of this cross. Hall and Moreau 1970; Sibley and Monroe 1990 (p. 682); Wolters 1975–1982 (p. 290).

Ploceus manyar [Streaked Weaver]

× *Ploceus philippinus* (♀) [Baya Weaver] CHR?? Old report. BRO: Pakistan, India. Neunzig (1921, p. 422) says Russ bred three hybrids.

Ploceus melanocephalus [Black-headed Weaver]

See also: *Ploceus castanops*; *P. luteolus*.

× *Ploceus taeniopterus* [Northern Masked-Weaver] NHR (ne Dem. Rep. Congo, u Uele R.). Hall and Moreau 1970 (p. 283).

Ploceus nigerrimus [Vieillot's Black

Weaver] See: *Ploceus castaneofuscus*; *P. cucullatus*.

Ploceus nigriceps [Layard's Weaver]

See also: *Ploceus collaris*; *P. cucullatus*.

× *Ploceus spilonotus* (♀) [Spot-backed Weaver] CAENHR (Mozambique). These birds are often lumped. Brickell 1989; Sibley and Monroe 1990.

Ploceus nigricollis [Black-necked Weaver]

P. brachypterus.

Ploceus olivaceiceps [Olive-headed Weaver]

× *Ploceus subaureus* (♀) [African Golden-Weaver] CHR? BRO: se Africa. Shore-Baily mentions producing a hybrid between “Olivaceous” and Golden Weaver, which probably refers to this cross. Shore-Baily 1917 (p. 16).

Ploceus philippinus [Baya Weaver] See: *Ploceus manyar*.

Ploceus reichardi [Tanzania Masked-Weaver]

See: *Ploceus ruweti*.

Ploceus ruweti [Ruwet's Masked-Weaver]

Dowsett and Dowsett-Lemaire say the

specimen from Dem. Rep. of Congo, on which this taxon is based, may be a hybrid involving *P. reichardi*. Dowsett and Dowsett-Lemaire 1993.

- Ploceus spilonotus*** [Spot-backed Weaver]
See: *Ploceus cucullatus*; *P. nigriceps*.
- Ploceus stictifrons*** [Spot-headed Weaver]
See: *Ploceus bicolor*.
- Ploceus subaureus*** [African Golden-Weaver]
See: *Ploceus olivaceiceps*.
- Ploceus taeniopterus*** [Northern Masked-Weaver] See: *Ploceus melanocephalus*.
- Ploceus velatus*** [Southern Masked-Weaver]
See: *Ploceus capensis*.
- Ploceus victoriae*** [Victoria Masked-Weaver]
See: *Ploceus castanops* × *P. melanocephalus*.
- Ploceus vitellinus*** [Vitelline Masked-Weaver]
See: *Foudia madagascariensis*; *Ploceus cucullatus*.
- Quelea erythropis*** [Red-headed Quelea]
× *Quelea quelea* (♀) [Red-billed Quelea] CHR.
PCZ in w Africa. Siroki 1975.

Estrildine Finches

Family Estrildidae

- Note:** Hybridization between finch genera is summarized in Figure 19.
- Amadina erythrocephala*** [Red-headed Finch]
× *Amadina fasciata* (↔) [Cut-throat] CHR.
HPF(♂♂). BRO: s Africa. This cross is easily obtained. F₁ ♂♂ are more fertile than ♀♀, but ♀ fertility increases in backcrosses. Anonymous 1907a; *Avicultural Magazine* 1899 (p. 34); *Bird Notes* 1913, 1914; Butler 1906c; Cameron 1951; Fehrer 1993; Gray 1958; Hopkinson 1926 (p. 202), 1938b (p. 240); Immelmann et al. 1977 (p. 496); IZY 1962; Neunzig 1921 (p. 391); Page 1908, 1914a, 1914b (p. 36), 1923; Porter 1948; Rattigan 1921; Robiller 1978; Steiner 1935, 1945 (p. 238).
- × *Padda oryzivora* (♀) [Java Sparrow] CHR??
DRS. Hopkinson 1926 (p. 202),

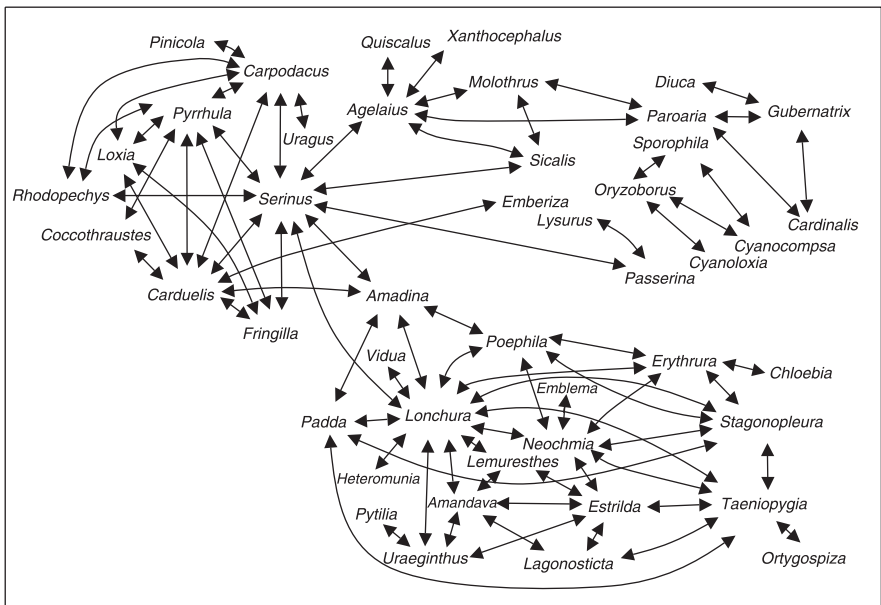


Figure 19. Hybridizing finch genera. Arrows indicate reported hybridization.

1938b (p. 240); Page 1914b (p. 36); Young 1912.

Amadina fasciata [Cut-throat]

See also: *Amadina erythrocephala*.

- × *Carduelis cannabina* (♂) [Eurasian Linnet] CHR. BRO: Nile Valley? Page (*Bird Notes* 1915, p. 261) says this hybrid was reared in 1914, and that the plumage of the hybrid “leaves no doubt” as to its parentage. This cross connects estridid and fringillid finches. Hopkinson 1926 (p. 185).
- × *Carduelis carduelis* (♀) [European Goldfinch] Nesting of a mixed pair occurred in captivity, but no hybrids were reported. Beck 1901.
- × *Euplectes franciscanus* [Orange Bishop] CHR. BRO: n sub-Saharan Africa. Mignone 1995c.
- × *Lonchura cantans* (♀) [African Silverbill] CHR? BRO: sub-Saharan Africa. Brooksbank 1949 (p. 20); Immelmann et al. 1977 (p. 496).
- × *Lonchura domestica* (♀) [Bengalese] CHR. *Cage Birds* 1956 (p. 164); Immelmann et al. 1977 (p. 496).
- × *Lonchura maja* (♂) [White-headed Munia] CHR? DRS. *Bird Notes* 1909 (p. 258); Hopkinson 1926 (p. 206); 1938b (p. 241).
- × *Lonchura malabarica* (♀) [White-throated Silverbill] CHR. DRS. Hopkinson 1938b (p. 240); Immelmann et al. 1977; Silver 1956.
- × *Padda oryzivora* (↔) [Java Sparrow] CHR? DRS. *Bird Notes* 1912 (pp. 139–140); Butler 1910b (vol 1, p. 175); Hopkinson 1938b (pp. 200, 201); Immelmann et al. 1977 (p. 496).
- × *Poephila cincta* (↔) [Black-throated Finch] CHR. DRS. Immelmann 1982; Immelmann et al. 1977 (p. 496).
- × *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Amandava amandava [Red Avadavat]

- × *Amandava subflava* (↔) [Zebra Waxbill] CHR. DRS. *Avicultural Magazine* 1911 (p. 349); *Bird Notes* 1910 (pp. 300, 364); Drake 1932, 1935; Hopkinson 1926 (p. 205), 1938b (p. 241); Page 1914b (p. 37).

- × *Lemuresthes nana* (♂) [Madagascar Munia] CHR. DRS. Hopkinson 1932c, 1938 (p. 240).
 - × ~~*Lagonosticta senegala*~~ [Red-billed Firefinch] Some cite Gray (1958) for this cross, but she merely notes that mixed nesting has been observed.
 - × *Lonchura cantans* (♀) [African Silverbill] CHR?? DRS. A single very old record. Kratz describes a ♂ hybrid. This cross was perhaps with a White-throated, rather than African, Silverbill. Kratz 1875.
- Amandava formosa*** [Green Avadavat]
- × *Amandava subflava* (♀) [Zebra Waxbill] CHR. DRS. Van Wachem 1952.
 - × *Neochmia phaeton* (♀) [Crimson Finch] Some cite Gray (1958) for this cross, but she only says mixed nesting was reported, not hybrids.
- Amandava subflava*** [Zebra Waxbill]
- See also: *Amandava formosa*.
- × *Estrilda astrild* (♀) [Common Waxbill] CHR? Old records. BRO: sub-Saharan Africa. Hopkinson 1926, 1939b (p. 244); Russ 1895.
 - × *Estrilda troglodytes* (♂) [Black-rumped Waxbill] CHR? BRO: sub-Saharan Africa. Butler 1906c; Hopkinson 1939b; Neunzig 1921 (p. 348).
 - × *Lagonosticta senegala* [Red-billed Firefinch] CHR?? BRO: sub-Saharan Africa. Listings of this cross are doubtful. All seem to trace back to Russ (1878). Kochendörfer observed a free-living mixed pair nest together, mate repeatedly, and lay eggs. Butler 1906c (pp. 349, 350); Hopkinson 1926 (p. 201, 205), 1938b (p. 241); Kochendörfer 1906; Russ 1878.
 - × *Lonchura cantans* (♂?) [African Silverbill] CHR. Old record. BRO: sub-Saharan Africa. Finn 1911.
 - × *Serinus mozambicus* (♂) [Yellow-fronted Canary] CHR. Teague obtained fertile eggs, but no hybrids hatched. Teague 1932.
 - × *Uraeginthus bengalus* (♀) [Red-cheeked Cordonbleu] CHR. BRO: sub-Saharan Africa. Chicks were reared. *Avicultural Magazine* 1935 (p. 293); Brooksbank 1949 (p. 78); Hopkinson 1938b (p. 241).

Chloebia gouldiae [Gouldian Finch]

- × *Erythrura trichroa* (♀) [Blue-faced Parrotfinch] CHR. BRO: se Cape York Penin., Queensland, Australia. Three ♂, and two ♀, hybrids were bred in Germany in 1936. Their skins are in the Zoological Museum of Copenhagen. Blair et al. 2000; Immelmann 1982; Immelmann et al. 1977 (p. 258, citing Steinbacher, *Die Gefiederte Welt* 1955).

Cryptospiza reichenovii [Red-faced Crimson-wing]

- × *Estrilda melanotis* (♀) [Sweet Waxbill] Captive mixed pair. No hybrids as yet reported. BRO: n sub-Saharan Africa. Immelmann et al. 1965 (p. 96).
- × *Mandingoa nitidula* [Green-backed Twinspot] CHR. BRO: s cen. Africa. Fertile eggs were placed under a Bengalese hen, but she did not raise the three hatched hybrids. Immelmann et al. 1965 (p. 96).

Emblema pictum [Painted Firetail]

- × *Neochmia temporalis* (♂) [Red-browed Firetail] CHR. BRO: probably in cen. Queensland (Australia). Immelmann 1982; Immelmann et al. 1977 (p. 10, citing Paul in *Australian Aviculture*, Nov. 1952).

Erythrura cyaneovirens [Red-headed Parrotfinch]

- × *Erythrura trichroa* (♀) [Blue-faced Parrotfinch] CHR. BRO: Loyalty Islands? Immelmann 1982; Immelmann et al. 1977 (p. 221, citing Hulinsky, *Gefiedte Welt* 1961 and Reichert, *Die Gefiederte Welt* 1965).

Erythrura pealii [Fiji Parrotfinch]

- × *Erythrura psittacea* (♂) [Red-throated Parrotfinch] CHR. DRS. HPF Reports prior to 1960 of hybrids involving *E. cyaneovirens* refer to *E. pealii*. Hopkinson 1938b (p. 243); Page 1914b (p. 36).

- × *Erythrura regia* (♀) [Royal Parrotfinch] CHR. DRS. Immelmann et al. 1977.

Erythrura prasina [Pin-tailed Parrotfinch]

- × *Erythrura psittacea* (↔) [Red-throated Parrotfinch] CHR. DRS. HPF? Hopkinson 1938b; Immelmann et al. 1977; Neunzig 1921 (p. 358).

- × *Erythrura regia* [Royal Parrotfinch] CHR. DRS. Fehrer 1993.

- × *Erythrura trichroa* (↔) [Blue-faced Parrotfinch] CHR. HPF(♂♂). DRS. Immelmann 1982; Immelmann et al. 1977; Steiner 1945 (p. 238).

- × *Lonchura cantans* (♀) [African Silverbill] CHR? DRS. Hieronymus 1889b; Hopkinson 1938b (p. 243); Neunzig 1921 (p. 358).

- × *Lonchura punctulata* [Scaly-breasted Munia] CHR. DRS. *Avicultural Magazine* 1938 (p. 51).

- × *Stagonopleura guttata* (♀) [Diamond Firetail] CHR. DRS. A single hybrid. A very old record. Hieronymus 1889b.

Erythrura psittacea [Red-throated Parrotfinch]

See also: *Erythrura pealii*; *E. prasina*.

- × *Erythrura regia* (♂) [Royal Parrotfinch] CHR. Possible breeding contact in the Loyalty Is. Abrahams 1945.

- × *Erythrura trichroa* (♀ prob. ↔) [Blue-faced Parrotfinch] CHR. HPF(♂ & ♀). Yamashina found that some hybrid ♀♀ had degenerate ovaries. Butler 1906c (p. 359); Cayley 1932; Gray 1958; Hachisuka (Marquess) 1928 (p. 57); Hauth 1897; Hawkins 1900b; Hopkinson 1938b (p. 243); Immelmann et al. 1977 (pp. 231, 232); Neunzig 1921 (p. 359); Robiller 1978; Yamashina 1940^f.

- × *Lonchura domestica* (♀) [Bengalese] CHR?? Legendre 1936 (p. 107).

- × *Neochmia temporalis* (♀) [Red-browed Firetail] CHR. BRO: Australasia? Hauth reported hybrids that died as nestlings. Hauth 1897; Hopkinson 1938b (p. 243); Immelmann et al. 1965.

- × *Poephila cincta* (♀) [Black-throated Finch] CHR. DRS. Blume 1902; Hopkinson 1938b (p. 243); Immelmann 1982; Immelmann et al. 1977; Neunzig 1921 (p. 360).

Erythrura regia [Royal Parrotfinch]

See also: *Erythrura pealii*; *E. prasina*; *E. psittacea*.

- × *Erythrura trichroa* (♀) [Blue-faced Parrotfinch] CHR. DRS. Immelmann 1982.

Erythrura trichroa [Blue-faced Parrotfinch]

See also: *Chloebia gouldiae*; *E. cyaneovirens*; *E. prasina*; *E. psittacea*; *E. regia*.

- × *Taeniopygia guttata* (♀) [Zebra Finch] CHR?? BRO: Australia (n coastal Queensland). A single hybrid. Gray says the ♂ parent might have been *Lonchura castaneothorax* instead of *E. trichroa*. Gray 1958; Hopkinson 1926.
- Estrilda astrild*** [Common Waxbill]
See also: *Amandava subflava*.
- × *Estrilda melpoda* (↔) [Orange-cheeked Waxbill] CHR. BRO: sub-Saharan Africa. HPF Three-way hybrids were bred (♂ Common Waxbill × ♀ Orange-cheeked) × ♀ Black-rumped Waxbill (*E. troglodytes*). A (natural?) specimen is in the Museum Alexander Koenig, Bonn. Butler 1906c; Drake 1932, 1935, 1936; Fehrer 1993; Hendschel 1872; Hopkinson 1926, 1938b (pp. 241, 243); Immelmann et al. 1977 (p. 563, citing van Baelen, *Die Gefiederte Welt* (1971); Russ 1873a; von Samson-Himmelstjerna 1897.
- × *Estrilda paludicola* (♀) [Fawn-breasted Waxbill] CHR. BRO: cen. Africa. *Die Gefiederte Welt* 1971 (p. 50).
- × *Estrilda rhodopyga* (♂) [Crimson-rumped Waxbill] CHR. BRO: e sub-Saharan Africa. Fehrer 1993; Gray 1958; Oguma 1933*.
- × *Estrilda troglodytes* (♂ prob. ↔) [Black-rumped Waxbill] CHR. HPF BRO: sub-Saharan Africa. Butler 1906c; Fehrer 1993; Fenk 1911; Gray 1958; Hopkinson 1938b (pp. 243, 244); Neunzig 1921 (p. 348); Page 1914b (p. 37); Prestwich 1930b; Teague 1932.
- × *Lonchura cantans* (♂) [African Silverbill] CHR. HPF BRO: sub-Saharan Africa. Butler 1906c (p. 351); Gray 1958; Hodgson 1899; Hopkinson 1938b (p. 243); Neunzig 1921 (p. 347); Russ 1873b.
- × *Lonchura cucullata* (♂) [Bronze Munia] CHR. BRO: e equatorial Africa. HPF Hodgson 1899; Hopkinson 1931b, 1938b (p. 240); Immelmann et al. 1977 (p. 475); Robinson 1931a, 1931b.
- × *Neochmia temporalis* (♀) [Red-browed Firetail] CHR. DRS. Butler 1906c; Cayley 1932; Hopkinson 1938b; Immelmann 1982; Neunzig 1921 (p. 347).
- × *Taeniopygia guttata* (↔) [Zebra Finch] CHR. DRS. Butler 1906c; Cayley 1932; Hodgson 1899; Hopkinson 1926, 1938b; Immelmann et al. 1965.
- × *Uraeginthus bengalus* (♀ prob. ↔) [Red-cheeked Cordonbleu] CHR. HPF BRO: sub-Saharan Africa. Egg hatchability is relatively high (♂ Waxbill × ♀ Cordonbleu). Butler 1906c; Campbell 1917; Decoux 1920; Hopkinson 1938b; Neunzig 1921 (p. 334); Rokitansky and Schifter 1968; Russ 1873a.
- Estrilda atricapilla*** [Black-headed Waxbill]
- × *Estrilda nonnulla* [Black-crowned Waxbill] ACZ in e Africa at ~2,100 m (*atricapilla* occurs above *nonnulla*). No hybrids as yet reported. Dowsett and Dowsett-Lemaire 1993 (p. 377); Stevenson and Fanshawe 2002 (p. 554).
- Estrilda caerulescens*** [Lavender Waxbill]
- × *Estrilda melpoda* (♂) [Orange-cheeked Waxbill] CHR. BRO: Savannas of w Africa. *Avicultural Magazine* 1968 (p. 225).
- × *Lagonosticta senegala* (↔) [Red-billed Firefinch] CHR? BRO: w sub-Saharan Africa. Butler 1906c (p. 350); Hopkinson 1926 (pp. 201, 216), 1938b (pp. 240, 244); Neunzig 1921 (p. 352).
- Estrilda charmosyna*** [Red-rumped Waxbill]
- × *Estrilda erythronotos* [Black-cheeked Waxbill] PCZ (Tanzania, Kenya). No hybrids as yet reported. These birds are often lumped. Dowsett and Dowsett-Lemaire 1993; Short et al. 1990. Internet: SCRI.
- Estrilda erythronotos*** [Black-cheeked Waxbill]
See also: *Estrilda charmosyna*.
- × *Lonchura malabarica* [White-throated Silverbill] CHR. DRS. Speicher 1971.
- Estrilda melanotis*** [Sweet Waxbill] See: *Cryptospiza reichenovii*. Two populations (*kilimensis*, *stuartirwini*) treated as races of *E. melanotis* hybridize in Malawi (Nyika Plateau). Benson and Benson 1977 (p. 206).
- Estrilda melpoda*** [Orange-cheeked Waxbill]
See also: *Estrilda astrild*; *E. caerulescens*.
- × *Estrilda rhodopyga* (♂) [Crimson-rumped Waxbill] CHR. PCZ in e Africa (Rift Valley). Gray 1958; Hachisuka (Marquess) 1928 (p. 56).

- × *Estrilda troglodytes* (♂ prob. ↔) [Black-rumped Waxbill] CHR. BRO: w sub-Saharan Africa. *Avicultural Magazine* 1932 (p. 84), 1937 (p. 362); Butler 1906c; Drake 1932; Gray 1958; Hopkinson 1938b (p. 244); Immelmann et al. 1965; Neunzig 1921 (p. 348); Teague 1932.
- × *Lemuresthes nana* (♀) [Madagascar Munia] CHR. DRS. Immelmann et al. 1977 (pp. 480, 481).
- Estrilda nonnulla*** [Black-crowned Waxbill]
See: *Estrilda atricapilla*.
- Estrilda paludicola*** [Fawn-breasted Waxbill]
See: *Estrilda astrild*.
- Estrilda rhodopyga*** [Crimson-rumped Waxbill]
See also: *Estrilda astrild*; *E. melopoda*.
- × *Estrilda troglodytes* (↔) [Black-rumped Waxbill] CAENHR (Sudan, Ethiopia). HPF. Wölters says the Arabian Waxbill (*Estrilda rufibarba*), of the sw Arabian Penin., may be this hybrid. Butler 1903; 1910b; Hachisuka (Marquess) 1928 (p. 57); Hopkinson 1938b (p. 244); Wölters 1985.
- Estrilda rufibarba*** [Arabian Waxbill] See: *Estrilda rhodopyga* × *E. troglodytes*.
- Estrilda troglodytes*** [Black-rumped Waxbill]
See also: *Amandava subflava*; *Estrilda astrild*; *E. melopoda*; *E. rhodopyga*.
- × *Lagonosticta senegala* (♂ prob. ↔) [Red-billed Firefinch] CHR. BRO: arid regions of sub-Saharan Africa. Neunzig 1921 (p. 348).
- × *Lonchura cantans* (♂) [African Silverbill] CHR. BRO: sub-Saharan Africa. Immelmann et al. 1977 (p. 429); Page 1914b (p. 44).
- × *Lonchura punctulata* (♂) [Scaly-breasted Munia] CHR. DRS. Immelmann 1982; Immelmann et al. 1977 (p. 586, citing Pust, *Die Gefiederte Welt* 1972).
- × *Serinus domesticus* [Domestic Canary]
See: Appendix 1.
- × *Uraeginthus bengalus* (♂) [Red-cheeked Cordonbleu] CHR. BRO: n sub-Saharan Africa. Brooksbank 1949 (pp. 59, 165).
- Heteromunia pectoralis*** [Pictorella Munia]
× *Lonchura cantans* (♂) [African Silverbill]
Some cite Gray (1958) for this cross, but she lists it only to say that, from a mixed pair, no eggs hatched.
- × *Lonchura castaneothorax* (♀) [Chestnut-breasted Munia] CHR? BRO: n Australia. Hopkinson 1938b (pp. 241, 242).
- × *Lonchura flaviprymna* (↔) [Yellow-rumped Munia] CHR. HPF BRO: n Australia. Immelmann 1982; Immelmann et al. 1977; Myers 1995.
- × *Poephila personata* [Masked Finch] CHR? BRO: tropical n Australia. Cayley mentions two presumed hybrids, but the parentage is in doubt since several types of grass-finches were present in the aviary. Cayley 1932.
- × *Stagonopleura guttata* [Diamond Firetail] CHR. BRO: ne Australia. A dead hybrid was found in an aviary. Cayley 1932.
- Lagonosticta landanae*** [Pale-billed Firefinch]
- × *Lagonosticta rubricata* [African Firefinch] ONHR (w cen. Africa). Due to hybridization, these birds are sometimes lumped. Dowsett and Dowsett-Lemaire 1993; Payne 1982.
- Lagonosticta larvata*** [Black-throated Firefinch]
- × *Lagonosticta vinacea* [Black-faced Firefinch] ONHR (se Sudan). Due to hybridization, these birds are sometimes lumped. Dowsett and Dowsett-Lemaire 1993; Payne 1982.
- Note:** Two populations (*nitidula*, *plumbaria*) treated as races of *Lagonosticta nitidula* hybridize in sw Zambia. Benson et al. 1971 (p. 344).
- Lagonosticta nitidula*** [Brown Firefinch]
- × *Lagonosticta rufopicta* [Bar-breasted Firefinch] ONHR (s Dem. Rep. Congo). Payne 1982.
- Lagonosticta rhodopareia*** [Jameson's Firefinch]
- × *Lagonosticta rubricata* [African Firefinch] NHR (Malawi). Hanmer 1988.
- × *Uraeginthus bengalus* (♀) [Red-cheeked Cordonbleu] CHR. BRO: Immelmann et al. 1977 (p. 551, citing Blaser, *Die Gefiederte Welt* 1969).
- Lagonosticta rubricata*** [African Firefinch]
See also: *Lagonosticta landanae*; *L. rhodopareia*.
- × *Taeniopygia guttata* (↔) [Zebra Finch] CHR. DRS. Immelmann 1982.
- × *Uraeginthus bengalus* (♂) [Red-cheeked Cordonbleu] CHR. BRO: sub-Saharan Africa. The hybrid is more like *L. rubricata* than

- U. bengalus*. Immelmann et al. 1965 (p. 188); Robiller 1978; Schifter 1968.
- Lagonosticta rufopicta*** [Bar-breasted Firefinch]
See also: *Lagonosticta nitidula*.
- × ***Lagonosticta senegala*** (↔) [Red-billed Firefinch] CHR. HPF BRO: n sub-Saharan Africa. Hopkinson 1926 (pp. 201, 202), 1938b (p. 240); Immelmann et al. 1965 (p. 150); Lucas 1917.
- × ***Uraeginthus bengalus*** (♀) [Red-cheeked Cordonbleu] BRO: n sub-Saharan Africa. A pair nested together in captivity, but no hybrids are as yet reported. Immelmann et al. 1965 (p. 150).
- Lagonosticta senegala*** [Red-billed Firefinch]
See also: *Amandava amandava*; *A. subflava*; *Estrilda caerulescens*; *E. troglodytes*; *Lagonosticta rufopicta*.
- × ***Taeniopygia guttata*** (↔) [Zebra Finch] CHR. DRS. Museum Alexander Koenig has a specimen. Fehrer 1993; Gray 1958; Porter 1948; Wolter 1977.
- Lagonosticta vinacea*** [Black-faced Firefinch]
See: *Lagonosticta larvata*.
- Lemuresthes nana*** [Madagascar Munia]
See also: *Amandava amandava*; *Estrilda melpoda*.
- × ***Lonchura cantans*** [African Silverbill] Gray (1958) lists this cross, but all records appear to refer to *Lonchura malabarica*, not *L. cantans*.
- × ***Lonchura cucullata*** (↔ usu. ♀) [Bronze Munia] CHR. BRO: Comoros Islands. *Bird Notes* 1913 (pp. 322–323), 1915 (p. 313); Fehrer 1993; Immelmann et al. 1977 (p. 480); Restall 1997; Steiner 1952.
- × ***Lonchura domestica*** (♂) [Bengalese] CHR. F₁ hybrids are nearly identical to *L. nana*, but a bit larger. *Avicultural Magazine* 1937 (p. 297); *Bird Notes* 1914 (p. 115); Gray 1958; Immelmann et al. 1977 (p. 480); Neunzig 1921 (p. 387); Poltimore (Lord) 1914a (p. 49), 1914b; Steiner 1952.
- × ***Lonchura fringilloides*** (↔) [Magpie Munia] CHR. DRS (poss. vagrant contact across Mozambique Channel). Immelmann et al. 1977 (p. 480–481).
- × ***Lonchura malabarica*** (↔) [White-throated Silverbill] CHR. DRS. Butler 1906c (pp. 351, 353); Fehrer 1993; Gray 1958; Hopkinson 1926 (pp. 200, 211); Immelmann et al. 1977 (p. 480); Steiner 1952.
- × ***Lonchura punctulata*** (♂) [Scaly-breasted Munia] CHR. DRS. *Bird Notes*. 1915; Hopkinson 1926, 1938b (p. 242); Immelmann et al. 1977 (p. 480); Page 1915[†], 1922[†]; Shore-Baily 1915, 1917; Steiner 1952.
- × ***Lonchura striata*** (♂) [White-rumped Munia] CHR. DRS. Steiner 1952.
- Lonchura acuticauda*** [Bengalese Munia]
- × ***Lonchura cantans*** (↔) [African Silverbill] CHR. DRS. LFH. Butler 1906c (pp. 351, 352); Delacour 1936b; Dell 1900; Gray 1958; Neunzig 1921 (p. 379); Page 1914b (p. 36); Steiner 1936, 1943, 1945 (p. 238).
- × ***Lonchura castaneothorax*** [Chestnut-breasted Munia] CHR. DRS. LFH. Steiner 1945 (p. 238).
- × ***Lonchura domestica*** (↔) [Bengalese] CHR. HPF. *Bird Notes* 1913 (pp. 322–323); Gray 1958; Hopkinson 1926.
- × ***Lonchura fuscans*** [Dusky Munia] CHR. HPF BRO: Possible contact on Belitung Island (Indonesia). Steiner 1945 (p. 237).
- × ***Lonchura leucogastroides*** (↔) [Javan Munia] CHR. CAONHR? HPF (♂ & ♀). Sibley and Monroe note that there is “marginal overlap and possibly limited hybridization in Sumatra.” Immelmann et al. 1977 (p. 353); Neunzig 1921 (p. 377); Sibley and Monroe 1990 (p. 697); Steiner 1945 (p. 237). Internet: SCRI.
- × ***Lonchura maja*** [White-headed Munia] CHR. Several hybrids were obtained by Hald. A single very old record. BRO: se Asia, Sumatra. Hald 1877.
- × ***Lonchura malabarica*** [White-throated Silverbill] CHR. HPF BRO: e India. Old record. Przibram 1910.
- × ***Lonchura punctulata*** (♂) [Scaly-breasted Munia] CHR. HPF Backcrosses to *L. acuticauda* have occurred. BRO: India, se Asia, and Sumatra. Gray 1958; Przibram 1910; Steiner 1945 (p. 238).

- × *Lonchura striata* (↔) [White-rumped Munia] CAENHR (e India). HPF. Hybrids have pale gray lines on the flanks. These birds are often treated as conspecific due to hybridization. Butler 1906c (pp. 351, 352), 1910b (vol. 1, p. 177); Gray 1958; Immelmann et al. 1977 (p. 364); Neunzig 1921 (p. 377); Page 1914b (p. 36); Sibley and Monroe 1990 (p. 697); Steiner 1945 (p. 237).
 - × *Poephila acuticauda* [Long-tailed Finch] CHR. DRS. LFH. Steiner 1945.
 - × *Poephila cincta* [Black-throated Finch] CHR. DRS. LFH. Steiner 1945.
 - × *Serinus domesticus* [Domestic Canary] See: Appendix 1.
 - × *Stagonopleura guttata* [Diamond Firetail] CHR. DRS. Steiner 1945.
 - × *Taeniopygia guttata* [Zebra Finch] CHR. DRS. LFH. Steiner 1945.
- Note:** *Lonchura atricapilla*, as described by Restall, is itself composed of several hybridizing populations usually treated as separate races. Restall 1997.
- Lonchura atricapilla*** [Southern Black-headed Munia]
- × *Lonchura cantans* (♂) [African Silverbill] CHR. DRS. LFH. Steiner (1958) says this cross produces a hybrid that looks like *Lonchura castaneothorax*. Immelmann et al. 1977 (p. 429); Steiner 1936, 1945 (p. 238), 1958[†], 1966[†].
 - × *Lonchura castaneothorax* (♀ prob. ↔) [Chestnut-breasted Munia] CHR. DRS. Butler 1906c (p. 352); Cayley 1932; Page 1914b; Steiner 1958.
 - × *Lonchura domestica* (♀) [Bengalese] CHR. HPF(♂♂). Gray 1958; Hopkinson 1926 (p. 210), 1938b (p. 241); Immelmann et al. 1977 (p. 389); Yamashina 1940.
 - × *Lonchura maja* (↔) [White-headed Munia] CHR? Butler 1904, 1906c; Hopkinson 1926, 1938b (p. 241); Neunzig 1921 (p. 384).
 - × *Lonchura malabarica* (♂) [White-throated Silverbill] CHR. BRO: e India, Bangladesh. Hopkinson 1926 (p. 211).
 - × *Lonchura malacca* [Indian Black-headed Munia] CANHR (se Asia). BRO: ne peninsular

- India (at ~19°N). Viney et al. report probable hybridization in Hong Kong, where *L. malacca* is introduced. These birds are often lumped, but are not easily crossable; Immelmann et al. say Steiner tried to cross them repeatedly (*L. atricapilla* ♂ × *L. malacca* ♀), but was able only to obtain fertile eggs. None hatched. Butler 1904; Finn 1900a, 1900b; Immelmann et al. 1977 (p. 328); Seth-Smith 1903a; Viney et al. 1994.
- × *Lonchura punctulata* (♀) [Scaly-breasted Munia] CHR. BRO: Indonesia, Philippines, se Asia. Hopkinson 1926, 1938b (p. 241); Immelmann 1982; Immelmann et al. 1977; Mishima 1968b; Neunzig 1921.
 - × *Taeniopygia guttata* (♂) [Zebra Finch] CHR. DRS. LFH. Immelmann 1982.
 - × *Vidua chalybeata* [Village Indigobird] CHR?? In an old paper Teschemaker mentions “a very curious hybrid, bred by an Exeter fancier, between the Combassou and the Black-headed Mannikin.” However, he gives no details. On the basis of this sketchy statement, Gray lists this cross. Gray 1958; Teschemaker 1910 (p. 90).
- Note:** Two populations, *bicolor* (Red-backed Munia) and *poensis* (Black-and-white Munia), sometimes treated as separate species, and sometimes as races of *Lonchura bicolor*, hybridize in Cameroon. Borrow and Demey 2001 (p. 769); Sibley and Monroe 1990 (p. 697).
- Lonchura bicolor*** [Black-and-white Munia]
- × *Lonchura cantans* (♀) [African Silverbill] CHR. BRO: w equatorial Africa. See: *Lonchura cantans* × *L. nigriceps*. Butler 1906c; Hopkinson 1926 (p. 199), 1938b (p. 239); Immelmann et al. 1977; Steiner 1952.
 - × *Lonchura cucullata* (↔) [Bronze Munia] CHR. BRO: e Africa. Hopkinson 1938b (pp. 239, 240); Immelmann et al. 1977 (p. 459); Lincke 1875; Möckel 1874; Neunzig 1921 (p. 389); Steiner 1952.
 - × *Lonchura domestica* [Bengalese] CHR. Reports on this cross's direction are at odds.

- Güttinger 1970; Immelmann et al. 1977 (pp. 388, 459); Steiner 1952.
- × *Lonchura fringilloides* (♀) [Maggie Munia] CHR. HPF(♂ & ♀). BRO: n sub-Saharan Africa. Steiner says that hybrids are fully fertile (“unbeschränkt fruchtbar”) and that backcrosses to either parent closely resemble that parent, even in the first generation. Immelmann et al. 1977 (p. 450); Steiner 1952.
- × *Lonchura nigriceps* [Brown-backed Munia] NHR. ENHI (equatorial Africa). PCZ. Sibley and Monroe say these taxa are often lumped because of what they describe as a few hybrid specimens, mostly from Dem. Rep. Congo. Restall says Sibley and Monroe omit mention of the dark, brown-backed, intermediate populations (*stigmatophora*, *poensis*, *woltersi*) which occupy a large region (~2,000 km wide) between these birds (Dowsett and Dowsett-Lemaire raise the same objection). These populations are geographically and morphologically intermediate, and thus PHPs of this cross. Dowsett and Dowsett-Lemaire 1993 (p. 377); Restall 1997; Sibley and Monroe 1990.
- × *Lonchura striata* [White-rumped Munia] CHR?? DRS. Neunzig 1921.
- Note:** Two populations (*caniceps*, *scratchleyana*), treated as races of *Lonchura caniceps*, hybridize in se New Guinea. Restall 1997 (p. 148).
- Lonchura caniceps** [Grey-headed Munia]
- × *Lonchura castaneothorax* [Chestnut-breasted Munia] ONHR (e New Guinea, near Port Moresby). Some suggest that these birds be lumped, but Restall disagrees. Peckover and Filewood 1976; Restall 1997.
- × *Lonchura monticola* [Alpine Munia] ONHR (e New Guinea). Hybridization occurs in the mountains n of Port Moresby. Coates 1990; Restall 1997.
- Lonchura cantans** [African Silverbill]
- See also: *Amadina fasciata*; *Amandava amandava*; *A. subflava*; *Erythrura prasina*; *Estrilda astrild*; *E. troglodytes*; *Heteromunia pectoralis*; *Lemuresthes nana*; *Lonchura acuticauda*; *L. atricapilla*; *L. bicolor*.
- × *Lonchura castaneothorax* (♂) [Chestnut-breasted Munia] CHR. DRS. Bright 1917a, 1921b; Immelmann 1982; Immelmann et al. 1977.
- × *Lonchura cucullata* (♀) [Bronze Munia] CHR. BRO: Africa. *Bird Notes* 1912 (p. 197), 1915 (p. 162); Boyd 1914; Brooksbank 1949 (p. 20); Immelmann et al. 1977 (p. 475); Steiner 1952.
- × *Lonchura domestica* (♀) [Bengalese] CHR. HPF(♂♂), but the level of fertility is apparently low. Backcrosses have occurred to Bengalese. This cross is easily obtained. Immelmann et al. list the reciprocal cross, but cite no primary report. *Avicultural Magazine* 1958 (p. 51), 1970 (p. 165); *Bird Notes* 1912 (p. 196); *Die Gefiederte Welt* 1904 (p. 128); Fillmer 1908; Harrison (C. J. O.) 1962[†]; Hieronymus 1889a; Hopkinson 1926 (p. 212); Hubbard 1907; Immelmann et al. 1977 (pp. 429, 430); Page 1915[†], 1922[†]; Seth-Smith 1906b; Siroki 1971; Steiner 1943[†], 1966.
- × *Lonchura ferruginosa* [Chestnut Munia] CHR. DRS. Immelmann et al. 1965.
- × *Lonchura flaviprymna* (♂) [Yellow-rumped Munia] CHR. DRS. Unlike parents, hybrids have pinkish rumps (as is the case in *Lonchura cantans* × *L. malabarica*). Immelmann 1982; Immelmann et al. 1977.
- × *Lonchura fringilloides* (♂) [Maggie Munia] CHR. BRO: e Africa. Bright 1917c; Hopkinson 1938b (p. 240); Immelmann et al. 1977; Steiner 1952.
- × *Lonchura griseicapilla* (♂) [Grey-headed Silverbill] CHR. DRS. Immelmann et al. 1977 (p. 440).
- × *Lonchura maja* [White-headed Munia] CHR. Butler 1906c; Hopkinson 1926.
- × *Lonchura malabarica* (↔) [White-throated Silverbill] CANHR. HPF(♂ & ♀). BRO: Oman. These birds interbreed very freely in captivity. Hybrids have pinkish rumps (unlike either parent; see *Lonchura cantans* × *L. flaviprimna*). These birds are sometimes lumped. Brooksbank 1949 (p. 17); Butler 1906c (p. 351); Finn 1900a, 1900b; Hollom et al. 1988; Hopkinson 1926,

- 1938b (p. 239); Immelmann et al. 1977 (pp. 307, 420–421); Restall 1997; Steiner 1945 (p. 237).
- × *Lonchura malacca* (♀) [Indian Black-headed Munia] CHR. DRS. Immelmann et al. 1977 (p. 429); Steiner 1966.
 - × *Lonchura nigriceps* (↔) [Brown-backed Munia] CHR. BRO: e Africa. Some of the reported crosses may refer to *L. bicolor* rather than *L. nigriceps*. Butler 1906c; Hopkinson 1926; Steiner 1952.
 - × *Lonchura punctulata* (↔) [Scaly-breasted Munia] CHR. DRS. Hybrids have red-tipped rump feathers, but neither parent does. *Bird Notes* 1920b; Brooksbank 1949 (p. 201); Butler 1906c (p. 351); Hopkinson 1926, 1938b (p. 242); Immelmann 1982; Immelmann et al. 1977 (p. 411); Rabbich 1904; Rokitansky and Schifter 1968; Steiner 1966[†].
 - × *Lonchura striata* (♂) [White-rumped Munia] CHR. DRS. Butler 1906c (p. 351); Immelmann et al. 1977 (p. 364); Page 1914b (p. 36).
 - × *Neochmia modesta* (♀) [Plum-headed Finch] CHR. DRS. *Die Gefiederte Welt* 1968 (p. 140); Immelmann et al. 1977 (p. 429).
 - × *Neochmia ruficauda* (♂) [Star Finch] CHR. DRS. André 1984; *Die Gefiederte Welt* 1970 (p. 19); Immelmann 1982; Immelmann et al. 1977 (pp. 429, 573).
 - × *Neochmia temporalis* (↔) [Red-browed Firetail] CHR. DRS. Cayley 1932; Page 1914b (p. 44); Immelmann 1982.
 - × *Padda oryzivora* (♂ prob. ↔) [Java Sparrow] CHR. HPF(♂♂). DRS. Some of the hybrids reported may have been from crosses with a White-throated, rather than African, silverbill. Butler 1906c (p. 351); Clayton 1902; Hieronymus 1886; Hopkinson 1926 (pp. 205, 212); 1938b (pp. 241, 242); Immelmann et al. 1977 (p. 429); Page 1914b (p. 36); Silver 1956[†].
 - × *Poephila acuticauda* (↔) [Long-tailed Finch] CHR. DRS. Butler 1906c (p. 351); Immelmann 1982; Immelmann et al. 1977 (pp. 429, 574, citing Bernasek, *Die Gefiederte Welt* 1970); Mayer 1981.
 - × *Serinus domesticus* [Domestic Canary] See: Appendix 1.
 - × *Taeniopygia bichenovii* (♂) [Double-barred Finch] CHR. DRS. Mayer 1981.
 - × *Taeniopygia guttata* (↔) [Zebra Finch] CHR. LFH. Butler 1906c (p. 351); Cayley 1932; Hopkinson 1926; Kratz 1875; Immelmann 1962b, 1982; Immelmann et al. 1977; Steiner 1936, 1945 (p. 238).
 - × *Tiaris olivacea* [Yellow-faced Grassquit] CHR. DRS. Sibley and Monroe (1990) place *T. olivacea* with the tanagers, and *L. cantans* with estrildid finches. Yet Page (*Bird Notes* 1910, 228) says four hybrids were reared by Easton Scott, and that the certified hybrids entitled him to a breeding medal. *Bird Notes* 1910 (pp. 228–229, 231); Hopkinson 1917b, 1926 (p. 213).
- Lonchura castaneothorax*** [Chestnut-breasted Munia]
See also: *Heteromunia pectoralis*; *Lonchura acuticauda*; *L. atricapilla*; *L. caniceps*; *L. cantans*.
- × *Lonchura domestica* (↔) [Bengalese] CHR. HPF(♂&♀). These hybrids are unusually strong and make excellent foster parents. According to Noordzij (cited in Immelmann et al.), all F₁ ♂♂ are partially fertile, but only 5% of ♀♀ are. Butler 1906c (p. 352); Hopkinson 1938b (pp. 241, 242); Immelmann 1982; Immelmann et al. 1977 (pp. 388, 389); Kirschke 1963; Neunzig 1921 (p. 376); Page 1914b (p. 43); Robiller 1978.
 - × *Lonchura flaviprymna* (♂ prob. ↔) [Yellow-rumped Munia] CAENHR. HPF(+). Common in captivity. These birds are sometimes lumped. A large hybrid population exists in n Australia. Interbreeding occurs in the Ord and Victoria river valleys. Immelmann quotes Slater (*in litt.*), who worked at the Kimberley Research Station in n Western Australia: “These two finches commonly interbreed, and I found many nests attended by one of both species. Nearly all Yellow-rumps show some signs of Chestnut-breasted markings. I feel sure the

- hybrids are fertile." Young hybrids closely resemble *L. flaviprymna*. Only later do the markings of *L. castaneothorax* appear (at 3 years of age, according to Teschemaker and Seth-Smith). As a result of these developmental differences, even F₁ hybrids can be highly variable when birds of different ages are compared. *Avicultural Magazine* 1931 (p. 186), 1951 (p. 107), 1971 (p. 78); Cayley 1932; Ford 1987; Goodwin 1982a; Immelmann 1962a, 1982; Immelmann et al. 1977 (pp. 298, 299–300, 307–308); Restall 1997 (p. 166); Seth-Smith 1907c; Sibley and Monroe 1990; Teschemaker 1907.
- × *Lonchura grandis* [Grand Munia] NHR (w New Guinea)? This report refers to a bird sighted near Port Moresby. Coates 1990; Tolhurst 1987.
 - × *Lonchura maja* (↔) [White-headed Munia] CHR. HPF(♂♂). DRS. *Avicultural Magazine* 1911 (p. 352), 1964 (p. 226); Butler 1906c (p. 352); Cayley 1932; Hopkinson 1926 (pp. 206, 207), 1938b (p. 241); Immelmann 1982; Immelmann et al. 1977 (p. 315); Neunzig 1921 (p. 384); Robiller 1978; Steiner 1936, 1945.
 - × *Lonchura malabarica* (♀) [White-throated Silverbill] CHR. BRO: s Arabian Penin.? HPF(+). This is the most common cross involving *L. malabarica*. These birds are often treated as conspecific. Bright 1917b, 1917c; Butler 1906c; Cayley 1932; Hopkinson 1926, 1938b (p. 241).
 - × *Lonchura malacca* [Indian Black-headed Munia] CHR. HPF(♂♂). DRS. Hopkinson 1932c; Immelmann et al. 1965; Kirschke 1963; Schenker 1976; Steiner 1945 (p. 238).
 - × *Lonchura punctulata* (♀) [Scaly-breasted Munia] CAONHR (n Australia). LFH. Hopkinson 1932c (p. 194), 1938b (p. 241); Immelmann 1962a, 1982; Immelmann et al. 1977 (p. 298); Restall 1997.
 - × *Lonchura striata* (♂) [White-rumped Munia] CHR? DRS. Butler 1906c; Cayley 1932; Hopkinson 1926, 1938b (pp. 241, 242); Immelmann 1982; Immelmann et al. 1977 (p. 364).
 - × *Poephila acuticauda* (♀) [Long-tailed Finch] CHR. Immelmann 1982; Immelmann et al. 1977 (p. 143); Kirschke 1980.
 - × *Poephila personata* (♀) [Masked Finch] CHR. BRO: n Australia. Cayley 1932; Hopkinson 1938b (p. 241); Immelmann 1982; Immelmann et al. 1977.
 - × *Taeniopygia annulosa* (♀) [Black-ringed Finch] BRO: ne Australia. See: *Lonchura castaneothorax* × *Taeniopygia bichenovii*.
 - × *Taeniopygia bichenovii* (♀) [Double-barred Finch] CHR. BRO: n Australia. Because *T. bichenovii* and *T. annulosa* are often lumped, some reports of this cross may refer to *Lonchura castaneothorax* × *T. bichenovii*. Hopkinson 1938b (p. 241); Immelmann 1982; Immelmann et al. 1977 (p. 581); Oppenborn 1971.
 - × *Taeniopygia guttata* (♀ prob. ↔) [Zebra Finch] CHR. BRO: n Australia. Cayley 1932; Iles 1977; Immelmann 1962b, 1982; Immelmann et al. 1977.
- Note:** Two populations (*cucullata*, *scutata*), treated as races of *Lonchura cucullata*, have produced a hybrid population extending from Lake Tanganyika to cen. Sudan. Restall 1997 (p. 70).
- Lonchura cucullata*** [Bronze Munia]
See also: *Estrilda astrild*; *Lemuresthes nana*; *Lonchura bicolor*; *L. cantans*.
- × *Lonchura domestica* (↔) [Bengalese] CHR. HPF(♂♂). Hybrids are larger than either parent. In a communication to *Bird Notes* (1902, p. 110), Baldelli says the hybrids are exactly like *L. punctulata* "except that the ground colour at the sides is fawn colour, speckled with black." In particular, they have the same scaly pattern as *L. punctulata* on their undersides (Immelmann et al., 390, citing Amstutz). Kirschke found a similar scaling in other crosses involving *L. domestica*. Butler 1906c (p. 352); Gray 1958; Hopkinson 1926 (pp. 201, 209), 1938b (p. 240); Immelmann et al. 1977 (pp. 390, 475); Kirschke 1963; Page 1923; Siroki 1971; Steiner 1936, 1945, 1952.
 - × *Lonchura fringilloides* (♀ prob. ↔) [Magpie Munia] CHR. BRO: sub-Saharan Africa.

- LFH(-). *Avicultural Magazine* 1907 (p. 373); *Bird Notes* 1907 (pp. 196, 219, 225), 1908[†] (pp. 123, 127), 1914; Hopkinson 1926, 1938b; Immelmann et al. 1977 (p. 450); Page 1922, 1923; Rokitansky and Schifter 1968; Steiner 1952.
- × *Lonchura malabarica* (♀) [White-throated Silverbill] CHR. DRS. These birds readily cross. Immelmann et al. 1977; Steiner 1952; Veitch 1952.
- × *Lonchura nigriceps* (♀) [Brown-backed Munia] CHR. BRO: e Africa. *Avicultural Magazine* 1897 (p. 38); Butler 1906c; Hopkinson 1926 (p. 201), 1938b (p. 240); Page 1914b; Steiner 1952.
- × *Lonchura punctulata* (♂) [Scaly-breasted Munia] CHR. DRS. Butler 1906c; Hopkinson 1938b (p. 242); Immelmann 1982; Immelmann et al. 1977 (p. 475); Page 1914b (p. 36); Steiner 1952.
- × *Lonchura striata* (↔) [White-rumped Munia] CHR. DRS. Fenk 1911; Steiner 1952.
- Note:** Immelmann et al. (1977, p. 389) say that not only most ♂, but also some ♀ hybrids between *Lonchura domestica* and *L. castaneothorax* are partially fertile, and that the same is true of hybrids from a variety of other *L. domestica* crosses (e.g., with *L. atricapilla*, *L. ferruginosa*, *L. maja*, *L. malacca*).
- Note:** Although its true origin is unknown, it is widely believed that *L. domestica* is a fertile hybrid produced centuries ago by the Chinese, closely related to *L. acuticauda*. Because it willingly fosters the eggs and nestlings of other munias, the Bengalese is very useful to breeders in cases where the young are likely to be abandoned by their natural parents. Because *L. acuticauda*, *L. domestica*, and *L. striata* are widely considered closely related and often lumped, crosses attributed to any one of these birds may in some cases actually involve one of the other two.
- Lonchura domestica** [Bengalese]
See also: *Amadina fasciata*; *Erythrura psittacea*; *Lemuresthes nana*; *Lonchura acuticauda*; *L. atricapilla*; *L. bicolor*; *L. cantans*; *L. castaneothorax*; *L. cucullata*; Appendix 2.
- × *Lonchura ferruginosa* (♂) [Chestnut Munia] CHR. HPF (♂♂). Immelmann et al. 1977 (pp. 388–389); Kirschke 1963.
- × *Lonchura flaviprymna* (♂) [Yellow-rumped Munia] CHR. HPF (♂&♀). Immelmann 1982; Immelmann et al. 1977 (p. 307); Speicher 1971.
- × *Lonchura fringilloides* (♂) [Magpie Munia] CHR. *Bird Notes* 1915; Hopkinson 1926, 1938b (p. 240); Immelmann et al. 1977; Page 1915, 1922; Steiner 1952.
- × *Lonchura fuscans* (↔) [Dusky Munia] CHR. HPF (♂&♀). This cross was used to obtain a nearly black form of Bengalese. Immelmann et al. 1977; Lécailier 1932.
- × *Lonchura griseicapilla* (♂) [Grey-headed Silverbill] CHR. HPF Hybrid was obtained by Meili. Immelmann et al. 1977 (pp. 389, 440).
- × *Lonchura kelaarti* (♂) [Black-throated Munia] CHR. Restall 1997 (p. 97).
- × *Lonchura leucogastra* (♂) [White-bellied Munia] CHR. Restall obtained this cross. Hybrids resemble *L. leucogastra*. Restall 1997 (p. 109).
- × *Lonchura leucogastroides* (↔) [Javan Munia] CHR. HPF (♂&♀). These hybrids make excellent foster parents. Immelmann et al. 1977 (p. 353).
- × *Lonchura maja* (↔) [White-headed Munia] CHR. HPF (♂♂). Backcrosses have occurred. One examined ♀ had abnormal ovaries. Butler 1906c (p. 352); Decoux 1920; Gray 1958; Hachisuka (Marquess) 1928; Hopkinson 1938b (p. 241); Immelmann et al. 1977 (p. 315); Kirschke 1963; Oguma 1933.
- × *Lonchura malabarica* (↔) [White-throated Silverbill] CHR. *Avicultural Magazine* 1962 (p. 30)[†]; *Die Gefiederte Welt* 1887; Immelmann et al. 1965.
- × *Lonchura malacca* (♂) [Indian Black-headed Munia] CHR. HPF (♂♂). A three-way cross has been reported with a ♀ *Lonchura cantans*. Bainbridge 1914, 1915; *Bird Notes* 1915; *Die Gefiederte Welt* 1959 (p. 129); Güttinger 1970; Hacker 1954; Hopkinson 1926 (p. 206), 1938b (p. 241); Immelmann

- et al. 1977 (pp. 389, 429); Kirschke 1963; Silver 1931, 1954b; Siroki 1971.
- × *Lonchura nevermanni* [Grey-crowned Munia] CHR. Hybrids are dark-faced, earth-brown above, with white underparts evenly barred. Restall 1997.
 - × *Lonchura nigriceps* (♂) [Brown-backed Munia] CHR. Hopkinson 1938b (p. 239); Lewek 1901; Neunzig 1904, 1921 (p. 388).
 - × *Lonchura punctulata* (↔) [Scaly-breasted Munia] CHR. HPF(♂♂). Bromet 1907; Brooksbank 1949 (p. 201); Drake 1935; Fenk 1920; Henstock 1908, 1925; Hopkinson 1926, 1932b (p. 242); Immelmann et al. 1977 (p. 411); Page 1908, 1914b (p. 35), 1918b, 1922, 1923; Robiller 1978; Salt 1912; Shore-Baily 1915; Siroki 1971; Speicher 1971; Steiner 1952.
 - × *Lonchura striata* (↔) [White-rumped Munia] CHR. HPF(♂&♀). Delacour 1936b; Gray 1958; Immelmann et al. 1977; Kennedy 1910; Page 1914b.
 - × *Lonchura stygia* [Black Munia] CHR. This cross has been of much interest to breeders lately. Although these hybrids were initially variable and of low fertility, they have been stabilized in various types and now breed true. Some of these types have been officially accepted as new varieties of Bengalese. Restall 1997 (p. 83).
 - × *Lonchura teerinki* [Black-breasted Munia] CHR. Speicher 1971.
 - × *Neochmia modesta* (♂) [Plum-headed Finch] CHR. Immelmann 1982; Immelmann et al. 1977 (citing Mamlok, *Die Gefiederte Welt* 1956); Speicher 1971.
 - × *Neochmia ruficauda* (♀) [Star Finch] CHR. Immelmann 1982; Immelmann et al. 1977 (p. 77). Internet: FISOCT.
 - × *Padda oryzivora* (♂) [Java Sparrow] CHR. HPF(♂♂). Backcrosses have occurred to Bengalese. Gray 1958; Hachisuka (Marquess) 1928 (p. 56); Henstock 1925; Hopkinson 1934; 1938b (p. 241); Immelmann et al. 1977 (p. 269, 389); Oguma 1933; Robiller 1978; Yamashina 1940[†]. Internet: GEOCT.
 - × *Poephila acuticauda* (↔) [Long-tailed Finch] CHR. LFH. Hachisuka (Marquess) 1928; Hopkinson 1926 (p. 209); Immelmann 1982; Immelmann et al. 1977 (p. 143); Matthews 1938; Page 1914b.
 - × *Poephila cincta* (♂) [Black-throated Finch] CHR. HPF(♂♂). Butler 1906c (p. 350), 1910b (vol. 1, p. 167); Cayley 1932; Gray 1958; Hopkinson 1938b (p. 243); Iles 1977; Immelmann 1982; Immelmann et al. 1977 (p. 153); Speicher 1971.
 - × *Poephila personata* [Masked Finch] CHR? Gray 1958.
 - × ~~*Serinus canicollis*~~ [Cape Canary] Both Gray (1958) and Hopkinson (1926) mention this hybrid, but only to say that it was probably a case of mistaken identification. There seems to be no good evidence that this cross ever occurred. *Avicultural Magazine* 1903 (p. 222), 1911 (p. 353).
 - × *Stagonopleura guttata* (♂) [Diamond Firetail] CHR. *Avicultural Magazine* 1941 (p. 22); *Die Gefiederte Welt* 1889 (pp. 223–224, 233–235); Immelmann 1982; Tyser 1941.
 - × *Taeniopygia bichenovii* (♀) [Double-barred Finch] CHR. Immelmann 1982; Immelmann et al. 1977 (p. 388, citing Overdijkink, *Die Gefiederte Welt* 1957).
 - × *Taeniopygia guttata* (♂) [Zebra Finch] CHR. LFH. Ten Cate found that Zebra Finch ♂♂ raised by mixed pairs or exposed to Bengalese before the end of the imprinting period would, upon maturity, court Zebra Finch, Bengalese, and hybrid ♀♀, but court hybrids most frequently. Their preference for a Zebra Finch mate was increased if they had a Zebra Finch foster mother (ten Cate and Mug 1984). *Bird Notes* 1914 (p. 206); Gray 1958; Immelmann 1962b, 1982; Immelmann et al. 1977 (p. 389); Robiller 1978; ten Cate 1986, 1987; ten Cate and Mug 1984.
 - × *Uraeginthus bengalus* (♀) [Red-cheeked Cordonbleu] CHR. Immelmann et al. 1977 (p. 389, citing Quoos, *Die Gefiederte Welt* 1967 and Bernasek, *Die Gefiederte Welt* 1970); Silver 1953.

Lonchura ferruginosa [Chestnut Munia]

See also: *Lonchura cantans*; *L. domestica*.

- × *Lonchura quinticolor* (♂) [Five-colored Munia] BRO: s Borneo? Restall described a purchased bird, purportedly trapped in s Borneo, as a new species *Lonchura pallidiventer* (Cream-bellied Munia). However, it is probably this hybrid. Payne and Sorenson 2003 (p. 101); Restall 1996; van Balen 1998. Internet: ORNI.

Lonchura flaviprymna [Yellow-rumped Munia]

See also: *Heteromunia pectorali*; *Lonchura cantans*; *L. castaneothorax*; *L. domestica*.

- × *Lonchura maja* (♀) [White-headed Munia] CHR. HPF(♂ & ♀). BRO: Malay Penin., Sumatra, Java. Immelmann 1982; Immelmann et al. 1977.
- × *Neochmia modesta* (♂) [Plum-headed Finch] CHR. DRS. Decoux 1921.
- × *Taeniopygia bichenovii* (↔) [Double-barred Finch] CHR. These birds are easily crossed. Cayley 1932[†]; Immelmann 1982 (Plate XII[†]); Immelmann et al. 1977 (p. 307); Myers 1995.

Lonchura fringilloides [Magpie Munia]

See also: *Lemuresthes nana*; *Lonchura bicolor*; *L. cantans*; *L. cucullata*; *L. domestica*.

- × *Lonchura nigriceps* [Brown-backed Munia] CHR. HPF(♂ & ♀). BRO: e Africa. These birds readily interbreed. Steiner 1952[†].
- × *Lonchura punctulata* (♂) [Scaly-breasted Munia] CHR. DRS. *Avicultural Magazine* 1957 (p. 207).

Lonchura fuscans [Dusky Munia]

See: *Lonchura acuticauda*; *L. domestica*.

Lonchura grandis [Grand Munia]

See: *Lonchura castaneothorax*.

Lonchura griseicapilla [Grey-headed Silverbill]

See also: *Lonchura cantans*; *L. domestica*.

- × *Taeniopygia guttata* (♀) [Zebra Finch] CHR. DRS. Immelmann 1962b, 1982.

Lonchura kelaarti [Black-throated Munia]

See also: *Lonchura domestica*.

- × *Lonchura quinticolor* (♀) [Five-colored Munia] CHR. DRS. Mayer 1986.

Lonchura leucogastra [White-bellied Munia]

See: *Lonchura domestica*.

Lonchura leucogastroides [Javan Munia]

See also: *Lonchura acuticauda*; *L. domestica*.

- × *Lonchura molucca* [Black-faced Munia] NHR? No hybrids are explicitly reported, but these similar birds have a PCZ in the islands e of Java. On one of these islands (Kangean) a population of birds usually treated as belonging to *L. molucca* may be intermediate. Restall 1997 (p. 87, 90, 92).
- × *Lonchura striata* (↔) [White-rumped Munia] CHR. DRS. HPF(+). Immelmann et al. 1977; Neunzig 1921 (p. 377); Steiner 1945.
- Lonchura leucosticta*** [White-spotted Munia]
- × *Lonchura tristissima* [Streak-headed Munia] ENHR (New Guinea). BRO: Kiunga area n of L. Murray, near Port Moresby, and Noord R. area. Coates reported a stable hybrid population along the coast of Central Province of Papua New Guinea and lumped these birds. Restall treated this population as a race of *L. tristissima*. Coates 1990; Junge 1939; Mees 1958; Restall 1997.
- × *Taeniopygia guttata* (♀) [Zebra Finch] CHR. DRS. Restall 1997.

Lonchura maja [White-headed Munia]

See also: *Amadina fasciata*; *Lonchura acuticauda*; *L. atricapilla*; *L. cantans*; *L. castaneothorax*; *L. domestica*; *L. flaviprymna*.

- × *Lonchura malacca* (↔) [Indian Black-headed Munia] CHR? BRO: se Asia, Indonesia. Immelmann et al. 1977 (p. 314); Wiener 1875.
- × *Lonchura punctulata* [Scaly-breasted Munia] CHR?? Hald 1880.
- × *Lonchura striata* (♂ prob. ↔) [White-rumped Munia] CHR. BRO: Indonesia, se Asia. Butler 1906c (pp. 351, 352); Hopkinson 1938b (pp. 241, 242); Immelmann et al. 1977 (p. 314); Page 1914b (p. 44).
- × *Poephila cincta* (♂ prob. ↔) [Black-throated Finch] CHR. DRS. Butler 1906c; Cayley 1932; Hopkinson 1938b (pp. 241, 243); Immelmann 1982; Page 1914b.
- × *Taeniopygia bichenovii* (♂) [Double-barred Finch] CHR. DRS. Immelmann 1982.

Lonchura malabarica [White-throated Silverbill]

See also: *Amadina fasciata*; *Amandava amandava*; *A. amandava* × *Lonchura cantans*; *A. subflava*; *Estrilda erythronotos*; *Lemuresthes nana*; *Lonchura acuticauda*; *L. atricapilla*; *L. cantans*; *L. castaneothorax*; *L. cucullata*; *L. domestica*; Appendix 2.

- × *Lonchura punctulata* (♂) [Scaly-breasted Munia] CHR? BRO: India. Immelmann et al. 1977 (p. 420); Lincke 1875; Page 1913.
- × *Lonchura striata* [White-rumped Munia] CHR. BRO: India. *Avicultural Magazine* 1932 (p. 295); Boughton et al. 1938; Immelmann et al. 1977.
- × *Neochmia modesta* (♀) [Plum-headed Finch] CHR. DRS. LFH. Hachisuka (Marquess) 1928 (p. 56); Hopkinson 1932a, 19; Gray 1958; Immelmann 1982; Immelmann et al. 1977 (p. 420); Steiner 1966; Yamashina 1940[†].
- × *Padda oryzivora* [Java Sparrow] See: *Lonchura cantans* × *Padda oryzivora*.
- × *Poephila acuticauda* (♀) [Long-tailed Finch] CHR. DRS. D'Avoust 1929.
- × *Taeniopygia guttata* (↔) [Zebra Finch] CHR. LFH. *Bird Notes* 1923; Hachisuka (Marquess) 1928 (p. 56); Immelmann 1962b, 1982; Immelmann et al. 1977 (p. 420); Sich 1927a; Skinner 1975.

Lonchura malacca [Indian Black-headed Munia]

See also: *Lonchura atricapilla*; *L. cantans*; *L. castaneothorax*; *L. domestica*; *L. maja*.

- × *Lonchura pallida* (♀) [Pale-headed Munia] CHR. DRS. Mayer 1993[†].
- × *Lonchura punctulata* (♀) [Scaly-breasted Munia] CHR. Hauth 1897; Immelmann et al. 1965.
- × *Lonchura striata* [White-rumped Munia] NHR. Tubb 1966.
- × *Serinus domesticus* [Domestic Canary] See: Appendix 1.
- × *Taeniopygia guttata* (♀) [Zebra Finch] CHR? DRS. Immelmann 1982; Pyman 1924.

Lonchura melaena [Bismarck Munia]

- × *Lonchura punctulata* (♀) [Scaly-breasted Munia] CHR. DRS. Mayer 1993[†].

Lonchura molucca [Black-faced Munia]

See: *Lonchura leucogastroides*.

Lonchura monticola [Alpine Munia]

See also: *Lonchura caniceps*.

- × *Lonchura spectabilis* [Hooded Munia] ENHR (w New Guinea). Coates reports hybridization in the Guari area between 1,700 m and 1,860 m. The hybrids have a brown back and blackish head and upper throat. The upper-tail coverts, breast, and belly are buffy-ochraceous, sometimes with streaking down the breast like *L. monticola*, but fainter. The intermediate population is known as the Guari Hooded Munia. Coates 1990.

Lonchura nevermanni [Grey-crowned Munia]

See also: *Lonchura domestica*.

- × *Lonchura stygia* [Black Munia] NHR (s New Guinea)? Mees reported a specimen in the Leiden Museum as this hybrid. Restall (1997) thinks it's a melanistic Grey-crowned Munia. Mees 1982; Restall 1993, 1997.

Lonchura nigriceps [Brown-backed Munia]

See: *Lonchura bicolor*; *L. cantans*; *L. cucullata*; *L. domestica*; *L. fringilloides*.

Lonchura pallida [Pale-headed Munia]

See also: *Lonchura malacca*.

- × *Lonchura stygia* (♂) [Black Munia] CHR. DRS. Mayer 1993[†].

Lonchura pallidiventer [Cream-bellied Munia]

See: *Lonchura ferruginosa* × *L. quinticolor*.

Note: Restall (1997, p. 102) says a population treated as a race *subundulata* of *L. punctulata* "is rather variable and inconsistent. It can be regarded as a morphological bridge between the distinct Indian *L. p. punctulata* and the *yunnanensis/topela* group to the east." Thus, *subundulata* has the three expected features of a PHP (variability, geographic intermedicity, morphological intermediacy).

Lonchura punctulata [Scaly-breasted Munia]

See also: *Erythrura prasina*; *Estrilda troglodytes*; *Lemuresthes nana*; *Lonchura acuticauda*; *L. atricapilla*; *L. cantans*; *L. castaneothorax*; *L. cucullata*; *L. domestica*; *L. fringilloides*; *L. maja*; *L. malabarica*; *L. malacca*; *L. melaena*; *Lonchura cucullata* × *L. domestica*.

- × *Lonchura striata* (♂ prob. ↔) [White-rumped Munia] CHR. BRO: India, se Asia,

- Sumatra. Butler 1906c (pp. 351, 352); Gray 1958; Hopkinson 1926 (pp. 208, 209); Immelmann 1982; Immelmann et al. 1977 (p. 364); Page 1914b.
- × *Lonchura stygia* (♀) [Black Munia] CHR. DRS. Mayer 1993†.
- × *Lonchura teerinki* [Black-breasted Munia] CHR. DRS. Mayer 1993.
- × *Padda oryzivora* (♂) [Java Sparrow] CHR. BRO: Java. Brooksbank 1949 (p. 201); Hopkinson 1938b (p. 241); Immelmann 1982; Immelmann et al. 1977.
- × *Poephila acuticauda* (♀) [Long-tailed Finch] CHR. BRO: India, se Asia, Formosa, Sumatra. Barclay 1933; Gray 1958; Hopkinson 1931a, 1932c; Immelmann 1982; Immelmann et al. 1977 (p. 143).
- × *Poephila cincta* (♀) [Black-throated Finch] CHR. DRS. Immelmann et al. 1977.
- × *Pytilia afra* [Orange-winged Pytilia] CHR?? This hybrid was advertised for sale. Immelmann et al. 1977 (p. 516); *Vogelwereld* 1968 (p. 478).
- × *Pytilia melba* [Green-winged Pytilia] CHR?? This hybrid was advertised for sale. Immelmann et al. 1977 (p. 516); *Vogelwereld* 1968 (p. 478).
- Lonchura quinticolor*** [Five-colored Munia]
See: *Lonchura ferruginosa*; *L. kelaarti*.
- Lonchura spectabilis*** [Hooded Munia]
See also: *Lonchura monticola*.
- × *Lonchura teerinki* (♀) [Black-breasted Munia] Restall says a captive female Black-breasted Munia formed a pair bond with a male Hooded Munia in preference to any other type of bird in the aviary. No hybrids as yet reported. Restall 1997.
- Lonchura striata*** [White-rumped Munia]
See also: *Lemuresthes nana*; *Lonchura acuticauda*; *L. bicolor*; *L. cantans*; *L. castaneothorax*; *L. cucullata*; *L. domestica*; *L. leucogastroides*; *L. maja*; *L. malabarica*; *L. malacca*; *L. punctulata*.
- × *Padda oryzivora* [Java Sparrow] CHR. DRS. Islam 1997 (p. 3).
- × *Poephila cincta* (♀) [Black-throated Finch] CHR. DRS. Immelmann et al. list the reciprocal cross, but cite no report. Butler 1906c (p. 351); Hopkinson 1938b (p. 242); Immelmann et al. 1977 (p. 364); Page 1914b (p. 43).
- × *Stagonopleura guttata* [Diamond Firetail] CHR. BRO: se Australia. Immelmann et al. 1977 (p. 364).
- × *Taeniopygia guttata* [Zebra Finch] CHR. DRS. Immelmann et al. 1977.
- Lonchura stygia*** [Black Munia] See: *Lonchura domestica*; *L. nevermanni*; *L. pallida*; *L. punctulata*.
- Lonchura teerinki*** [Black-breasted Munia]
See: *Lonchura domestica*; *L. punctulata*; *L. spectabilis*.
- Lonchura tristissima*** [Streak-headed Munia]
See: *Lonchura leucosticta*.
- Malimbus cassini*** [Black-throated Malimbe]
- × *Malimbus ibadanensis* [Ibadan Malimbe] ONHR. Probable hybrids occur in Ghana (only ♂♂ are reported). Elgood 1992; Grimes 1987.
- Mandingoa nitidula*** [Green-backed Twinspot]
See: *Cryptospiza reichenovii*. Hybrids between two populations (*chubbi*, *nitidula*), usually treated as races of *M. nitidula*, occur in s Zambia. Immelmann et al. 1965 (pp. 83, 89).
- Neochmia modesta*** [Plum-headed Finch]
See also: *Lonchura cantans*; *L. domestica*; *L. flaviprymna*; *L. malabarica*.
- × *Neochmia ruficauda* [Star Finch] NHR? BRO: ne Australia. The Museum Alexander Koenig (Bonn, Germany) has a hybrid specimen of unknown origin. Immelmann et al. 1977.
- × *Poephila acuticauda* (♀) [Long-tailed Finch] CHR. BRO: e Australia. Cayley 1932; Hopkinson 1938b (p. 242); Immelmann 1982 (Plate XI†); Immelmann et al. 1977 (p. 86).
- × *Poephila personata* (♀) [Masked Finch] CHR. DRS. LFH. A hybrid produced in 1908 lived 14 years. *Bird Notes* 1909 (pp. 291–295); Butler 1921, 1923; Cayley 1932; Hopkinson 1926 (p. 211); Immelmann 1982; Immelmann et al. 1977 (p. 171); Sich 1909.

- × *Taeniopygia bichenovii* (♀) [Double-barred Finch] CHR. BRO: e Australia. Cayley 1932; Immelmann 1982; Immelmann et al. 1977 (p. 86).
- × *Taeniopygia guttata* (↔) [Zebra Finch] CHR. LFH? Most hybrids are ♂. BRO: e Australia. Cayley 1932; Decoux 1920, 1921; *Die Gefiederte Welt* 1898 (pp. 231, 273–274), 1899 (pp. 320, 369–370, 404), 1900 (p. 152), 1901 (p. 199); Gray 1958; Hachisuka (Marquess) 1928; Hopkinson 1926, 1938b (pp. 241, 242); Iles 1977; Immelmann 1982 (Plate XI[†]); Immelmann et al. 1977 (p. 78); Oguma 1933; Steiner 1966. Internet: GEOC[†].

Neochmia phaeton [Crimson Finch]

See also: *Amandava formosa*.

- × *Neochmia ruficauda* (↔) [Star Finch] CHR. BRO: n Australia. Astley reared five hybrids. Astley 1907, 1909a, 1910[†]; Brooksbank 1949 (p. 210); Butler 1910a; Cayley 1932; Hopkinson 1926 (p. 215), 1938b; Immelmann 1982.
- × *Neochmia temporalis* (♀) [Red-browed Firetail] CHR. BRO: ne Queensland, Australia. Cayley 1932; Hopkinson 1938b (p. 243); Immelmann 1982; Immelmann et al. 1977 (p. 66).
- × *Poephila acuticauda* (♀) [Long-tailed Finch] CHR. BRO: n Western Australia (Australia). Cayley 1932; Hopkinson 1926 1938b (p. 243); Immelmann 1982; Immelmann et al. 1977 (p. 143).
- × *Stagonopleura guttata* (♀) [Diamond Firetail] CHR. BRO: e Queensland, Australia (near Rockhampton). Cayley 1932; Hopkinson 1938b (p. 243); Immelmann 1982 (Plate XI[†]); Immelmann et al. 1977 (p. 37).

Neochmia ruficauda [Star Finch]

See also: *Lonchura cantans*; *L. domestica*; *Neochmia modesta*; *N. phaeton*; *Poephila acuticauda* × *P. cincta*.

- × *Neochmia temporalis* (♂) [Red-browed Firetail] CHR. Iles 1977; Immelmann 1982; Mignone 1995b; Immelmann et al. 1977 (p. 10, citing Weymiss in *Austral. Aviculture* 1952).

- × *Poephila acuticauda* (♀) [Long-tailed Finch] CHR. DRS. HPF. Immelmann et al. 1977 (pp. 143, 153); Speicher 1971.
- × *Taeniopygia guttata* (↔) [Zebra Finch] CHR. Baker and Ranson 1938; Cayley 1932; Hopkinson 1926 (p. 213); 1938b (pp. 241, 243); Immelmann 1962b, 1982; Immelmann et al. 1977 (p. 77).

Neochmia temporalis [Red-browed Firetail]

See: *Emblema pictum*; *Erythrura psittacea*; *Estrilda astrild*; *Lonchura cantans*; *Neochmia phaeton*; *N. ruficauda*. Ford says a population usually treated as a race (*minus*) of *N. temporalis*, white-throated, gray-naped birds, abruptly replaces another population treated as a race, the darker *temporalis*, s end of the Normanby barrier (Queensland, Australia). Ford 1986, 1987; Storr 1984.

Nigrita candida [Kungwe Negrofinch]

- × *Nigrita canicapilla* [Grey-crowned Negrofinch] ENHR (sw Uganda). A population in the Impenetrable Forest is geographically and morphologically intermediate and, thus, a PHP of this cross. These birds are often treated as conspecific. Immelmann et al. 1977 (pp. 522–523); Keith et al. 1969.

Ortygospiza atricollis [African Quailfinch]

- × *Ortygospiza locustella* [Locustfinch] NHR. BRO: s Africa. A hybrid was ringed in Sept. at Suikerbosrand Nature Reserve (near Johannesburg). Brooks 2004.
- × *Taeniopygia guttata* [Zebra Finch] CHR. DRS. LFH. Gray 1958.

Padda oryzivora [Java Sparrow]

See also: *Amadina erythrocephala*; *A. fasciata*; *Lonchura cantans*; *L. domestica*; *L. punctulata*; *L. striata*; Appendix 2.

- × *Stagonopleura guttata* [Diamond Firetail] CHR. BRO: e Australia. LFH. Cayley 1932; Gray 1958.
- × *Taeniopygia guttata* (♂) [Zebra Finch] CHR. DRS. BRO: Lesser Sundas? Decoux 1910; Immelmann 1982; Immelmann et al. 1977 (p. 126).

Poephila acuticauda [Long-tailed Finch]

See also: *Lonchura acuticauda*; *L. cantans*; *L. castaneothorax*; *L. domestica*; *L. malabarica*;

- L. punctulata*; *Neochmia modesta*; *N. phaeton*; *N. ruficauda*.
- × *Poephila atropygialis* [Black-tailed Finch] NHR (Australia)? Ford implies the likely existence of a hybrid zone in the Leichardt Ra. (ne Queensland). See: *Poephila acuticauda* × *P. cincta*. Ford 1986, 1987; Storr 1984.
 - × *Poephila cincta* (↔) [Black-throated Finch] CHR. HPF(+). A common cross. When F₁ is backcrossed to either parent, Immelmann et al. say resulting progeny are nearly identical to that parent. Quincey (1916) reports a three-way hybrid (F₁ ♂ × *Neochmia ruficauda* ♀). Some reports cited here may refer to *Poephila acuticauda* × *P. atropygialis* (the latter is often lumped with *P. cincta*). PCZ, probable hybrid zone, Leichardt Ra. (ne Queensland). *Avicultural Magazine* 1948 (p. 98); *Bird Notes* 1913 (pp. 187–189); Cayley 1932; *Die Gefiederte Welt* 1911 (p. 192); Elsner 1909; Ford 1986; Gray 1958; Hopkinson 1926, 1938b (p. 243); Immelmann 1982; Immelmann et al. 1977 (p. 153); Phillips 1900; Prestwich 1948a; Quincey 1912, 1916; Robiller 1978; Steiner 1945 (p. 237).
 - × *Poephila personata* (↔) [Masked Finch] CHR. HPF(+). A three-way cross has also occurred (F₁ ♂ × *Neochmia ruficauda*). *Avicultural Magazine* 1906 (p. 364), 1907 (pp. 148–151), 1932 (p. 145); *Bird Notes* 1907 (p. 20); Cayley 1932[†]; Hopkinson 1926 (p. 213); Immelmann 1982 (Plate XII[†]); Immelmann et al. 1977 (p. 143); Lewek 1904, 1906; MacGredy 1932a, 1932b; Page 1907, 1914b; Phillips 1900.
 - × *Stagonopleura guttata* (↔) [Diamond Firetail] CHR. LFH. Boosey 1951b; Cayley 1932; Immelmann et al. 1977 (p. 143); Steiner 1945.
 - × *Taeniopygia annulosa* (♀) [Double-barred Finch] CANHR (n Australia). Cayley 1932; *Die Gefiederte Welt* 1900; Gray 1958; Hopkinson 1938b; Neunzig 1921.
 - × *Taeniopygia bichenovii* (↔ usu. ♀) [Double-barred Finch] CAONHR (n and e Australia). LFH. Hybridization occurs along s coast of Gulf of Carpentaria. Cayley 1932[†]; Iles 1977; Immelmann 1982 (Plate XII[†]); Immelmann et al. 1977 (p. 143); Oppenborn 1971; Steiner 1945.
 - × *Taeniopygia guttata* (↔) [Zebra Finch] CHR. BRO: n Australia. *Bird Notes* 1911 (pp. 239, 260); Boosey 1951b; Boosey and Brooksbank 1933; Cayley 1932[†]; Hopkinson 1926, 1938b (p. 243); Immelmann 1962b, 1982 (Plate XII[†]); Immelmann et al. 1977 (p. 143).
- Poephila atropygialis*** [Black-tailed Finch]
See also: *Poephila acuticauda*.
- × *Poephila cincta* (↔) [Black-throated Finch] CAENHR (Australia). HPF(♂ & ♀). There is a hybrid population in n and cen. Queensland where birds have varying amounts of black and white on their rumps. Rump color is not governed by simple dominant/recessive inheritance; F₁ birds have black rumps flecked with white feathers. Backcrosses have pure black rumps if they are from a mating to the black-rumped parent, pure white, if from a white-rumped mating. Rump shading in F₂ is variably intermediate. These taxa are sometimes lumped. Ford 1986, 1987; Immelmann et al. 1977 (p. 575); Keast 1958a; Sibley and Monroe 1990 (p. 665).
- Poephila cincta*** [Black-throated Finch]
See also: *Amadina fasciata*; *Erythrura psittacea*; *Lonchura acuticauda*; *L. domestica*; *L. maja*; *L. punctulata*; *L. striata*; *Poephila acuticauda*; *P. atropygialis*.
- × *Poephila personata* (↔) [Masked Finch] CHR. HPF. Iles 1977; Immelmann 1982; Immelmann et al. 1977 (p. 171); Scott 1933.
 - × *Taeniopygia bichenovii* (↔) [Double-barred Finch] CHR. Immelmann 1982; Immelmann et al. 1977 (p. 153); Oppenborn 1971.
 - × *Taeniopygia guttata* (↔) [Zebra Finch] CHR. Hybrid song is like Zebra Finchs. Cayley 1932[†]; Iles 1977; Hopkinson 1932c; Immelmann 1962b, 1982 (Plate XI[†]); Immelmann et al. 1977 (p. 153); Scott 1933.
- Poephila personata*** [Masked Finch]
See also: *Heteromunia pectoralis*; *Lonchura*

castaneothorax; *L. domestica*; *Neochmia modesta*; *Poephila acuticauda*; *P. cincta*.

- × *Taeniopygia bichenovii* (↔) [Double-barred Finch] CHR. BRO: n Australia. LFH. Immelmann 1982; Immelmann et al. 1977; Oppenborn 1971.
- × *Taeniopygia guttata* (↔) [Zebra Finch] CHR. BRO: n Australia. LFH. These hybrids are fairly easy to obtain. Gray 1958; Hopkinson 1926, 1938b (p. 243); Iles 1977; Immelmann 1962b, 1982 (Plate XI[†]); Immelmann et al. 1977 (p. 171).

Pyrenestes minor [Lesser Seedcracker]
See Appendix 2.

Pyrenestes ostrinus [Black-bellied Seedcracker]

- × *Pyrenestes sanguineus* [Crimson Seedcracker] PCZ in Ivory Coast. No hybrids as yet reported. Borrow and Demey 2001 (pp. 757–758).

Pytilia afra [Orange-winged Pytilia]
See also: *Lonchura punctulata*.

- × *Pytilia hypogrammica* [Red-faced Pytilia] CHR. DRS. HPF Röder 1984.
- × *Pytilia melba* [Green-winged Pytilia] ONHR (Malawi). Hanmer 1988.
- × *Pytilia phoenicoptera* (♀) [Red-winged Pytilia] CANHR. HPF(♂&♀). BRO: ne Dem. Rep. Congo, s Sudan. A common cross. Hybrids are larger than either parent. F₁ ♀♀ are almost exactly like *P. phoenicoptera*. Males, too, resemble *P. phoenicoptera*, but there is a red mask (as in *P. afra*). Hopkinson 1926 (pp. 203, 240); Immelmann et al. 1965 (p. 45), 1977 (p. 519); Neunzig 1904, 1921 (p. 355); Rokitansky and Schifter 1968.

Pytilia hypogrammica [Red-faced Pytilia] See:
See also: *Pytilia afra*.

- × *Pytilia phoenicoptera* [Red-winged Pytilia] NHR? BRO: cen Africa. Birds with red faces and red-edged wing feathers may represent this hybrid. Immelmann et al. 1965 (p. 46), 1977 (p. 519).

Pytilia melba [Green-winged Pytilia]
See also: *Lonchura punctulata*; *Pytilia afra*.

- × *Uraeginthus bengalus* (♀) [Red-cheeked Cordonbleu] CHR. BRO: the savannas of sub-Saharan Africa. The song of the hybrids is similar to that of the Green-winged Pytilia.

Decoux reared seven hybrids in 1919. Decoux 1919b, 1920[†], 1921; Hopkinson 1926 (p. 203), 1938b (p. 240).

Pytilia phoenicoptera [Red-winged Pytilia]
See: *Pytilia afra*; *P. hypogrammica*.

Spermophaga haematina [Western Bluebill]

- × *Spermophaga ruficapilla* [Red-headed Bluebill] ONHR (ne Dem. Rep. Congo). Hybridization occurs in three contact zones. These birds are sometimes lumped due to hybridization. Dowsett and Dowsett-Lemaire 1993 (p. 376); Louette 1988; Sibley and Monroe 1990.

Stagonopleura guttata [Diamond Firetail]

See also: *Erythrura prasina*; *Heteromunia pectoralis*; *Lonchura acuticauda*; *L. domestica*; *L. striata*; *Neochmia phaeton*; *Padda oryzivora*; *Poephila acuticauda*.

- × *Taeniopygia bichenovii* [Double-barred Finch] CHR. BRO: e Australia. Oppenborn 1971.
- × *Taeniopygia guttata* (↔) [Zebra Finch] CANHR. BRO: se Australia. These hybrids are easily obtained. Kinghorn describes a natural hybrid as follows: "The back, mantle and head are coloured like those of the Diamond Firetail. The bill is scarlet and the feathers of the gape are whitish, washed with pink. The throat is white and there is a broad bar on the chest as in the Firetail, but the feathers of the bar, instead of being black, are finely barred with grey and pink. The tail feathers, both in size and shape, are those of the Zebra Finch, as also are the upper tail-coverts, but they are pink instead of the usual white, and the black bars typical of that bird are replaced by reddish chestnut. The white spots on the sides and flanks are intermediate in size between those of both birds, and they are on a pale chestnut ground colour. The legs and feet are yellow, washed with pink. There is no trace of the chestnut ear, which is so typical of Zebra Finch." Song resembles Zebra Finch's. Butler 1906c (p. 347 and frontispiece[†]); Cayley 1932[†]; Gray 1958; Hopkinson 1938b (p. 240); Iles 1977; Immelmann 1962b, 1982 (Plate XI[†]); Immelmann et al.

1977 (p. 37); Kinghorn 1928 (p. 282); Neunzig 1921 (p. 390); Oppenborn 1971; Phillips 1900; Prestwich 1948a; Rokitansky and Schifter 1968; Steiner 1945.

Taeniopygia annulosa [Black-ringed Finch]

See also: *Lonchura castaneothorax*;
Poephila acuticauda.

- × **Taeniopygia bichenovii** (↔) [Double-barred Finch] CAENHR (n Australia, w coast of Gulf of Carpentaria). HPF(♂ & ♀). Where these two birds meet (Borrooloola, McArthur R., and Alexandria in the Barkly Tableland, ne Northern Territory), they have produced a variable hybrid population. Brooksbank says the white rump of *T. bichenovii* is dominant over the black rump of *T. annulosa* in F₁ hybrids. In the F₂ generation 75% are white-rumped, 25%, black-rumped. Due to extensive hybridization, these birds are now often treated as conspecific. Brooksbank 1949 (p. 36); Ford 1987 (p. 178); Immelmann 1982 (p. 142); Immelmann et al. 1977; IZY 1969; Keast 1958a; Sibley and Monroe 1990 (p. 695).

Taeniopygia bichenovii [Double-barred Finch]

See also: *Lonchura cantans*; *L. castaneothorax*;
L. domestica; *L. flaviprymna*; *L. maja*;
Neochmia modesta; *Poephila acuticauda*;
P. cincta; *P. personata*; *Stagonopleura guttata*;
Taeniopygia annulosa; Appendix 2.

- × **Taeniopygia guttata** (↔) [Zebra Finch] CHR. LFH. BRO: e and n Australia. A common cross. These hybrids may initially appear ♀, but later take on ♂ plumage and sing. Hawkins says a ♂ hybrid produced fertile eggs with a ♀ Bengalese (see Brooksbank *contra*). *Avicultural Magazine* 1899 (pp. 29–32), 1906 (pp. 172–174), 1907 (pp. 148–151, 373), 1957 (p. 175); Brooksbank 1949 (p. 36); Brüscheiler 1906[†]; Butler 1906c; Cayley 1932[†]; *Die Gefiederte Welt* 1901 (p. 207); Gray 1958; Hachisuka (Marquess) 1928; Hawkins 1900a; Hopkinson 1926, 1934; Iles 1977; Immelmann 1962b, 1982 (Plate XII[†]); Immelmann et al. 1977[†]; Oppenborn 1971; Robiller 1978; Steiner 1945.

Taeniopygia castanotis [Chestnut-eared Finch]

- × **Taeniopygia guttata** (↔) [Zebra Finch] CHR. DRS. HPF(♂ & ♀). These birds are often lumped, but they mate assortatively in aviaries. Clayton 1996a, 1996b, 1996c, 1996d; Zann 1996 (p. 255). Internet: FIZE

Taeniopygia guttata [Zebra Finch]

See also: *Erythrura trichroa*; *Estrilda astrild*;
Lagonosticta rubricata; *L. senegala*; *Lonchura acuticauda*; *L. atricapilla*; *L. cantans*;
L. castaneothorax; *L. domestica*; *L. griseicapilla*;
L. leucosticta; *L. malabarica*; *L. malacca*;
L. striata; *Neochmia modesta*; *N. ruficauda*;
Ortygospiza atricollis; *Padda oryzivora*;
Poephila acuticauda; *P. cincta*; *P. personata*;
Appendix 1; *Stagonopleura guttata*;
Taeniopygia bichenovii; *T. castanotis*.

- × **Carduelis caniceps** [Grey-crowned Goldfinch] CHR. Hybrids began to develop but did not hatch. Goudie 1932.
- × **Carduelis carduelis** (♀) [European Goldfinch] CHR?? CHR?? In a letter to *Avicultural Magazine* Goudie says he “found chicks dead in the shells” (after the parents had been disturbed and abandoned the nest). Goudie 1932 (p. 19).
- × ~~**Carduelis chloris** [European Greenfinch]~~
Some cite Gray (1958) for this cross, but she only notes a case of mixed captive nesting. Goudie 1932.
- × **Serinus leucopygius** (♂) [White-rumped Seedeater] CHR. George Anderdon reported this disparate cross in 1957. *Avicultural Magazine* 1957 (p. 157).

Uraeginthus angolensis [Blue-breasted Cordonbleu]

- × **Uraeginthus bengalus** (↔) [Red-cheeked Cordonbleu] CANHR. HPF BRO: Dem. Rep. Congo, Angola. Amsler 1913a, 1913b; *Avicultural Magazine* 1931 (p. 37); Brooksbank 1949 (p. 59); Fehrer 1993; Francis 1975; Hopkinson 1938b (p. 244); Immelmann et al. 1965; Luddem et al. 2004; Murray 1953, 1956.
- × **Uraeginthus cyanocephalus** (♂) [Blue-capped Cordonbleu] CHR. BRO: e Africa. Immelmann et al. 1965 (p. 241); Luddem et al. 2004.

Uraeginthus bengalus [Red-cheeked Cordonbleu]
See also: *Amandava subflava*; *Estrilda astrild*;
E. troglodytes; *Lagonosticta rhodopareia*;
L. rubricata; *L. rufopicta*; *Lonchura domestica*;
Pytilia melba; *Uraeginthus angolensis*;
Appendix 2.

- × *Uraeginthus cyanocephalus* (♀ prob. ↔)
[Blue-capped Cordonbleu] CHR.
HPF(♂ & ♀). BRO: e Africa. Decoux 1929,
1931; Hopkinson 1938b.
- × *Uraeginthus granatina* (♂) [Common
Grenadier] CHR. HPF(♂ & ♀). BRO:
e Africa. In a natural setting, these birds
occur side by side. Barnicoat 1977; Decoux
1919a, 1920, 1921.

Uraeginthus cyanocephalus [Blue-capped
Cordonbleu] See: *Uraeginthus angolensis*;
U. bengalus.

Uraeginthus granatina [Common Grenadier]
See also: *Uraeginthus bengalus*.

- × *Uraeginthus ianthinogaster* (♂) [Purple
Grenadier] CHR. DRS. Barnicoat 1977;
Lowe 1965.

Uraeginthus ianthinogaster [Purple Grenadier]
See: *Uraeginthus granatina*.

Indigobirds and Whydahs

Family Viduidae

Vidua amauropteryx [South African
Indigobird]

- × *Vidua regia* (♀) [Queen Whydah] NHR.
BRO: s Mozambique, Zambia. Hockey and
Brooke 1987 (p. 41); Winterbottom 1965.

Note: Village Indigobirds are brood-parasitic.
Females respond preferentially to ♂
indigobirds whose mimicry songs are like
those of the females' own foster parents.
Payne et al. 2000.

Vidua chalybeata [Village Indigobird]
See also: *Lonchura atricapilla*.

- × *Vidua funerea* [Variable Indigobird] ENHR
(e Dem. Rep. Congo). Payne 1976.
- × *Vidua interjecta* [Long-tailed Paradise-
Whydah] NHR (s Africa). BRO: s Africa.
Clancey 1980; McLachlan and Liversidge
1978. Internet: HYPO.

- × *Vidua macroura* (♀) [Pin-tailed Whydah]
CHR. BRO: Savannas of sub-Saharan Africa.
Harrison 1963.

- × *Vidua nigeriae* (♂) [Quailfinch Indigobird]
NHR. BRO: Nigeria, Cameroon. These birds
were lumped by Sibley and Monroe (1990),
but are often separately treated in recent
literature. Sorenson et al. report a bird that
was morphologically *V. nigeriae*, but had
mtDNA typical of *V. chalybeata*. They suggest
that it was descended from a *V. chalybeata* ♀
that laid in the nest of an African Quailfinch
(*Ortygospiza atricollis*), the host of *V. nigeriae*.
Sorenson et al. 2003.

- × *Vidua paradisaea* (↔) [Eastern Paradise-
Whydah] NHR (Lochinvar N. P., Zambia).
Payne and Sorenson say that after a Village
Indigobird laid her eggs in the nest of a
Green-winged Pytilia (*Pytilia melba*), her
daughter imprinted on the foster father
pytilia and later mated with an Eastern
Paradise-Whydah mimicking pytilia song.
Nicolai 1969; Payne 1976; Payne and
Sorenson 2004; Sorenson 2003.

- × *Vidua purpurascens* [Dusky Indigobird]
ENHR (Tanzania). Payne 1976.

- × *Vidua regia* (♀) [Queen Whydah]
CANHR. BRO: s Africa. Hockey and
Brooke suggest that a totally black bird
observed at Chobe N. P., Botswana
(Nantanga Pan, 17°57'S, 25°12'E) was
this hybrid. Hockey and Brooke 1987;
Payne 1980 (p. 128); Winterbottom
1967.

Vidua funerea [Variable Indigobird]
See also: *Vidua chalybeata*.

- × *Vidua macroura* [Pin-tailed Whydah]
CAONHR (s Africa). Strachan described five
probable hybrid ♂♂ from former Zululand
as being like *V. funerea* in size and color.
Their beaks were white and their legs red,
but there was no white at the sides of the
rump. In the tail, the shorter feathers were
white beneath, but there were also four long
tail feathers, about 6 inches in length, black,
and forming a "V." A hybrid is in the
Transvaal Museum (TM #45101). Yamashina
pictures a probable hybrid (from Bulawayo,

Zimbabwe) later discussed by Delacour and Edmond-Blanc. See: *V. chalybeata* × *V. macroura*. Clancey 1980; Delacour and Edmond-Blanc 1934; Harrison 1963; Hockey and Brooke 1987; McLachlan and Liversidge 1978; Payne 1980 (p. 129); Strachan 1957; Winterbottom 1965; Wolters 1943; Yamashina 1930[†].

- × *Vidua paradisaea* [Eastern Paradise-Whydah] Delacour and Edmond-Blanc suggested that the taxon *Microchera haagneri* (= *Prosteganura haagneri*) is this hybrid (or *V. chalybeata* × *V. paradisaea*). Delacour and Edmond-Blanc 1934; Payne 1980 (p. 128).
- × *Vidua purpurascens* [Jambandu Indigobird] ENHR (Cameroon, se Dem. Rep. Congo). Sibley and Monroe 1990.
- × *Vidua raricola* [Dusky Indigobird] NHR (w equatorial Africa). Payne and Groschupf 1984.
- × *Vidua regia* (♀) [Queen Whydah] CHR. BRO: s Africa. Payne 1980 (p. 128); Winterbottom 1967.

Vidua hypocherina [Steel-blue Whydah] Hockey and Brooke say evidence “suggests that the extreme variations in the description of *V. hypocherina* ... are due, in part, to black hybrids between other viduines being erroneously ascribed to this species.” Hockey and Brooke 1987 (p. 42).

Vidua interjecta [Long-tailed Paradise-Whydah]
See also: *Vidua chalybeata*.

- × *Vidua orientalis* [Northern Paradise-Whydah] NHR (Cent. Afr. Rep., se Sudan). Sibley and Monroe 1990.

Vidua macroura [Pin-tailed Whydah]
See: *Vidua chalybeata*; *V. funerea*.

Vidua nigeriae [Quailfinch Indigobird]
See: *Vidua chalybeata*; *V. wilsoni*.

Vidua orientalis [Northern Paradise-Whydah]
See also: *Vidua interjecta*.

- × *Vidua paradisaea* [Eastern Paradise-Whydah] PCZ (nw Ethiopia). No hybrids as yet reported. Sibley and Monroe 1990.

Vidua paradisaea [Eastern Paradise-Whydah]
See also: *Vidua chalybeata*; *V. orientalis*.

- × *Vidua purpurascens* [Dusky Indigobird] NHR (Zambia, Zimbabwe). Payne describes a hybrid. Hockey and Brooke 1987; Payne 1980.

- × *Vidua regia* [Queen Whydah] CANHR (South Africa). A natural hybrid is reported from Praetoria. Abrahams 1939; Payne 1980.

Vidua purpurascens [Dusky Indigobird]

See: *Vidua chalybeata*; *V. funerea*; *V. paradisaea*.

Vidua raricola [Jambandu Indigobird] See: *Vidua funerea*.

Vidua regia [Queen Whydah] See: *Vidua amauropteryx*; *V. chalybeata*; *V. funerea*; *V. paradisaea*.

Vidua wilsoni [Pale-winged Indigobird] Payne lumped under *V. wilsoni* three birds sometimes treated as separate species when he found that hybrids among them are common. They are *Vidua nigeriae* (Quailfinch Indigobird or Alexander's Indigobird), *V. camerunensis* (Cameroon Indigobird), and *V. wilsoni* (Pale-winged Indigobird). Payne 1973, 1976.

Fringillid Finches

Family Fringillidae

Note: Many fringillids are popular cage birds.

Thus, much of the data on hybridization comes from captive crosses. However, the breeding ranges of many of the birds known to hybridize in captivity do overlap. Such situations are opportunities to study the extent of hybridization in a natural setting.

Carduelis ambigua [Black-headed Greenfinch]
See also: *Carduelis sinica* × *C. spinoides*.

- × *Carduelis monguilloti* [Vietnamese Greenfinch] ENHI. Ripley says populations in se Asia are intermediate and that these birds should be lumped. Ripley 1982 (p. 553).
- × *Carduelis sinica* [Grey-capped Greenfinch] ENHR. BRO: s China, n Indochina. See: Meise 1975; Panov 1989.
- × *Carduelis spinoides* [Yellow-breasted Greenfinch] ENHI. PCZ in ne India and n Myanmar. Ripley says populations in se Asia are intermediate and that these birds should be lumped. MacKinnon and Phillipps 2000; Ripley 1982 (p. 553).

Carduelis atrata [Black Siskin]

- × *Carduelis carduelis* [European Goldfinch] CHR. DRS. DZK 1985.
- × *Carduelis cucullata* [Red Siskin] CHR. DRS. Pomarede 1986.
- × *Serinus canicollis* [Cape Canary] CHR. DRS. Fehrer 1993.
- × *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Carduelis atriceps [Black-capped Siskin]

- × *Carduelis pinus* [Pine Siskin] ENHR (w Guatemala). Due to hybridization, these birds are often lumped. Howell 1968; Meise 1975; van Rossem 1938; Sibley and Monroe 1990.

Carduelis barbata [Black-chinned Siskin]

- × *Carduelis chloris* [European Greenfinch] CHR. DRS. DZK 1990.
- × *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Carduelis caniceps [Grey-crowned Goldfinch]
See also: *Taeniopygia guttata*.

- × *Carduelis carduelis* [European Goldfinch] CAENHR (n Iran, Kazakhstan, Siberia). Due to hybridization, these birds are now sometimes lumped. Ackermann 1898 (p. 36); *Bird Notes* 1914 (p. 267); Harrison 1982 (p. 289); Hopkinson 1926 (p. 179); Panov 1989; Rothschild (Lord) 1923; Sibley and Monroe 1990; Suchetet 1897a (pp. 181, 751).
- × *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR. DRS. These hybrids show differential viability. Pre- and post-hatching mortality are high. Bate 1904; Ruelle 1986a; Waldock 1905.

Carduelis cannabina [Eurasian Linnet]See: *Amadina fasciata*.

- × *Carduelis carduelis* (↔ usu. ♂) [European Goldfinch] CANHR (Europe). BRO: Europe, w Asia. HPF(♂♂). Easily bred. Natural hybrids were reported by Grošelj (Slovenia) and Crewe (England). Gill says a ♂ hybrid (*C. cannabina* ♂ × *C. carduelis* ♀) crossed with a canary ♀. *Cage Birds* 1951 (p. 528), 1957 (p. 130); Crewe 1994; DZK 1985, 1986; Gill 1955; Gray 1958; Grošelj 1994; Hale 1937; Hopkinson 1926; Houlton 1929[†];

Massoth 1975a; Robson 1940; Ruelle 1986b; Wormall 1905. Internet: GEOC[†].

- × *Carduelis chloris* (↔ usu. ♂) [European Greenfinch] CANHR. BRO: Europe and w Russia. HPF(♂♂). These hybrids are easily obtained and are excellent singers. They resemble Greenfinch × Redpoll hybrids. Faint trace of Greenfinch color down breast. Natural hybrids have been reported from England. A three-way hybrid with the Domestic Canary has been reported (*Cage Birds* 1951): ♂ (*C. cannabina* × *C. chloris*) × ♀ *Serinus domesticus*. *Cage Birds* 1951 (p. 406), 1952 (p. 241); DZK 1989; Gray 1958; Houlton 1904, 1929; Lightfoot 1984; Robson 1940; Sevesi 1939; Silver 1911 (p. 351); Suchetet 1897a (pp. 198, 748); Witherby 1915.
- × *Carduelis flammea* (♀) [Common Redpoll] CANHR. BRO: Scandinavia, n Russia. HPF Hybrids are easily bred. Carr 1959 (p. 27); Gray 1958; Hopkinson 1926 (p. 185); Houlton 1904, 1929; Murray 1953; Panov 1989; Robson 1940; Vale 1900. Internet: GEOC[†].
- × *Carduelis flavirostris* (♀) [Twite] CANHR. BRO: Norway, n Britain. Bonhote 1901; Gray 1958; Page 1914b; Silver 1911; van Kempen 1898.
- × *Carduelis magellanica* [Hooded Siskin] CHR. DRS. DZK 1986.
- × *Carduelis notata* [Black-headed Siskin] CHR. DRS. Internet: GEOC[†].
- × *Carduelis spinus* (♂) [Eurasian Siskin] CANHR. BRO: Europe, w Asia. The Senckenberg Museum has hybrids. The Siskin's green and yellow are hidden in hybrids by the Linnet's drabber tones. Carr 1959; Fehrer 1993; Gray 1958; Gurney 1926; Hachisuka (Marquess) 1928; Hopkinson 1926 (p. 181); Houlton 1929; Robson 1940; Suchetet 1897a (p. 223).
- × *Carpodacus mexicanus* (♀) [House Finch] CHR. DRS. Internet: GEOC[†].
- × *Fringilla coelebs* (♀) [Chaffinch] Fertile eggs reported, but no hatched hybrids. Braune 1910a (pp. 83, 84); Carr 1959 (p. 32).

- × *Fringilla montifringilla* [Brambling] CHR. Grainger reported a single fertile egg, but no hatched hybrids. Carr says hybrids “have been hatched but never reared.” Carr 1959 (p. 46); Grainger 1954.
- × *Loxia curvirostra* (↔) [Red Crossbill] CHR. BRO: w Eurasia. Hybrids of both sexes were recently obtained in Italy. Internet: GEOC[†].
- × *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CANHR (s England). BRO: Europe and w Asia. Barth and Gurney mention natural hybrids. Armani 1983; Barth 1976; Bonhote 1911a; Carr 1952; Delacour 1936b; Elias 1975; DZK 1984, 1985, 1987, 1990; Gray 1958; Gurney 1903; Hale 1937; Hopkinson 1926 (p. 184); Houlton 1904, 1929; Page 1912b, 1914b (p. 38), 1923; Robson 1940[†]; Ruelle 1986a; Stöck 1975; Vale 1900.
- × *Serinus canicollis* (♀) [Cape Canary] CHR. DRS. F₁ ♀ is very similar to *C. cannabina*, but has breast markings like *S. canicollis*. Teague 1932.
- × *Serinus domesticus* [Domestic Canary] See: Appendix 1.
- × *Serinus flaviventris* (♂) [Yellow Canary] CHR. DRS. Chawner 1914; Hopkinson 1926 (p. 189).
- × *Serinus leucopygius* (↔) [White-rumped Seed-eater] CHR. DRS. *Bird Notes* 1912 (pp. 196, 223), 1914 (pp. 245–248); Chawner 1912, 1914; Hopkinson 1926 (pp. 184, 188); Märzhäuser 1979; Page 1914b (p.37); Silver 1911.
- × *Serinus mozambicus* (♀) [Yellow-fronted Canary] CHR. DRS. Hopkinson 1938a; Teague 1932.
- × *Serinus serinus* (↔) [European Serin] CANHR. BRO: Europe. Neunzig 1913 (p. 351); Sauermann 1887; Suchetet 1897a (p. 242); Teague 1932.
- Note:** According to Carr (1959), European Goldfinch males are attracted to females of almost any other type of finch.
- Carduelis carduelis*** [European Goldfinch] See also: *Amadina fasciata*; *Carduelis atrata*; *C. caniceps*; *C. cannabina*; *Taeniopygia guttata*; Appendix 2.
- × *Carduelis chloris* (↔ usu. ♀) [European Greenfinch] CANHR. BRO: Eurasia. HPF(♂♂). In captive crosses ♂ hybrids are more common than ♀♀. Goldfinch ♀ gives a more attractive hybrid. In its usual direction this cross is very easily obtained since the ♀ Greenfinch is a ready breeder and the ♂ Goldfinch, rather indiscriminate in its choice of mate. The reverse, too, is not difficult. Two ♂ natural hybrids have been taken in Holland, one at Ringstation Ockenburgh, in April (now in Rijksmuseum) another at ‘s-Gravenhage (in Oct.). Gill says a ♂ hybrid (*C. carduelis* ♂ × *C. chloris* ♀) successfully crossed with a canary hen. Antonius 1933; Blakston et al. 1989; Bond 1950; Boyes 1951; *Cage Birds* 1950; Carr 1959[†]; Chigi 1904, 1916; Cvitanic 1986a; Fenk 1911, 1920; DZK 1984–1987; Gill 1955 (p. 91); Gray 1958; Hachisuka (Marquess) 1928; Hale 1937; Hopkinson 1926 (p. 179); Houlton 1929; Klein 1894; Lönnberg 1919c; Mainardi 1962; Mayr 1942; Mignone 1995a; Moretti 1933; Robson 1940; Rucner 1970; Ruelle 1986b; Suchetet 1897a; Tekke 1947.
- × *Carduelis cucullata* (♂) [Red Siskin] CHR. DRS. Aschenborn 1966; Gill 1950; DZK 1990; Guyette 1950; Radtke 1981; Speicher 1971. Internet: GEOC[†].
- × *Carduelis flammea* (↔) [Common Redpoll] CHR. BRO: n Europe. HPF(♂♂). Gill says a ♂ hybrid (*C. carduelis* ♂ × *C. flammea* ♀) crossed with a canary hen. *Cage Birds* 1925 (p. 228), 1953 (p. 79); Carr 1959; Fitzpatrick 1951; Gill 1955 (p. 91); DZK 1985, 1986, 1990; Hale 1937; Hertwig 1936; Hopkinson 1926 (pp. 180, 181); Houlton 1929; Robson 1940[†].
- × *Carduelis flavirostris* (↔) [Twite] CHR. BRO: n Britain and s Norway. High pre-hatching mortality. Breeders usually foster these hybrids with canaries. Dirrigl 1976; Hopkinson 1926; Houlton 1929; Silver 1918, 1919.
- × *Carduelis hornemanni* [Hoary Redpoll] CHR. DRS. Internet: GEOC[†].
- × *Carduelis magellanica* (♂) [Hooded Siskin] CHR. An established introduced population

- of *C. carduelis* exists within the range of *C. magellanica* in s Uruguay (Ridgely and Tudor). So the potential now exists for natural interbreeding. DZK 1986, 1987; Naether 1951; Ridgely and Tudor 1989; Smolinski 1952; Speicher 1971. Internet: GEOC[†].
- × *Carduelis notata* [Black-headed Siskin] CHR. BRO: DRS. Speicher 1971.
- × *Carduelis sinica* (♀) [Grey-capped Greenfinch] CHR? BRO: Himalayas (w China). HPF. DZK 1984, 1986; Gray 1958; Hopkinson 1926; Vale 1900.
- × *Carduelis spinoides* (♀) [Yellow-breasted Greenfinch] CHR. DRS. Hopkinson 1926 (p. 180); Shore-Baily 1919b.
- × *Carduelis spinus* (↔) [Eurasian Siskin] CHR. BRO: Europe. HPF. Easily bred. The hybrid is a lively bird. Carr 1959; Gray 1958; Hinde 1956c; Hopkinson 1926 (pp. 180, 181); Houlton 1929; Robson 1940; Silver 1911. Internet: GEOC[†].
- × *Carpodacus erythrinus* [Common Rosefinch] CHR. BRO: Eurasia. DZK 1984.
- × *Carpodacus mexicanus* [House Finch] CHR. DRS. Internet: GEOC[†].
- × *Emberiza citrinella* [Yellowhammer] Hybrids started to develop, but died in the shell. Jamieson 1950.
- × *Fringilla coelebs* (♀) [Chaffinch] CHR. A rare hybrid. Carr saw two himself. Carr 1959 (p. 27); Gray 1958; Hopkinson 1926 (p. 180); Radtke 1981; Steinbacher 1979; Vale 1900. Internet: GEOC[†].
- × *Fringilla montifringilla* [Brambling] CHR?? Writing in 1959, Carr (p. 28) said this cross "has been claimed only once to my knowledge." No hybrids seem have been reported since. Carr 1959.
- × *Loxia curvirostra* (↔) [Red Crossbill] CHR. BRO: Eurasia. Internet: GEOC[†].
- × *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CANHR. BRO: Europe and w Asia. This cross is popular and easily produced. Barth and Lönnberg reported natural hybrids. There are no well-accepted reports of successful hybridization involving the cock Bullfinch (see *Serinus domesticus* × *Pyrrhula pyrrhula*, Appendix 1), but Hopkinson lists a case (needing substantiation) of this cross being obtained in the reverse direction. Anonymous 1984; Armani 1983; Barth 1976; Blakston et al. 1989; *Cage Birds* 1950, 1953; Carr 1959[†]; Delacour 1936b; DZK 1984–1987, 1989, 1990; Gray 1958; Hervouët 1952; Hinde 1956a, 1956c; Hopkinson 1926 (pp. 180, 194–195); Houlton 1929; Jamieson 1950; Jones 1956; Klepec 1982; Lönnberg 1922, 1925; Robson 1940; Ruelle 1986a, 1986b; Williams 1955. Internet: GEOC[†].
- × *Serinus domesticus* [Domestic Canary] See: Appendix 1.
- × *Serinus flaviventris* [Yellow Canary] CHR. DRS. DZK 1984; Gray 1958.
- × *Serinus leucopygius* [White-rumped Seedeater] CHR. DRS. Aschenborn 1966.
- × *Serinus mozambicus* (♂ prob. ↔) [Yellow-fronted Canary] CHR. DRS. Alderson 1903, 1919; Butler 1902; Hawke 1902; Hopkinson 1926; Silver 1911; Speicher 1970.
- × *Serinus serinus* [European Serin] CHR. BRO: Europe. Old report (Suchetet) of natural hybridization. Chappellier 1911; Hertwig 1936; Müller 1906; Suchetet 1897a (pp. 241, 761).
- × *Serinus thibetanus* [Tibetan Serin] CHR. BRO: Tibet and w China. *Bird Notes* 1921.
- Note:** European Greenfinches make excellent foster mothers for almost any finch or, indeed, any bird of about the same size, so long as live food is not required.
- Carduelis chloris*** [European Greenfinch] See also: *Carduelis barbata*; *C. cannabina*; *C. carduelis*; *Taeniopygia guttata*; Appendix 2.
- × *Carduelis flammea* (♀) [Common Redpoll] CANHR. BRO: Scandinavia. Carr says the hybrid is "more like a large cumbersome Redpoll with all its finer points outweighed by Greenfinch. A trace of bib can be seen." Grillo reported a presumed natural hybrid. Bonhote 1911a; *Cage Birds* 1904[†]; Carr 1959 (p. 39); Gray 1958; Grillo 1908; Hopkinson 1926 (p. 184); Houlton 1929;

- Page 1912b, 1914b (p. 38); Robson 1940; Silver 1911; Vale 1900. Internet: GEOC[†].
- × *Carduelis flavirostris* (↔) [Twite] CHR. BRO: n Ireland, n Britain, and Norway. The cross is easier to obtain with Twite ♂. *Cage Birds* 1952 (p. 102); Carr 1959 (p. 39); Hopkinson 1926; Robson 1940. Internet: GEOC.
 - × *Carduelis magellanica* [Hooded Siskin] CHR. DRS. DZK 1984, 1989; Kühnel 1975, 1976.
 - × *Carduelis notata* [Black-headed Siskin] CHR. DRS. DZK 1986.
 - × *Carduelis sinica* (♂) [Grey-capped Greenfinch] CHR. DRS. HPF(♂ & ♀). F₁ hybrids are similar to *C. sinica*. DZK 1984, 1985, 1987; Harrison 1982 (p. 289); Hopkinson 1926 (pp. 175, 176); Woodward 1956.
 - × *Carduelis spinoides* (↔) [Yellow-breasted Greenfinch] CHR. DRS. HPF(♂ & ♀). Backcrosses to *C. spinoides* are known. *Bird Notes* 1915, 1920b; Bright (E. H.) 1916; Bright (H.) 1916; Bright 1921a; DZK 1984; Harrison 1982 (p. 289); Hopkinson 1920, 1926; Page 1915, 1922; Shore-Baily 1915, 1917.
 - × *Carduelis spinus* (↔ usu. ♂) [Eurasian Siskin] CHR. BRO: Europe, w Asia. This cross has been known since the 1700s and is easily produced. A single pair had 23 offspring in a season, all viable. Ackermann 1898; Bechstein 1800; *Bird Notes* 1914; Bonhote 1911a; Braune 1910a (p. 84); *Cage Birds* 1950; Carr 1959; Carroll 1955; DZK 1984, 1990; Hopkinson 1926 (p. 180); Houlton 1904, 1929; Robson 1940; Suchetet 1897a (p. 243).
 - × *Carpodacus erythrinus* (♂) [Common Rosefinch] CHR. BRO: Scandinavia, w Russia. Armani 1983; DZK 1984–1986; Hopkinson 1926 (pp. 176, 193); Tomlinson 1916a, 1916b, 1918.
 - × *Carpodacus mexicanus* (♂) [House Finch] CHR. DRS. Aschenborn 1966; *Bird Notes* 1915; Fenk 1913, 1920; DZK 1986; Hopkinson 1926 (pp. 176, 194); Massoth 1975b; Silver 1938; Tomlinson 1919, 1926.
 - × *Carpodacus purpureus* (♂) [Purple Finch] CHR. DRS. Lynch 1954.
 - × *Coccothraustes coccothraustes* (♀) [Hawfinch] CHR. BRO: Europe, w Asia. LVH? Armani 1983; Fitzpatrick 1951.
 - × *Emberiza citrinella* (♂) [Yellowhammer] CHR. BRO: Europe, w Asia. Boyne obtained this distant cross connecting fringillids and emberizids. Two eggs were fertile. One failed to hatch, the other was reared. Boyne 1952.
 - × *Fringilla coelebs* (♀) [Chaffinch] CHR. BRO: Europe. Hybrid is larger than the mother. Astles 1956a, 1956b; *Avicultural Magazine* 1935 (pp. 256–257); Barwick 1952; *Bird Notes* 1912 (pp. 216, 223); Carr 1956, 1959 (pp. 31, 38)[†]; Cole 1954; DZK 1984, 1985; Gray 1958; Hale 1937; Hendrie 1954; Hopkinson 1926 (pp. 175, 178); Paterson 1912; Robson 1940; Silver 1918; Speicher 1970. Internet: GEOC[†].
 - × *Fringilla montifringilla* (♀) [Brambling] CHR. BRO: Europe. A rare hybrid. Carr 1959 (p. 39); Grainger 1954; Gurney 1894; Radtke 1981.
 - × *Loxia curvirostra* [Red Crossbill] CHR. BRO: Europe and w Asia. DZK 1985–1990; Schernekau 1986; Steinbacher 1985. Internet: GEOC[†].
 - × *Pyrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR. BRO: Eurasia. Common in captivity. Parents mate readily, but many hybrids die in the shell. Bell 1951; Berghaus 1889; Carr 1959[†]; Dickie 1904; Gray 1958; Hervouët 1952; Hopkinson 1926, 1935d; Houlton 1929; Kalk 1902; McLeod 1905; Murrell 1905; Robson 1940[†]; Ruelle 1986a; Silver 1911 (p. 351). Internet: GEOC[†].
 - × *Serinus canaria* [Island Canary] NHR? BRO: Canary Islands (where *C. chloris* is introduced). Weber 1908.
 - × *Serinus citrinella* [Citril Finch] CANHR. BRO: mts of se Europe. ACZ? Arrigoni Degli Oddi 1931b; Fenk 1911; Suchetet 1897a (p. 209).
 - × *Serinus domesticus* [Domestic Canary] See: Appendix 1.

- × *Serinus flaviventris* [Yellow Canary] CHR. DRS. DZK 1988, 1989; Klehr 1978.
- × *Serinus gularis* (♂) [Streaky-headed Seedeater] CHR. DRS. Silver 1940b.
- × *Serinus leucopygius* [White-rumped Seedeater] CHR. DRS. Aschenborn 1966.
- × *Serinus mozambicus* [Yellow-fronted Canary] CHR. DRS. DZK 1985, 1986; Hopkinson 1932c, 1938a; Madec 1982.
- × *Serinus reichenowi* [Kenya Yellow-rumped Seedeater] CHR. DRS. DZK 1986.
- × *Serinus serinus* [European Serin] Some cite Gray (1958) for this cross, but she merely says a mixed mating produced no hybrids.
- × *Serinus sulphuratus* [Brimstone Canary] CHR. DRS. DZK 1985.
- × *Serinus thibetanus* (♀) [Tibetan Serin] CHR? HPF (♂ & ♀). Bright 1921a; Hopkinson 1926 (pp. 175, 176); Shore-Baily 1914b, 1917.
- Carduelis cucullata*** [Red Siskin]
See also: *Carduelis atrata*; *C. carduelis*.
- × *Carduelis flammea* [Common Redpoll] CHR. DRS. DZK 1984–1990.
- × *Carduelis magellanica* [Hooded Siskin] CHR. DRS. HPF The Senckenberg Museum has a hybrid. Colard 1983; Fehrer 1993; Möwe 1979; Sick 1993.
- × *Carduelis spinus* (↔) [Eurasian Siskin] CHR. DRS. HPF DZK 1984; Radtke 1981; Speicher 1971. Internet: DKVB.
- × *Carduelis xanthogastra* [Yellow-bellied Siskin] CHR. BRO: nw S. America. Internet: GEOC[†].
- × *Carpodacus erythrinus* [Common Rosefinch] CHR. DRS. DZK 1987.
- × *Serinus domesticus* [Domestic Canary] See: Appendix 1.
- Carduelis flammea*** [Common Redpoll]
See also: *Carduelis cannabina*; *C. carduelis*; *C. chloris*; *C. cucullata*.
- × *Carduelis flavirostris* (♀) [Twite] CHR. BRO: n Ireland, n Britain, and Norway. High mortality in hybrids. Fostering with a canary may be necessary. Hopkinson 1926 (p. 185); Silver 1918. Internet: GEOC.
- × *Carduelis hornemanni* [Hoary Redpoll] ENHR. BRO: Greenland (s of Scoresby Sound), n N. America, n Eurasia. See Knox and Lowther (2000) *contra*. Here, *Carduelis hornemanni* includes *exilipes* (Hoary Redpoll) and *hornemanni* (Hornemann's Redpoll), which also hybridize extensively. Brooks 1968; Godfrey 1986; Harris et al. 1965; Holmes and Black 1978; Knox 1988; Lobkov 1979; Molau 1985; Nyström and Nyström 1987; Osieck 1976; Salomonsen 1928; Suchetet 1897a; Troy 1985 (p. 94). Internet: DIGI.
- × *Carduelis pinus* [Pine Siskin] NHR. Old records. Suchetet 1897a.
- × *Carduelis spinus* (♀ possibly ↔) [Eurasian Siskin] CANHR. BRO: s Scandinavia, thence east into Russia. Brewster 1881 (p. 225); Carr 1959 (p. 42); Coues 1927 (p. 391); Dupond 1930a, 1930b; DZK 1987; Gray 1958; Hale 1937; Hopkinson 1926; Houlton 1904, 1929; Jeron 1909; Lorenz 1890; Radtke 1983; Ridgway 1872, 1885; Robson 1940; Ruge 1975. Internet: GEOC[†].
- × *Carpodacus erythrinus* [Common Rosefinch] CHR. DZK 1985.
- × *Fringilla coelebs* (♀) [Chaffinch] CHR. BRO: Ireland, Britain, Scandinavia, and n Russia. Carr 1951, 1954; Carr 1959[†]. Internet: GEOC[†].
- × *Fringilla montifringilla* (♀) [Brambling] CHR. In a small-scale trial, fertile eggs were obtained, but none hatched. Grainger 1954.
- × *Loxia curvirostra* (♀) [Red Crossbill] CHR. BRO: n Eurasia. The redpoll parent in this cross might have been *Carduelis hornemanni*. Internet: GEOC[†].
- × *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR. This is a difficult cross that usually requires fostering, typically by a hen canary. It is the smallest commonly produced Bullfinch hybrid and clearly shows its parentage on both sides. Armani 1983; *Cage Birds* 1950[†], 1952[†], 1953; Carr 1959[†]; Dixon 1905; DZK 1985; Gray 1958; Hale 1937; Hopkinson 1926 (pp. 185, 195); Houlton 1929; Lewis 1950; Robson 1940; Ruelle 1986a.

- × *Serinus domesticus* [Domestic Canary]
See: Appendix 1.
- × *Serinus pusillus* (♂) [Fire-fronted Siskin]
Fertile eggs obtained. Outcome not reported. *Bird Notes* 1914.
- Carduelis flavirostris*** [Twite]
See also: *Carduelis cannabina*; *C. carduelis*;
C. chloris; *C. flammea*.
- × *Carduelis spinus* (↔) [Eurasian Siskin] CHR.
BRO: n Ireland, n Britain, and Norway.
Baty 1951a, 1951b; Garrow 1951;
Hopkinson 1926 (p. 181, 183);
Prestwich 1951.
- × *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch]
CHR. BRO: Norway, n British Isles.
Zoological Museum of Hamburg Univ.
has a hybrid. Mau 1977.
- × *Serinus canicollis* [Cape Canary] CHR. DRS.
Eleen 1950.
- × *Serinus domesticus* [Domestic Canary]
See: Appendix 1.
- Carduelis hornemanni*** [Hoary Redpoll]
See: *Carduelis carduelis*; *C. flammea*.
- Carduelis magellanica*** [Hooded Siskin]
See also: *Carduelis cannabina*; *C. carduelis*;
C. chloris; *C. cucullata*.
- × *Carduelis olivacea* [Olivaceous Siskin] Likely
hybridization in e Peru. These birds look
similar but differ in range and habitat.
Fjeldså and Krabbe 1990.
- × *Carduelis santaecrucis* [Santa Cruz Siskin]
ENHI (Bolivia). These birds were recently
lumped because adjacent populations of the
C. santaecrucis approach *C. magellanica*
(i.e., are intermediate) and are therefore
PHPs of this cross. Ridgely and Tudor
1989 (p. 485); Short 1975.
- × *Carduelis siemiradzkii* [Saffron Siskin] PCZ
(sw Ecuador). No hybrids reported. Ridgely
and Tudor 1989; Sibley and Monroe 1990.
- × *Carduelis spinus* (♀) [Eurasian Siskin] CHR.
DRS. HPF. Aronstein 1910; *Bird Notes*
1910 (pp. 231, 363–364); Friedrichs and
Friedrichs 1981; Hopkinson 1926;
Prestwich 1951.
- × *Carduelis uropygialis* [Yellow-rumped
Siskin] ENHR (s Peru, near Chuquibamba,
n Arequipa). Male hybrids are intermediate,
and differ from Yellow-rumped in having
yellowish neckside. Fjeldså and Krabbe
say a population, *boliviana*, often treated
as a race of *C. magellanica*, resembles
these hybrids and may be derived from
this cross. Fjeldså and Krabbe
1990 (pp. 692–693).
- × *Serinus canicollis* [Cape Canary] CHR. A
bird listed as this hybrid by Page may well
have instead been the more common
cross *Serinus alario* × *S. canicollis*.
Hopkinson 1926; Page 1914b.
- × *Serinus domesticus* [Domestic Canary]
See: Appendix 1.
- Carduelis monguilloti*** [Vietnamese Greenfinch]
See: *Carduelis ambigua*.
- Carduelis notata*** [Black-headed Siskin]
See also: *Carduelis cannabina*; *C. carduelis*;
C. chloris; Appendix 1.
- × *Carduelis spinus* (↔) [Eurasian Siskin] CHR.
DRS. Aronstein 1910; Hopkinson
1926 (p. 182), 1930; *L'Oiseau* 1927.
- × *Serinus domesticus* [Domestic Canary]
See: Appendix 1.
- Carduelis olivacea*** [Olivaceous Siskin]
See: *Carduelis magellanica*.
- Carduelis pinus*** [Pine Siskin]
See also: *Carduelis atriceps*; *C. flammea*;
Appendix 1.
- × *Loxia curvirostra* [Red Crossbill] NHR. BRO:
s Canada, w U.S., w Mexico.
A hybrid near Aberdeen, S. Dakota
was reported. Tallman and Zusi 1984.
- Note:** Two populations (*psaltria*, *hesperophila*),
treated as races of *Carduelis psaltria*, have a
broad hybrid zone in New Mexico and
Colorado. Birds of the eastern population
(*psaltria*) have a black back and head, those
of the western (*hesperophila*), only a black
cap (back is green). Meise 1975;
Sibley 2000 (p. 535).
- Carduelis psaltria*** [Lesser Goldfinch]
× *Carduelis tristis* (♀) [American Goldfinch]
CHR. BRO: w U.S. Plath 1922.
- × *Serinus domesticus* [Domestic canary]
See: Appendix 1.
- Carduelis santaecrucis*** [Santa Cruz Siskin]
See: *Carduelis magellanica*.

Carduelis siemiradzkii [Saffron Siskin]

See: *Carduelis magellanica*.

Carduelis sinica [Grey-capped Greenfinch]

See also: *Carduelis ambigua*; *C. carduelis*; *C. chloris*; Appendix 1.

× *Carduelis spinoides* (♀) [Yellow-breasted Greenfinch] CHR. ENHI. BRO: se Asia. HPF (♂ & ♀). *Carduelis ambigua* is intermediate in morphology and range and, thus, a PHP of this cross. Colard 1986; Harrison 1982 (p. 289); Hopkinson 1926 (p. 177); Meise 1936a; Shore-Baily 1919a.

× *Serinus flaviventris* [Yellow Canary] CHR. DRS. DZK 1986.

Note: Harrison 1982 (p. 289) say *Carduelis spinoides* is made up of several forms, which have been treated as from one to three species, and that they hybridize where they meet. Ali and Ripley (1973) list Himalayan Greenfinch (*spinoides*), Tibetan Greenfinch (*taylori*), and Mount Victoria Greenfinch (*heinrichi*).

Carduelis spinoides [Yellow-breasted Greenfinch]

See also: *Carduelis ambigua*; *C. carduelis*; *C. chloris*; *C. sinica*.

× *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR. DRS. Ruelle 1986a.

× *Serinus domesticus* [Domestic canary] See: Appendix 1.

× *Serinus flaviventris* [Yellow Canary] CHR. DRS. DZK 1989.

Note: Cock Siskins are capable breeders even with hens larger than themselves and make excellent parents in both sexes.

Note: Hopkinson (1926, p. 181) notes an early report (*Bird Notes* 1906, p. 237) of a hybrid from a *Carduelis spinus* ♂ and a ♀ of either *Serinus flaviventris* or *S. sulphuratus*.

Carduelis spinus [Eurasian Siskin]

See also: *Carduelis cannabina*; *C. carduelis*; *C. chloris*; *C. cucullata*; *C. flammea*; *C. flavivestris*; *C. magellanica*; *C. notata*.

× *Fringilla coelebs* [Chaffinch] CHR. BRO: Europe. Very rare. Carr 1959 (p. 42).

× *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR. BRO: Europe. Quite rare. *Cage Birds* 1950; Carr 1959 (p. 18); Hopkinson 1926 (p. 181);

Houlton 1904; Knight 1950; Ruelle 1986a; Suchetet 1897a (p. 286); Thomson 1951.

× *Serinus citrinella* (♂) [Citril Finch] CHR? Old records. *Die Gefiederte Welt* 1892 (p. 292), 1896 (pp. 366–367).

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

× *Serinus mozambicus* (♂) [Yellow-fronted Canary] CHR. DRS. Hopkinson 1926.

× *Serinus serinus* [European Serin] CHR. Ackermann 1898; *Die Gefiederte Welt* 1887; DZK 1990; Poll 1911c.

× *Serinus totta* [Cape Siskin] CHR? DRS. Page 1914b.

Carduelis tristis [American Goldfinch]

See also: *Carduelis psaltria*.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Carduelis uropygialis [Yellow-rumped Siskin]

See: *Carduelis magellanica*.

Carduelis xanthogastra [Yellow-bellied Siskin]

See: *Carduelis cucullata*.

Carduelis yarrellii [Yellow-faced Siskin]

See: Appendix 1.

Carpodacus cassinii [Cassin's Finch]

× *Carpodacus purpureus* [Purple Finch] NHR. PCZ in w U.S. Wayne 1924; Wootton 1996 (p. 3).

Carpodacus erythrinus [Common Rosefinch]

See also: *Carduelis carduelis*; *C. chloris*; *C. cucullata*; *C. flammea*.

× *Carpodacus mexicanus* [House Finch] CHR. BRO: Alaska? Armani 1983.

× *Carpodacus purpureus* (♀) [Purple Finch] CHR. DRS. Hopkinson 1938a; Lynch 1954; Neunzig 1913 (p. 333).

× *Loxia curvirostra* [Red Crossbill] CHR. BRO: Eurasia. DZK 1989.

× *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR. BRO: Eurasia. Armani 1983; DZK 1986, 1987; Ruelle 1986a.

× *Rhodopechys githaginea* [Trumpeter Finch] CHR. BRO: Eurasia. DZK 1987.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Carpodacus mexicanus [House Finch]

See also: *Carduelis cannabina*; *C. carduelis*; *C. chloris*; *Carpodacus erythrinus*.

× *Carpodacus purpureus* (♀) [Purple Finch] NHR (ne U.S.). The voice of a probable hybrid was described as similar in tonal quality, but not pattern, to House Finch. The bird was red in the same areas as House Finch, but rosier and lacking the orange tones of a House Finch; white underparts were without streaking, as in Purple Finch. Wootton 1996 (p. 3).

× *Loxia curvirostra* [Red Crossbill] CHR. BRO: N. America. DZK 1988–1989.

× *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR. DRS. Aschenborn 1966; Faivre 1980; DZK 1984; Hopkinson 1938a (p. 195); Ruelle 1986a.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Carpodacus purpureus [Purple Finch]

See also: *Carduelis chloris*; *Carpodacus cassinii*; *C. erythrinus*; *C. mexicanus*.

× *Pinicola enucleator* [Pine Grosbeak] NHR. BRO: Canada (Newfoundland to se Yukon Terr.). This hybrid was treated as a species (*Emberiza townsendii* Audubon 1834). Thompson describes a hybrid taken near Toronto in winter and includes a color plate. He notes (p. 3) that it “presents the rich, rosy and crimson tints and the white wing markings of the adult male *Pinicola enucleator*, but everywhere replaces the ashy tints of this species with the warm brown of *Carpodacus purpureus*. It has also the whole of the abdominal region white as in the latter, but in all other particulars of size, form and color, it is exactly intermediate.” Audubon 1831–1839; Poll 1911c; Suchetet 1897a (pp. 267, 768); Thompson 1894[†].

× *Serinus domesticus* [Domestic canary] See: Appendix 1.

Carpodacus roseus [Pallas’s Rosefinch]

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

× *Uragus sibiricus* [Long-tailed Rosefinch] CHR. BRO: Eurasia. DZK 1989.

Carpodacus rubicilla [Great Rosefinch]

× *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR. BRO: sw Eurasia. Faivre 1980; Ruelle 1986a.

Coccothraustes coccothraustes [Hawfinch] See also: *Carduelis chloris*.

× *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR? BRO: Eurasia. *Bird Notes* 1917 (p. 39); Fehrer 1993; Hopkinson 1926 (p. 177); Longdon 1917; Page 1923.

Note: Carr (1959) says Chaffinch wing color and markings always show in Chaffinch hybrids, but that, in general, they cannot be reliably sexed until the first molt.

Note: Two populations (*caucasica*, *solomkoi*), treated as races of *Fringilla coelebs* have a hybrid zone in the w Caucasus. Tsvelykh 2003.

Fringilla coelebs [Chaffinch]

See also: *Carduelis cannabina*; *C. carduelis*; *C. chloris*; *C. flammea*; *C. spinus*; Appendix 2.

× *Fringilla montifringilla* (↔) [Brambling] CAENHR. HPF (♂ & ♀). This is the only cross involving *Fringilla* that is known with absolute certainty. All others need additional confirmation. Few eggs are fertile. High mortality in hybrids. BRO: Scandinavia and w Russia. During breeding season these two birds occur together in northern taiga. They also flock together in winter. Hybrids are known also from Germany, Italy, and e Balkans. Although the parental birds are markedly different in appearance, ♂ F₁ hybrids from reciprocal crosses are quite similar. Female hybrids have been accepted in shows as pure Brambling. Silver says that some of the first captive hybrids obtained were fostered in the nests of wild birds (i.e., European Robins, Hedge Sparrows, Great Tits) and removed before they flew. Ackermann 1898; Arrigoni Degli Oddi 1895; *Avicultural Magazine* 1911 (p. 349[†]), 1932 (p. 179); Balatsky 1992; Bonhote 1911b; Carr 1959; Cvitanic 1986b; Eck 1975b; Farm 1983; Fitzpatrick 1951; Folkestad 1967; Gray 1958; Hinde 1956c; Hopkinson 1926 (pp. 178–179); Jacobi 1923; Laurenti and Lenzini 1996; L’Hermitte 1911b; Lofts and Mainardi 1963; Lowe 1953a, 1953b, 1954; Mandler 1998; Mjos 1999; Moltoni 1956a; Orlando 1958; Panov 1989 (p. 443); Payevsky 1970; Pihl 1978;

- Pruter and Fleet 1984; Purdeck 1956; Robson 1940; Rucner 1970; Sassi 2004; Schlawe 2003; Schnurre 1955; Silver 1907; Stresemann 1923b; Suchetet 1897a (pp. 248, 761, 970); Sweetnam 1932; van Kempen 1898; Vickholm et al. 1981. Internet: GEOC^r.
- × *Serinus domesticus* [Domestic Canary]
See: Appendix 1.
- Fringilla montifringilla*** [Brambling]
See also: *Carduelis cannabina*; *C. carduelis*; *C. chloris*; *C. flammea*; *Fringilla coelebs*.
- × *Loxia curvirostra* [Red Crossbill] CHR? BRO: Eurasia. Radtke 1981.
- × *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR? BRO: Eurasia. Grainger 1954.
- × *Serinus domesticus* [Domestic Canary]
See: Appendix 1.
- Note:** Despite ongoing hybridization, *L. atrata*, *L. australis*, and *L. tephrocotis* are generally treated as separate species due to marked morphological and biochemical differences. Sibley and Monroe 1990 (p. 708).
- Leucosticte atrata*** [Black Rosy-Finch]
× *Leucosticte australis* [Brown-capped Rosy-Finch] ONHR. BRO: mts of w U.S. French 1959; Sibley 2000 (p. 527).
- × *Leucosticte tephrocotis* [Grey-crowned Rosy-Finch] ENHR (nw U.S.). HPF BRO: w Montana, Idaho. Hybridization occurs in Bitterroot Mts., Seven Devils Mts., Cabinet Mts., and Little Belt Mts. Johnson showed that despite extensive hybridization, the parental types have remained distinct, differing with respect to color and a variety of mensural characters. French 1959; Hoffmann 1960; Johnson 1972, 2002 (pp. 4–5); Mewaldt 1950.
- Leucosticte australis*** [Brown-capped Rosy-Finch] See: *Leucosticte atrata*.
- Leucosticte sillemi*** [Sillems Mountain-Finch]
This taxon based on two specimens from w Tibet, taken at 5,125 m, and misidentified as *L. brandti*, may be a hybrid of unknown parentage. Internet: DIGI.
- Leucosticte tephrocotis*** [Grey-crowned Rosy-Finch] See: *Leucosticte atrata*.
- Loxia curvirostra*** [Red Crossbill]
See also: *Carduelis cannabina*; *C. carduelis*; *C. chloris*; *C. flammea*; *C. pinus*; *Carpodacus erythrinus*; *C. mexicanus*; *Fringilla montifringilla*.
- × *Loxia leucoptera* (♂) [White-winged Crossbill] CANHR. BRO: n Eurasia, n N. America. HPF (♂♂). Benkman found that a ♂ backcross to Red looked very similar to a pure Red Crossbill. Ackermann 1898; Adkisson 1996 (pp. 4–5); Benkman 1992; Garner 1997; Knox 1992; Poll 1911c; Proctor 1997; Suchetet 1897a.
- × *Loxia pytyopsittacus* [Parrot Crossbill] NHR? BRO: ne Europe. Old records. Ackermann 1898; Poll 1911c; Suchetet 1897a.
- × *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR. BRO: n Eurasia. Birkhead 2003b (p. 234) says that “in 2001 a hybrid crossbill × bullfinch changed hands for (allegedly) £2500.” DZK 1985; Ruelle 1986a.
- × *Rhodopechys githaginea* [Trumpeter Finch] CHR. BRO: s Spain, Morocco. GEOC^r.
- × *Serinus flaviventris* [Yellow Canary] CHR. DRS. DZK 1988–1990.
- × *Serinus mozambicus* [Yellow-fronted Canary] CHR. DRS. GEOC^r.
- × *Serinus striolatus* [Streaky Seed-eater] CHR. DRS. DZK 1989.
- Loxia leucoptera*** [White-winged Crossbill]
See: *Loxia curvirostra*.
- Loxia pytyopsittacus*** [Parrot Crossbill]
See: *Loxia curvirostra*.
- Note:** Bernhoft-Osa (1970) reports that a *Pinicola enucleator* ♀ caged with ♂ Eurasian Siskins, Hornemann’s Redpolls, and White-winged Crossbills (*Carduelis spinus*, *Carduelis hornemanni*, and *Loxia leucoptera*), laid eggs that hatched. However, the young were eaten by vermin before the ♂ parent could be identified.
- Pinicola enucleator*** [Pine Grosbeak]
See also: *Carpodacus purpureus*.
- × *Pyrrhula pyrrhula* [Eurasian Bullfinch] Gray (1958) lists this cross, but only to say that no hybrids have been obtained.

Pyrrhula griseiventris [Oriental Bullfinch]

× *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CANHR. HPF (♂ & ♀). PCZ (e Russia).

P. griseiventris is not listed by Sibley and Monroe (1990). As defined here, it includes *cineracea* and *griseiventris* (see MacKinnon and Phillippis 2000, p. 516). Panov 1989; Scott 1940, 1942.

Note: Bernard Williams (Internet: GEOC) states that “At this time there have been no crosses [of any kind] with the Bullfinch cock, there have been reports over the years but none proven. There seems no reason why the Bullfinch cock should not cross with other finches as the Bullfinch hen has crossed with most.”

Pyrrhula pyrrhula [Eurasian Bullfinch]

See also: *Carduelis caniceps*; *C. cannabina*; *C. carduelis*; *C. chloris*; *C. flammea*; *C. flavirostris*; *C. spinoides*; *C. spinus*; *Carpodacus erythrinus*; *C. mexicanus*; *C. rubicilla*; *Coccothraustes coccothraustes*; *Foudia madagascariensis*; *Fringilla coelebs*; *Loxia curvirostra*; *Pinicola enucleator*; *Pyrrhula griseiventris*; Appendix 2.

× *Rhodopechys githaginea* (♂) [Trumpeter Finch] CHR. Ruelle 1986a.

Internet: GEOC[†].

× *Serinus citrinella* (♂) [Citril Finch] CHR. DRS. Ruelle 1986a.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

× *Serinus dorsostriatus* (♂) [White-bellied Canary] CHR. DRS. DZK 1984–1986.

× *Serinus leucopygius* [White-rumped Seedeater] CHR. DRS. DZK 1986; Speicher 1970.

× *Serinus mozambicus* (♂) [Yellow-fronted Canary] CHR. DRS. Ruelle 1986a.

Internet: GEOC[†].

× *Serinus thibetanus* (♂) [Tibetan Serin] CHR. DRS. Fritz 1975.

Rhodopechys githaginea [Trumpeter Finch]

See: *Carpodacus erythrinus*; *Loxia curvirostra*; *Petronia xanthocolis*; *Pyrrhula pyrrhula*; Appendix 1.

Rhodopechys sanguinea [Crimson-winged Finch] See: Appendix 1.

Serinus alario [Black-headed Canary]

× *Serinus canicollis* (↔) [Cape Canary] CHR. BRO: s Africa. Haagner 1906; Page 1914b (p. 42); Silver 1911.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

× *Serinus leucopygius* (♀) [White-rumped Seedeater] CHR. See *Serinus leucopygius* × *S. mozambicus*. Page 1914b (p. 37).

× *Serinus mozambicus* (♀) [Yellow-fronted Canary] CHR. BRO: s Africa. Page 1914b (p. 37).

× *Serinus serinus* [European Serin] CHR. DRS. Radtke 1983.

Serinus albogularis [White-throated Canary]

× *Serinus flaviventris* [Yellow Canary] CHR. HPF BRO: s Africa. Nicolai 1960; van den Elzen 1985.

× *Serinus sulphuratus* [Brimstone Canary] CHR. BRO: s Africa. Hopkinson 1926.

Serinus atrogularis [Southern Yellow-rumped Seedeater]

× *Serinus canicollis* (♀) [Cape Canary] CHR. Long PCZ in S. Africa. Hopkinson 1926 (p. 187).

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

× *Serinus flaviventris* (♀) [Yellow Canary] CHR. BRO: Botswana, Namibia, S. Africa. Chawner 1917; Hopkinson 1926 (p. 187).

× *Serinus leucopygius* (↔) [White-rumped Seedeater] CHR. HPF Aschenborn 1966; Franken 1875; Hocking 1975; Neunzig 1913 (pp. 307, 308); Nicolai 1960.

× *Serinus mozambicus* [Yellow-fronted Canary] CAENHR. HPF(vh). BRO: Mozambique, Zimbabwe. The Lemon-breasted Seedeater (*Serinus citrinipectus*), which occurs just w of the contact zone, was treated as a species by Sibley and Monroe (1990). It is thought to be the product of this cross. DKB 1984; Hall and Moreau 1970 (p. 273); Irwin 1961, 1979; Panov 1989; van den Elzen 1981. Internet: DIGI.

Serinus burtoni [Thick-billed Seedeater] See: Appendix 1.

Serinus canaria [Island Canary] See: *Carduelis chloris*. For domestic canary crosses see Appendix 1.

Serinus canicollis [Cape Canary]

See also: *Carduelis atrata*; *C. cannabina*; *C. flavirostris*; *C. magellanica*; *Serinus alario*; *S. atrogularis*; Appendix 2.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

× *Serinus flaviventris* (♀) [Yellow Canary] CHR. BRO: s Africa. Butler 1910b (vol. 1, p. 105); Neunzig 1913 (p. 306); Poll 1911c.

× *Serinus mozambicus* (↔ usu. ♂) [Yellow-fronted Canary] CHR. BRO: e sub-Saharan Africa. Teague 1932.

× *Serinus totta* (♂) [Cape Siskin] CHR. BRO: s Africa. Silver 1911.

Serinus citrinella [Citril Finch] See: *Carduelis chloris*; *C. spinus*; *Pyrrhula pyrrhula*; Appendix 1.

Serinus citrinipectus [Lemon-breasted Seedeater] See: *Serinus atrogularis* × *S. mozambicus*.

Serinus domesticus [Domestic Canary] See: Appendix 1.

Serinus donaldsoni [Abyssinian Grosbeak-Canary] See: Appendix 1.

Serinus dorsostriatus [White-bellied Canary] See also: *Pyrrhula pyrrhula*; Appendix 1.

× *Serinus reichenowi* [Kenya Yellow-rumped Seedeater] See: *Serinus dorsostriatus* × *S. xanthopygius*.

× *Serinus xanthopygius* [Abyssinian Yellow-rumped Seedeater] NHR (Ethiopia). The Yellow-throated Seedeater (*S. flavigula*), based on five specimens and listed as a species, was considered by Rand to be a variant of *S. xanthopygius*. Hall and Moreau suggest it is the product of this cross (or possibly *Serinus dorsostriatus* × *S. reichenowi*). Hall and Moreau 1970 (p. 272); Rand 1968.

Serinus estherae [Indonesian Serin]

× *Serinus mindanensis* [Mindanao Serin] ENHR (Indonesia). There is a hybrid population on Sulawesi. Schuchmann and Wolters 1982.

Serinus flavigula [Yellow-throated Seedeater] See: *Serinus dorsostriatus* × *S. xanthopygius*.

Serinus flaviventris [Yellow Canary]

See also: *Carduelis cannabina*; *C. carduelis*; *C. chloris*; *C. sinica*; *C. spinoides*; note preceding *C. spinus*; *Loxia curvirostra*; *Serinus albogularis*; *S. atrogularis*; *S. canicollis*; Appendix 1.

× *Serinus leucopygius* (♀) [White-rumped Seedeater] CHR. DRS. Lincke 1875; Page 1914b (p. 38); Poll 1911c; Seth-Smith 1906b.

× *Serinus mozambicus* [Yellow-fronted Canary] Long PCZ in S. Africa and Botswana. No hybrids as yet reported. Sinclair 1984 (p. 326).

× *Serinus sulphuratus* [Brimstone Canary] CHR. HPE BRO: s Africa and St. Helena Island. Nicolai 1960; van den Elzen 1985.

× *Sicalis flaveola* (♂) [Saffron Finch] CHR? DRS. Hopkinson 1926; Silver 1911.

Serinus flavivertix [Yellow-crowned Canary] See: Appendix 1.

Serinus hypostictus [East African Citril] See: Appendix 1.

Serinus gularis [Streaky-headed Seedeater] See: *Carduelis chloris*; Appendix 1.

Serinus leucopygius [White-rumped Seedeater] See also: *Carduelis cannabina*; *C. carduelis*; *C. chloris*; *Pyrrhula pyrrhula*; *Serinus alario*; *S. atrogularis*; *S. flaviventris*; *Taeniopygia guttata*; Appendices 1 and 2.

× *Serinus mozambicus* (↔) [Yellow-fronted Canary] CHR. BRO: n sub-Saharan Africa. Aschenborn 1966; *Avicultural Magazine* 1958 (p. 73), 1970 (p. 165); Brooksbank 1949 (p. 100); Hopkinson 1926 (pp. 187, 190); Neunzig 1913; Nicolai 1960; Page 1914b (p. 37); Rudkin 1903; Schwinge 1910. Internet: DKVB.

Serinus mindanensis [Mindanao Serin]

See: *Serinus estherae*.

Serinus mozambicus [Yellow-fronted Canary]

See also: *Amandava subflava*; *Carduelis cannabina*; *C. carduelis*; *C. chloris*; *C. spinus*; *Loxia curvirostra*; *Pyrrhula pyrrhula*; *Serinus alario*; *S. atrogularis*; *S. canicollis*; *S. flaviventris*; *S. leucopygius*; Appendix 1.

× *Serinus serinus* (♀) [European Serin] CHR. Page 1914b (p. 37); Silver 1911.

- Serinus nigriceps* [Abyssinian Siskin]
See: Appendix 1.
- Serinus pusillus* [Fire-fronted Siskin]
See: *Carduelis flammea*; Appendix 1.
- Serinus reichenowi* [Kenya Yellow-rumped
Seedeater] See: *Carduelis chloris*;
S. dorsostriatus; Appendix 1.
- Serinus serinus* [European Serin]
See: *Carduelis cannabina*; *C. carduelis*;
C. chloris; *C. spinus*; *Serinus alario*;
S. mozambicus; Appendix 1.
- Serinus striolatus* [Streaky Seedeater] See:
Loxia curvirostra.
- Serinus sulphuratus* [Brimstone Canary]
See also: *Carduelis chloris*; note preceding
C. spinus; *Serinus albogularis*; *S. flaviventris*;
Appendix 1.
- × *Serinus xanthopygius* (♀) [Abyssinian
Yellow-rumped Seedeater]
CHR. DRS. *Bird Notes* 1915
(p. 107), 1920 (p. 65); Hopkinson
1926 (p. 188).
- Serinus thibetanus* [Tibetan Serin] See:
Carduelis carduelis; *C. chloris*; *Pyrrhula*
pyrrhula; Appendix 1.
- Serinus totta* [Cape Siskin] See: *Carduelis*
spinus; *Serinus canicollis*; Appendix 1.
- Serinus tristriatus* [Brown-rumped Seedeater]
See: Appendix 1.
- Serinus xanthopygius* [Abyssinian
Yellow-rumped Seedeater] See:
S. dorsostriatus; *S. sulphuratus*; Appendix 1.
- Uragus sibiricus* [Long-tailed Rosefinch]
See: *Carpodacus rosus*.

Hawaiian Finches

Family Drepanidae

Loxops coccineus [Akepa]

- × *Oreomystis mana* [Hawaii Creeper] NHR
(Hawaii). Lepson and Woodworth say
“An immature or second-year bird
observed twice by JKL [J. K. Lepson] in
1989 at Pua 'Akala tract at Hakalau Forest
NWR was intermediate in appearance
between Hawai'i Akepa and Hawai'i
Creeper.” Lepson and Woodworth
2002 (p. 4).

Oreomystis bairdi [Kauai Creeper]

- × *Viridonia virens* [Common Amakihi]
Controversy exists over the proper
systematic position of *Oreomystis mana*
(Hawaii Creeper). It resembles *O. bairdi* in
plumage, bill shape, and tongue morphology,
but is similar to amakihi in certain
plumage traits (Pratt 2005, p. 74).
Generally, *O. mana* is judged to be most
similar to *O. bairdi* in morphology. However,
a probable hybrid between *O. mana* and *V.*
virens is known (Lepson and Woodworth
2002, p. 4). These facts suggest *O. mana* as
a PHP of this cross.

Oreomystis mana [Hawaii Creeper]

- See also: *Loxops coccineus*; *Oreomystis bairdi* ×
Viridonia virens.
- × *Viridonia virens* [Common Amakihi] NHR
(Hawaii). Perkin's Creeper (*Oreomystis perkinsi*),
based on a single specimen taken in 1891 at
Pu'ulehua, Mauna Loa is probably this
hybrid. Lepson and Woodworth describe it.
Amadon 1950a (p. 176); Lepson and
Woodworth 2002 (p. 4); Rothschild 1893.

Viridonia virens [Common Amakihi] See: *Oreomystis bairdi*; *O. mana*.

Wood Warblers

Family Parulidae

Basileuterus auricapillus [Golden-crowned Warbler]

- × *Basileuterus cabanisi* [Cabanis's Warbler]
ENHI. A population (*olivascens*) in ne
Venezuela is intermediate in morphology
and range and, thus, a PHP of this cross.
These birds are now usually lumped. Curson
et al. 1994 (p. 217).
- × *Basileuterus hypoleucus* [White-bellied
Warbler] ENHR. BRO: s Brazil (Minas
Gerais). Curson et al. say these hybrids
resemble the White-bellied Warbler,
but “the lateral crown-stripe is less obvious,
the underparts are washed yellow
on flanks as well as the undertail-coverts,
and the crown-stripe is apparently lacking,
or at best concealed.” Curson et al.
1994 (p. 219); Hellmayr et al.

1918– (Part VIII); Remsen and Traylor 1989; Robbins et al. 1999; Silva 1991; Willis 1986.

Basileuterus bivittatus [Two-banded Warbler]

× *Basileuterus signatus* [Pale-legged Warbler] ACZ (nw Argentina). Generally, *B. bivittatus* occurs below 1,800 m, *B. signatus*, above. No hybrids as yet reported. Curson et al. 1994 (p. 209).

Basileuterus cabanisi [Cabanis's Warbler]

See: *Basileuterus auricapillus*.

Basileuterus castaneiceps [Bay-crowned Warbler]

× *Basileuterus coronatus* [Russet-crowned Warbler] ENHI. A geographically and morphologically intermediate population (*orientalis*) exists in e Ecuador, a PHP of this cross. Due to hybridization, these birds are usually lumped. Curson et al. 1994 (p. 215a); Meyer de Schauensee 1966.

Basileuterus coronatus [Russet-crowned Warbler] See: *Basileuterus castaneiceps*.

Basileuterus culicivorus [Stripe-crowned Warbler]

× *Basileuterus hypoleucus* [White-bellied Warbler] NHR (Minas Gerais, Brazil). These birds are sometimes lumped. Melo-Júnior et al. 2001.

Basileuterus delatirii [Chestnut-capped Warbler]

× *Basileuterus rufifrons* [Rufous-capped Warbler] ENHR. Hybrid zone is in Guatemala, El Salvador and Honduras. In addition, there is an intermediate population (*salvini*), usually treated as a race of *B. rufifrons* on the Caribbean slope of s Mexico, n Guatemala, and Belize. Due to hybridization, these birds are sometimes treated as conspecific. Curson et al. 1994 (pp. 84[†], 220).

Basileuterus flaveolus [Flavescent Warbler]

× *Basileuterus hypoleucus* [White-bellied Warbler] Mixed pairs were seen in Paraguay. BRO: Paraguay, s Brazil. No hybrids as yet reported. Hayes 1995 (p. 124).

Basileuterus fulvicauda [Buff-rumped Warbler]

× *Basileuterus rivularis* [Neotropical River Warbler] ENHI (w S. America). HPF (♂ & ♀). A population, *significans*, which is geographically adjacent to *B. rivularis* but usually

treated as a race of *B. fulvicauda* (se Peru), approaches *B. rivularis* in appearance, especially in tail pattern. *Significans* is therefore a PHP of this cross. Hybrids have the buff tail coverts of *B. fulvicauda*, but the olive retrices of *B. rivularis*. Boundaries between the plumage and mtDNA types of these two birds are about 1,000 km apart. Because mtDNA is maternally inherited, it passes across hybrid zones only when the ♀ hybrids are partially fertile. Since there are no avian crosses known in which ♀ hybrids are fertile and ♂ hybrids are not, it may be presumed in the present case that ♂ hybrids, too, are partially fertile. Curson et al. 1994 (p. 228); Lovette 2004; Ridgely and Tudor 1989 (p. 197); Zimmer 1949.

Basileuterus hypoleucus [White-bellied Warbler] See: *Basileuterus auricapillus*; *B. culicivorus*; *B. flaveolus*.

Basileuterus leucoblepharus [White-browed Warbler]

× *Basileuterus rivularis* [River Warbler] NHR. (Rio Grande do Sul, s Brazil). BRO: s Brazil (Paraná). Curson et al. say hybrids look like the White-striped Warbler (i.e., like a *B. rivularis*, but whiter below; supercilium is also whiter). Curson et al. 1994 (pp. 91[†], 226); Ridgely and Tudor 1989.

Basileuterus leuteoviridis [Citrine Warbler]

× *Basileuterus richardsoni* [Richardson's Warbler] ENHI. A geographically and morphologically intermediate population (*quindianus*) exists in the cen. Andes of Colombia (from Antioquia s to Cauca), a PHP of this cross. Due to hybridization, these birds are usually lumped. Curson et al. 1994 (pp. 209, 210); Meyer de Schauensee 1966.

× *Basileuterus nigrocristatus* [Black-crested Warbler] ENHI. A population (*euophrys*) in the Andes (Puno, s Peru s to cen. Bolivia) has been treated both as a race of *B. leuteoviridis* and *B. nigrocristatus*. Ridgely and Tudor say it is "remarkably like" the latter (unknown s of n Peru). Also, a population (*straticeps*) treated as a race of the Citrine, is intermediate in morphology and

range between *euophrys* and a population (*leuteoviridis*) treated as a race of the Citrine. These facts suggest *euophrys* and *straticiceps* as PHPs of this cross. Curson et al. 1994 (pp. 209, 210); Meyer de Schauensee 1966 (p. 450); Ridgely and Tudor 1989 (pp. 185–186).

× *Basileuterus signatus* [Pale-legged Warbler] NHR? A hybrid has been reported (Candinamarca, cen. Colombia). ACZ in Peru. Curson et al. 1994 (p. 209); Ridgely and Tudor 1989 (p. 186).

Basileuterus nigrocristatus [Black-crested Warbler] See: *Basileuterus leuteoviridis*.

Basileuterus richardsoni [Richardson's Warbler] See: *Basileuterus leuteoviridis*.

Basileuterus rivularis [Neotropical River Warbler] See: *Basileuterus fulvicauda*; *B. leucoblepharus*.

Basileuterus rufifrons [Rufous-capped Warbler] See: *Basileuterus delatirii*.

Basileuterus signatus [Pale-legged Warbler] See: *Basileuterus bivittatus*; *B. leuteoviridis*.

Note: When *Dendroica auduboni* is treated as a separate species, it is usually divided into three races *auduboni*, *nigrifrons*, and *goldmani*. The first two hybridize extensively in the sw U.S. (Curson et al. 1994, p. 126); Dunn and Garrett 1997, p. 276). The last, *goldmani*, has been treated as a separate species, Goldman's Warbler, (e.g., Davis 1973). Dunn and Garrett (p. 9) say it "interbreeds freely in zones of contact" with Audubon's, but Curson et al. (p. 126) say *goldmani* "is geographically isolated from others in the Yellow-rumped complex."

Dendroica auduboni [Audubon's Warbler]

× *Dendroica coronata* [Myrtle Warbler] ENHR (w Canada). A hybrid zone stretches from se Alaska to sw Alberta. Birds are more similar to Audubon's on the sw side of the zone, more similar to Myrtle toward the ne. Hubbard (1969) and Barrowclough (1980a, 1980b) give detailed descriptions of the zone, which stretches from s Alaska to sw Alberta. *D. auduboni* and *D. coronata* are both abundant birds. Due to hybridization they are now usually lumped under the name

"Yellow-rumped Warbler", but Curson et al. suggest that it would be best to treat them as separate allospecies. Alexander 1945; Barrowclough 1980a, 1980b; Brodtkorb 1934; Curson et al. 1994; Dunn and Garrett 1997; Harrison 1984; Hubbard 1969; Mailliard 1937; Monson and Packard 1945; Phillips 1941; Taylor 1911; Tordoff 1950b.

× *Dendroica graciae* [Grace's Warbler] NHR. BRO: sw U.S. A hybrid is known from Aurora, Colorado (Denver Museum of Natural History #36657). Bledsoe 1988a; Dunn and Garrett 1997 (p. 276).

Dendroica caerulescens [Black-throated Blue Warbler]

× *Dendroica petechia* [Yellow Warbler] NHR (Quebec, Canada)? BRO: ne U.S., se Canada. Ducharme and Lamontagne 1992.

× *Vermivora ruficapilla* [Nashville Warbler] NHR (Michigan). BRO: ne U.S., se Canada. There is a hybrid in the Carnegie Museum (Pittsburgh). Dunn and Garrett 1997 (p. 172); Williams 1996a (p. 3).

Dendroica castanea [Bay-breasted Warbler]

× *Dendroica coronata* [Myrtle Warbler] NHR. BRO: Canada, ne U.S. A ♀ hybrid was taken in Oct. on Nantucket I., Massachusetts (USNM #567882). Banks and Baird 1978; Brodtkorb 1934; Williams 1996b.

× *Dendroica fusca* (♀) [Blackburnian Warbler] NHR. BRO: Canada, ne U.S. In West Virginia a Blackburnian ♀ nested with a Bay-breasted ♂, which was far outside its normal range. Presumed hybrid offspring were observed. There is also a sight record. Dunn and Garrett 1997; Hurley and Jones 1983; Latta and Parkes 2001 (p. 382).

× *Dendroica striata* [Blackpoll Warbler] NHR. BRO: Canada, ne U.S. Brodtkorb 1934; Graves 1996a[†]; Williams 1996b (p. 3).

Dendroica cerulea [Cerulean Warbler]

× *Mniotilta varia* [Black-and-white Warbler] NHR. BRO: e U.S. Dunn and Garrett 1997; Parkes 1978b.

× *Parula americana* (♂?) [Northern Parula] NHR (Ohio, New York, Pennsylvania). BRO: e U.S. Known as "Parulean Warblers." One at Wildwood

Metropark in Toledo, Ohio in 2004 and 2005 was like a Cerulean but lacked a dark breast band, and had a Parula eye ring. It was bluish above and white below and had light side streaking and two white wingbars. Lindsay and Vezo 1994; Nirschl 2004; Pooth and Johnson 2004. Internet: CINN, OHIO, OHIO2[†], RARE, RBDO.

Dendroica coronata [Myrtle Warbler]

See also: *Dendroica auduboni*; *D. castanea*.

- × *Dendroica dominica* [Yellow-throated Warbler] NHR (e U.S.)? A bird that spent the summer at Stokes State Forest, New Jersey was thought to be either this hybrid or *Dendroica dominica* × *D. magnolia*. *North American Birds* 2003 (p. 574[†]).
- × *Dendroica magnolia* [Magnolia Warbler] NHR. BRO: Canada, ne U.S. A ♂ hybrid was taken on Hispaniola (in Jan.). The previous year it had been in the same location (Jumunucu, Dom. Republic). Its throat and abdomen were white as in *coronata*, its breast, pale yellow (deeper at sides, where *coronata* has a yellow patch). Black lateral breast marks were pointed rearward, as in *coronata*, not rounded as in *magnolia*; from nape down, its back was greenish with hidden black feather centers. Spots on rectrices were intermediate in shape and size (as were tail and wing length). There is a specimen in University of Michigan Museum of Zoology (Field no. DR002, UMMZ #233,474). Latta et al. 1998[†].
- × *Dendroica palmarum* [Palm Warbler] NHR. BRO: Canada. Dunn and Garrett 1997 (p. 276).
- × *Dendroica pinus* [Pine Warbler] NHR. BRO: ne U.S., se Canada. The Smithsonian has a hybrid taken in Union Co. New Mexico in June at 2,400 m (USNM #567885). Dunn and Garrett 1997 (p. 276); Hubbard 1977.
- × *Dendroica tigrina* [Cape May Warbler] NHR. BRO: Canada, ne U.S. Dunn and Garrett 1997 (p. 276); Marks and Willard 1996.
- × *Dendroica townsendi* [Townsend's Warbler] NHR. BRO: w Canada. Dunn and Garrett 1997 (p. 276); McCaskie 1984.

- × *Mniotilta varia* (♂) [Black-and-white Warbler] CHR. BRO: Canada, ne U.S. In a single season, a Black-and-White Warbler at the Montreal Biodôme mated with a Myrtle (or perhaps Audubon's) Warbler and a Black-throated Green Warbler, producing hybrids with both. Internet: MBD.
- × *Parula americana* [Northern Parula] NHR. BRO: ne U.S., se Canada. Dunn and Garrett 1997; Graves 1993b.

Dendroica dominica [Yellow-throated Warbler]

× *Dendroica magnolia* [Magnolia Warbler]

See: *Dendroica coronata* × *D. dominica*.

- × *Parula americana* [Northern Parula] ONHR. HPF? BRO: se U.S. This hybrid has been repeatedly sighted in Pennsylvania and West Virginia (e U.S.). Haller, who first reported it, described it as a new species, Sutton's Warbler (*Dendroica potomac*). Carlson reports 15 separate hybrids of this type (see also Stahl 1986). This hybrid is apparently rather reclusive, and much easier to hear than see. Its call is like that of the Northern Parula, but repeated twice. Sutton's Warblers have been reported as far south as Florida. Probable second generation hybrids have been reported. Carlson 1981; Haller 1940; Stahl 1986; Stevenson and Anderson 1994 (p. 563); Sutton 1942b.

Dendroica fusca [Blackburnian Warbler]

See also: *Dendroica castanea*.

- × *Dendroica kirtlandii* [Kirtland's Warbler] NHR? BRO: n U.S. (Michigan). Latta and Parkes 2001.
- × *Dendroica pensylvanica* [Chestnut-sided Warbler] NHR? A photographed bird is believed to be this hybrid (or possibly *D. fusca* × *Mniotilta varia*). BRO: s Canada, ne U.S. (and s along Appalachians). Dunn and Garrett 1997.
- × *Mniotilta varia* [Black-and-white Warbler] NHR. BRO: s Canada, e U.S. A migrant hybrid was taken in Westmoreland Co., Pennsylvania. Bain reported a second hybrid. Bain 1996; Dunn and Garrett 1997; Latta and Parkes 2001 (p. 382); Parkes 1983. Internet: AVS2.

Dendroica graciae [Grace's Warbler]

See also: *Dendroica auduboni*.

- × *Dendroica nigrescens* [Black-throated Grey Warbler] ENHR. BRO: sw U.S. HPF(♂ & ♀). Analysis of mtDNA has revealed a level of sequence similarity (98.5%) between these birds that suggests that extensive hybridization has occurred. Because mtDNA is maternally inherited, it passes across hybrid zones only when the ♀ hybrids are partially fertile. Since there are no avian crosses known in which ♀ hybrids are fertile and ♂ hybrids are not, it may be presumed in the present case that ♂ hybrids, too, are partially fertile. Lovette and Bermingham 1999 (p. 1634).
- × *Dendroica townsendi* [Townsend's Warbler] NHR? DRS. The Smithsonian database lists a putative ♂ hybrid taken in Grant Co., New Mexico in May 1971 (USNM #576006), but says the specimen may actually be a hybrid between *D. graciae* and *D. nigrescens*. The latter cross is more likely since a cross between *D. graciae* and *D. townsendi* would require vagrant contact.

Dendroica kirtlandii [Kirtland's Warbler]

See: *Dendroica fusca*.

Dendroica magnolia [Magnolia Warbler]

See also: *Dendroica coronata*; *D. dominica*.

- × *Parula americana* [Northern Parula] NHR (New Jersey)? BRO: e Canada, ne U.S. A bird at Stokes State Forest was suspected to be this hybrid (or conceivably an unusual Sutton's Warbler). First sighted in 2002, it returned to in 2003. Sudol describes this bird and its song. Sudol 2004[†]. Internet: FON.

Dendroica nigrescens [Black-throated Grey Warbler]

See also: *Dendroica graciae*.

- × *Dendroica occidentalis* [Hermit Warbler] NHR (w U.S.). BRO: California, Oregon, Washington. A ♀ hybrid nested with a *D. nigrescens* ♂ in the San Gabriel Mts. (s California). Rohwer et al. note a second, ♂ specimen taken in the se Cascades. Dunn and Garrett 1997 (p. 322); Guzy and Lowther 1997 (p. 3); Mickel 1985; Rohwer et al. 2000.

- × *Dendroica townsendi* (♂) [Townsend's Warbler] NHR (N. America). BRO: Washington, British Columbia. HPF Dunn and Garrett 1997; Rohwer 1994.

Dendroica occidentalis [Hermit Warbler]

See also: *Dendroica nigrescens*.

- × ~~*Dendroica tigrina*~~ [~~Cape May Warbler~~] Some authors incorrectly cite Gray (1958) as listing this cross. However, she doesn't.
- × *Dendroica townsendi* (♂) [Townsend's Warbler] ENHR (nw U.S.). HPF(♂ & ♀). Backcrosses occur to both parents. Hybrid zones are in Washington and Oregon s of Puget Sound. Throughout a 2,000 km coastal strip to the n, birds looking like pure Townsend's warblers are usually cytoplasmically hybrid (i.e., they have Hermit Warbler mtDNA). This asymmetric penetration of Hermit Warbler mtDNA into Townsend populations indicates that crossing is predominantly between Hermit ♀♀ and Townsend ♂♂. Pearson and Rohwer (2000) showed that Townsend's ♂♂ outcompete Hermit ♂♂ for mates. In winter these birds occur together in mixed flocks. Hybrids have Hermit's face pattern (genetically dominant), but underparts of Townsend's; back usually greener than in pure Hermit; black at the rear crown may come further forward in ♂ hybrids than in pure Townsend's. Song resembles Hermit's, but hybrids respond to song of both parents. First fall hybrids may closely resemble Black-throated Green Warbler. Curson et al. 1994 (p. 39[†]); DiCostanzo 2003; Dunn and Garrett 1997 (pp. 321–322, 325[†]); Eckert 2001; Gill 1998; Innes and Innes 1997; Jewett 1944; Lovette et al. 1999; Mactavish 1996[†]; Morrison and Hardy 1983; Owen-Ashley and Butler 2004; Pearson 1997, 2000; Pearson and Manuwal 2000; Pearson and Rohwer 1998, 2000; Rohwer 2004; Rohwer and Wood 1998; Rohwer et al. 2000, 2001; Smith and Rohwer 2000.

Dendroica palmarum [Palm Warbler]

See: *Dendroica coronata*. Two populations (*hypochrysea*, *palmarum*), treated as races of

this bird, hybridize in w Quebec.

Dunn and Garrett 1997 (pp. 370, 373);
Griscom and Sprunt 1957.

Dendroica pensylvanica [Chestnut-sided Warbler] See: *Dendroica fusca*; *Mniotilta varia* × *Vermivora chrysoptera*.

Dendroica petechia [Yellow Warbler]

See also: *Dendroica caerulescens*.

× ***Protonotaria citrea*** (♂) [Prothonotary Warbler] NHR. BRO: e U.S. Gunn reports a mixed pair in Ontario that produced young. There is also a report (from w New York) of a Prothonotary Warbler singing the song of *D. petechia* and of the former tending the nests and young of the latter. Beardslee and Mitchell 1965; Gunn 1958.

Dendroica pinus [Pine Warbler] See: *Dendroica coronata*.

Dendroica potomac [Sutton's Warbler]

See: *Dendroica dominica* × *Parula americana*.

Dendroica striata [Blackpoll Warbler]

See also: *Dendroica castanea*.

× ***Dendroica tigrina*** [Cape May Warbler] BRO: se Canada. Audubon (1831, p. 308) depicted and described the Carbonated Warbler from two specimens he collected near Henderson, Kentucky in May, 1811. The specimens are lost, but it has been suggested they were hybrids produced from this cross. Parkes argued that they might have been immature Cape May Warblers. BRO: ne U.S., Canada. Audubon 1831–1839; Brewster 1881 (p. 225); Coues 1927 (p. 332); Dunn and Garrett 1997 (p. 254); Hertzell and Hertzell 1995; Parkes 1995; Ridgway 1901–1950 (Part 2, p. 540); Suchetet 1897a (p. 347).

× ***Seiurus noveboracensis*** [Northern Waterthrush] NHR? BRO: se Canada. Short and Robbins (1967) identified a specimen (USNM #481595) collected in Maryland (Ocean City) as the product of a Northern Waterthrush/Blackpoll cross, but Parkes (1995) suggests that it may actually represent a cross between *S. noveboracensis* and the Cape May Warbler (*D. tigrina*). Dunn and Garrett 1997 (pp. 389, 465); Parkes 1995. Internet: BLK.

Dendroica tigrina [Cape May Warbler]

See also: *Dendroica coronata*; *D. occidentalis*; *D. striata*.

× ***Dendroica townsendi*** [Townsend's Warbler] NHR. BRO: sw Canada. Some authors incorrectly cite Gray (1958) as listing this cross. She doesn't. However, a bird photographed near Oxnard, California in early Oct. 2004 was suspected to be this hybrid. It had a long tail, bold white wing bars, and extensive white auriculars lacking chestnut (suggesting *D. townsendi*), but extensive ventral streaking and greenish-yellow rump (suggesting *D. tigrina*). *North American Birds* 2005 (p. 192').

× ***Seiurus noveboracensis*** [Northern Waterthrush] See: *Dendroica striata* × *Seiurus noveboracensis*.

Dendroica townsendi [Townsend's Warbler]

See also: *Dendroica coronata*; *D. graciae*; *D. nigrescens*; *D. occidentalis*; *D. tigrina*.

× ***Dendroica virens*** [Black-throated Green Warbler] NHR (Canada). HPF. BRO: sw Alberta. Backcrosses occur to Townsend's (an individual that appeared exactly identical to Townsend's was shown to be genetically hybrid). Dunn and Garrett 1997 (p. 305); Rohwer 1994.

Dendroica virens [Black-throated Green Warbler]

See also: *Dendroica townsendi*.

× ***Mniotilta varia*** (♂) [Black-and-white Warbler] CANHR. BRO: Canada, ne U.S., Appalachian Mts. See: *Dendroica coronata* × *Mniotilta varia*. Bledsoe 1988a; Curson et al. 1994 (p. 132).

Geothlypis beldingi [Belding's Yellowthroat]

× ***Geothlypis trichas*** [Common Yellowthroat] ENHI. A geographically and morphologically intermediate population (*goldmani*) in Baha California is a PHP of this cross. Dunn and Garrett say if these birds were lumped, *goldmani* would "represent intergradation between the two groups." Dunn and Garrett 1997 (p. 528).

Geothlypis poliocephala [Grey-crowned Yellowthroat]

× ***Geothlypis trichas*** [Common Yellowthroat] NHR (Texas, U.S.). BRO: e and w coasts of

Mexico. A hybrid has been observed nesting with a Common Yellowthroat ♀. According to the Texas Bird Records Committee, this hybrid “has been videotaped, audiotaped, photographed, measured, and scrutinized by many observers since its discovery in late 1995.” This hybrid occurred n of the main region of range overlap between the putative parents. A second probable hybrid of this type was sighted in ne Mexico. Dunn and Garrett 1997 (p. 539); Sibley 2000. Internet: ERL, SRF, TRP.

Geothlypis trichas [Common Yellowthroat]

See also: *Geothlypis beldingi*; *G. poliocephala*.

- × ***Oporornis philadelphia*** [Mourning Warbler] NHR. BRO: ne U.S., se Canada. Aubry et al. 1989; Bledsoe 1988a; Dunn and Garrett 1997; Taylor 1976; Vallely and Fiore 1999.

Helminthophaga cincinnatiensis [Cincinnati Warbler] See: *Oporornis formosus* × *Vermivora pinus*.

Mniotilta varia [Black-and-white Warbler]

See also: *Dendroica cerulea*; *D. coronata*; *D. fusca*; *D. virens*.

- × ***Vermivora chrysoptera*** [Golden-winged Warbler] NHR (n. U.S.)? A suspected hybrid was tape recorded, captured, banded, and photographed in Macomb County, Michigan in May 2005. Some suggested the cross was *M. varia* × *Dendroica pensylvanica*, but the presence of a black throat patch strongly suggests *V. chrysoptera*. Internet: AMAZ.

Myioborus chrysops [Andean Redstart]

- × ***Myioborus melanocephalus*** [Spectacled Redstart] ENHR. BRO: n S. America. Hybrids occur in Nariño, s Colombia, and, perhaps, n Ecuador. Curson et al. suggest that this hybridization is reason for lumping these taxa. Hybrids differ from *M. melanocephalus* in having ocular area, forecrown, and sometimes front of ear coverts yellow; the yellow joins directly with rufous crown and is not surrounded by black as in pure Spectacled; tail pattern resembles Golden-fronted, as does golden-yellow of the head and underparts. Curson et al. 1994 (pp. 201–203).

- × ***Myioborus ornatus*** [Golden-fronted Redstart] NHR (Colombia). These birds are

often lumped. There are hybrids in the Smithsonian (USNM #024971, #470512).

Myioborus melanocephalus [Spectacled Redstart]

See also: *Myioborus chrysops*.

- × ***Myioborus ruficoronatus*** [Rufous-crowned Redstart] ENHR (n Peru). A population w of the Rio Marañon is a PHP of this cross. Due to hybridization, these birds are now usually lumped. Fjeldså and Krabbe 1990; Ridgely and Tudor 1994; Zimmer 1949.

Myioborus ornatus [Golden-fronted Redstart]

See: *Myioborus chrysops*.

Myioborus ruficoronatus [Rufous-crowned Redstart] See: *Myioborus melanocephalus*.

Oporornis agilis [Connecticut Warbler]

- × ***Oporornis philadelphia*** [Mourning Warbler] NHR (cen. U.S.). BRO: Canada, n U.S.

A hybrid was taken in Oklahoma on May 19, 1959. The Oklahoma University Museum of Zoology has a hybrid (#3565). Sutton says “it has the black bib, bright yellow under parts, and wing length of *philadelphia* (58), and the gray, rather than black, lores, white eye ring, short tail (46), and very long under tail coverts of *agilis*.” Sutton 1967 (p. 518).

- × ***Wilsonia canadensis*** [Canada Warbler] NHR?? BRO: Canada, n U.S. Internet: AVS1.

Oporornis formosus [Kentucky Warbler]

- × ***Oporornis philadelphia*** [Mourning Warbler] NHR?? BRO: s rim of Great Lakes. Sighted birds (Minnesota) may have been hybrids of this type. Millard 1985; Pearson 1964.

× ***Vermivora pinus*** [Blue-winged Warbler]

NHR. BRO: e U.S. HPP? A specimen collected in 1880 by Langdon was listed as a species, *Helminthophaga cincinnatiensis* Langdon (Cincinnati Warbler), but has since been identified as a Blue-winged × Kentucky warbler hybrid. A second specimen collected in 1948 was identified at the time by Sutton (see McCamey 1950) as a Blue-winged × Mourning (*Oporornis philadelphia*) hybrid. In a more recent paper, Graves (1988) suggests that it is a second Blue-winged × Kentucky hybrid and that it might be the product of a backcross to *V. pinus*, which, if correct, would indicate fertility in the hybrids. A bird described by Millard may also have been a hybrid of

this type. Busam 2001; Dunn and Garrett 1997 (pp. 131, 495, 499); Graves 1988; Langdon 1880; McCamey 1950; Millard 1985; Ridgway 1880, 1901–1950 (Part 2, p. 446).

Oporornis philadelphia [Mourning Warbler]
See also: *Geothlypis trichas*; *Oporornis agilis*; *O. formosus*.

× ***Oporornis tolmiei*** [MacGillivray's Warbler] ONHR (w Canada). BRO: sw Alberta, ne British Columbia. These birds are often lumped. Although there is dissent concerning the frequency with which this cross occurs (hybrids can be hard to identify), the evidence suggests that hybrids occur regularly, perhaps, even commonly. Many Mourning Warblers have broken eye rings, which suggests gene flow from *O. tolmiei*. Beimborn 1977; Cox 1973; Hall 1979; Harrison 1984; Hofslund 1962; Kowalski 1983; Morse 1989; Patti and Myers 1976; Phillips 1947; Pitocchelli 1990, 1992, 1993, 1995; Taverner 1919.

× ***Setophaga ruticilla*** [American Redstart] NHR (Ontario)? BRO: Canada, nw U.S. A bird suspected to be this hybrid was sighted at Old Cut, Long Point. It had the back, wing bars, and tail of a ♀ Redstart, but had the gray head and black chest wreath of a Mourning Warbler. Internet: ONTB.

× ***Vermivora pinus*** [Blue-winged Warbler]
See: *Oporornis formosus* × *Vermivora pinus*.

× ***Wilsonia canadensis*** [Canada Warbler] NHR. BRO: Canada, ne U.S. The Smithsonian has a hybrid (USNM #403437) taken in Colombia (Antioquia) in March. Bledsoe 1988a; Rappole 1983.

Oporornis tolmiei [MacGillivray's Warbler]
See: *Oporornis philadelphia*.

Note: Two populations (*americana*, *ludoviciana*), treated as races of the Northern Parula, have a narrow hybrid zone near the Alabama–Mississippi state line (se U.S.). Birds on either side of the zone are vocally distinct. Dunn and Garrett 1997 (pp. 196, 200). Internet: WFR.

Parula americana [Northern Parula]
See: *Dendroica cerulea*; *D. coronata*; *D. dominica*; *D. magnolia*.

× ***Parula pitiayumi*** [Tropical Parula] ENHR (s U.S.). Mixed nesting pairs and numerous hybrids are reported in ext. s Texas (cen. Val Verde Co.). Apparently, no formal study has been made of this contact region, but distribution data and Internet reports suggest that the hybrid zone is narrow. These birds are sometimes lumped. Lockwood and Freeman 2004; Rappole and Blacklock 1994; Thornton and Thornton 1999. Internet: WFR.

× ***Setophaga ruticilla*** [American Redstart] NHR. BRO: e N. America. A ♀ hybrid was taken in Aug. 1938 on Cat I., Mississippi (USNM #396083). A second apparent hybrid was sighted in sw Ontario (near Thornbury) in June 2003. Burleigh 1944; Kamstra 2003.

Parula pitiayumi [Tropical Parula]
See also: *Parula americana*.

× ***Parula superciliosa*** [Crescent-chested Warbler] NHR (Texas, U.S.). BRO: highlands of Cen. America. Rappole and Blacklock 1994; Thornton and Thornton 1999. Internet: TXB.

Parula superciliosa [Crescent-chested Warbler]
See: *Parula pitiayumi*.

Protonotaria citrea [Prothonotary Warbler]
See: *Dendroica petechia*.

Seiurus noveboracensis [Northern Waterthrush]
See: *Dendroica striata*; *D. tigrina*.

Setophaga ruticilla [American Redstart]
See also: *Oporornis philadelphia*; *Parula americana*.

× ***Vermivora ruficapilla*** [Nashville Warbler] NHR. BRO: se Canada, ne U.S. Probable hybrids have been reported from both California and Missouri. Dunn and Garrett 1997 (p. 425); Sibley 1994[†] (p. 175).

Teretistris fernandinae [Yellow-headed Warbler]

× ***Teretistris fornsi*** [Oriente Warbler] PCZ (n coast of Cuba, ne of Colón). No hybrids as yet reported. Garrido and Kirkconnell 2000 (p. 201).

Vermivora chrysoptera [Golden-winged Warbler]
See: *Mniotilta varia*.

× *Vermivora pinus* (♀) [Blue-winged Warbler] ENHR. HPF(♂&♀). BRO: se Canada and U.S. (ne and Appalachian Mts.). This is one of the earliest recognized and most studied natural avian crosses. The F₁ hybrid is known as Brewster's Warbler (later-generation matings can produce similar-looking birds). A type that arises only in later-generation mating is the different-looking Lawrence's Warbler. When these two birds were described as species in the 1870s (*Vermivora leucobronchialis* and *V. lawrencei*), it sparked an ornithological debate that lasted half a century. Many ornithologists could not believe these birds were of hybrid origin. Sibley details the appearance of a variety of hybrids derived from this cross. Brewster's ♂♂ show dominant traits of both parents, for instance, white underparts of a Golden-winged, with reduced facial pattern (eye-line only) of a Blue-winged. Lawrence's resembles a Blue-winged, but with a dark throat patch. The dark face and throat pattern of the Golden-winged are usually inherited as a unit, but some hybrids show only part of the pattern. The traits characteristic of Lawrence's appear in individuals homozygous for a set of recessive genes. Ongoing hybridization and backcrossing produces a continuum of variation between the two parental types, but Brewster's Warbler is more common than Lawrence's. Products of multiple backcrossing may closely resemble Golden-winged Warblers, but have whitish throats and white mixed with the black of the auriculars; others look like Blue-wingeds, but show some black on the throat. Many birds are not obvious hybrids, but have mixed genes. The contact zones are mobile, with the Blue-winged Warbler taking over more territory from the Golden-winged every year. Gill (1980) has suggested that *V. chrysoptera* may eventually be driven to extinction as it recedes under this onslaught of hybridization. However, this outcome is not certain—shifts in the contact zones may simply reflect changes in climate and agriculture. They may eventually stabilize in regions where the Golden-winged

is better able to compete. Confer and Tupper (2000) found that 10% of birds in the s Hudson Highlands (New York) were hybrid. They say (p. 546) both that hybrids stop singing earlier than non-hybrids, and that this factor may have led to an underestimate of hybrid frequencies because "most of the fieldwork by previous researchers in this area was conducted after the date when hybrids cease singing." Near the contact zones, birds that look like pure Golden-winged Warblers frequently have Blue-winged mtDNA, which probably indicates that the cross is strongly directional (i.e., that Blue-winged Warblers participating in the cross are usually ♀). Alexander 1919; Bannon 1986; Barker 2002; Barten 1964; Beebe 1904; Bishop 1905; Bledsoe 1985; Brethwaite 1986; Brewster 1876, 1881, 1886; Broun 1935; Brown 1934; Campbell and Campbell 1934; Carpenter 1983; Carter 1944; Carter and Howland 1923; Chapman 1924; Confer and Knapp 1981; Confer and Larkin 1998; Confer and Tupper 2000; Confer et al. 1998; Cramer 1931, 1932; Crook 1984; Dunn and Garrett 1997[†]; Faxon 1911, 1913; Ficken and Ficken 1967; Fisher 1885; Forbush 1929 (p. 214); Frech and Confer 1987; Gill 1980, 1985, 1987, 1997, 2004; Gill and Murray 1972; Garrett and Wilson 2003[†]; Godfrey 1966; Hicks 1929, 1935 (p. 168); Howell and Webb 1992; Jones and McLaren 1997; Meanley 1944; Meeker 1906; Moore 1916; Morss 1926; Murray and Gill 1976; Nichols 1908; Olsen 1935; Osgood 1907; Parkes 1949, 1951; Peterson 1991; Pitelka 1938, 1939; Punnett 1926; Richardson 1928; Richmond 1895; Ridgway 1876, 1882, 1885, 1901–1950 (Part 2, p. 453); Robbins 1995; Roberts 1986; Roland 1928; Sage 1889; Seibert 1941; Shapiro et al. 2004; Short 1963, 1964, 1969a, 1969b; Sibley 2000 (p. 428[†]); Stenzler et al. 2004; Stone 1913; Suchetet 1897a; Sutton 1928 (p. 206); Thurber 1886; Tove 1982; Trotter 1887; Tucker 1928; Walkinshaw 1931; Watterson 1928; White 1936.

Vermivora lawrencei [Lawrence's Warbler]

See: *Vermivora chrysoptera* × *V. pinus*.

Vermivora leucobronchialis [Brewster's Warbler]

See: *Vermivora chrysoptera* × *V. pinus*.

Vermivora peregrina [Tennessee Warbler]

- × ***Vermivora ruficapilla*** [Nashville Warbler]
NHR. BRO: ne U.S., se Canada. A few obvious (F₁?) hybrids are known. Also, in specimens described as Tennessee Warblers, Dick and James found rufous crown feathers, a trait of Nashvilles, on 6% of adult ♂ birds. Bledsoe 1988a; Dick and James 1996; Dunn and Garrett 1997 (p. 172); Parkes 1996; Williams 1996a (p. 3).

Vermivora pinus [Blue-winged Warbler]

See also: *Oporornis formosus*; *O. philadelphia*; *Vermivora chrysoptera*.

- × ***Vermivora ruficapilla*** [Nashville Warbler]

A mixed pair nested together, but they were collected (before any eggs could hatch). BRO: ne U.S. Dunn and Garrett 1997 (p. 131).

Vermivora ruficapilla [Nashville Warbler]

See: *Dendroica caerulescens*; *Setophaga ruticilla*; *Vermivora peregrina*; *V. pinus*.

Wilsonia canadensis [Canada Warbler]

See also: *Oporornis agilis*; *O. philadelphia*.

- × ***Wilsonia citrina*** [Hooded Warbler] NHR??

BRO: Canada, ne U.S. A single very old report. Suchetot 1897a.

Tanagers, Cardinals, and Their Allies**Families Cardinalidae, Coerebidae,****Emberizidae, Thraupidae*****Aimophila botterii*** [Botteri's Sparrow]

- × ***Aimophila petenica*** [Peten Sparrow] ENHR (se Mexico). Due to hybridization these birds are now usually lumped. Phillips 1943; Sibley and Monroe 1990 (p. 723); Webb and Bock 1996 (p. 4); Wolf 1977.

Ammodramus caudacutus [Sharp-tailed Sparrow]

- × ***Ammodramus leconteii*** [Le Conte's Sparrow] NHR (Ontario). BRO: n U.S., w Canada. Murray describes a hybrid taken at the mouth of the Moose R. (Nat. Mus. Canada, #CNM 36939). Murray 1968*.

- × ***Ammodramus maritimus*** (♀) [Seaside Sparrow] NHR. BRO: e coast of U.S. Montagna 1942; Sage et al. 1913.

- × ***Ammodramus nelsoni*** [Nelson's Sharp-tailed Sparrow] ENHR. Hybrid zone is in ne U.S. (s Maine to n Massachusetts). Although they differ in song, size, genetics, and behavior, these birds have often been treated as conspecific due to hybridization. They are lumped by Sibley and Monroe (1990), but split by the 1998 AOU Checklist. Hybrids are similar to race *alterus* of *A. nelsoni*. Greenlaw 1993; Greenlaw and Rising 1994 (p. 3); Montagna 1940, 1942; Rising and Avise 1993; Sibley 1996.

Ammodramus leconteii [Le Conte's Sparrow]

See: *Ammodramus caudacutus*.

Ammodramus maritimus [Seaside Sparrow]

See: *Ammodramus caudacutus*.

Ammodramus nelsoni [Nelson's Sharp-tailed Sparrow] See: *Ammodramus caudacutus*.***Ammodramus savannarum*** [Grasshopper Sparrow]

- × ***Passerculus sandwichensis*** (♂) [Savannah Sparrow] NHR. BRO: N. America. Dickerman describes a hybrid (juv. ♀) taken at the n end of Lago Texcoco, Valley of Mexico. It largely lacked the breast streaking typical of both parents. Jones et al. took another probable hybrid (♂) in Massachusetts in May. It sang both parents' songs. Dickerman 1968*; Jones et al. 2003.

Arremonops chloronotus [Green-backed Sparrow]

- × ***Arremonops rufiviratus*** [Olive Sparrow] NHR. BRO: Yucatan Penin. Hybrids were taken 6.5 km s of Felipe Carrillo Puerto, cen. Quintana Roo. In addition, a population, *twomeyi*, has been treated as a race of both these birds, and is geographically and morphologically intermediate. It is thus a PHP of this cross. Howell and Webb 1995 (pp. 694, 695); Parkes 1974 (p. 295).

Atlapetes albiceps [White-headed Brush-Finch]

- × ***Atlapetes leucopterus*** [White-winged Brush-Finch] NHI (n Peru)? ACZ? Intermediate specimens occur in near Palambra, Piura.

Fitzpatrick suggests that they are partial albinos, not hybrids. Fitzpatrick 1980 (p. 886).

Atlapetes atricapillus [Black-headed Brush-Finch]

× ***Atlapetes torquatus*** [Stripe-headed Brush-Finch] ENHI (Cen. America). A population, *costaricensis*, of Panama and Costa Rica has been alternately treated as a race of either of *A. atricapillus* or *A. torquatus*, or as a separate species. This history of treatment, along with the geographic intermediacy of *costaricensis*, suggest it as a PHP of this cross. Fjeldsá and Krabbe 1990; Ridgely and Tudor 1989; Wetmore et al. 1984.

Atlapetes leucopterus [White-winged Brush-Finch]

See also: *Atlapetes albiceps*.

× ***Atlapetes nationi*** [Rusty-bellied Brush-Finch] NHR. BRO: nw Peru, s Ecuador. Fjeldsá and Krabbe 1990.

Atlapetes nationi [Rusty-bellied Brush-Finch]

See: *Atlapetes leucopterus*.

Atlapetes torquatus [Stripe-headed Brush-Finch] See: *Atlapetes atricapillus*.

Calcarius lapponicus [Lapland Longspur]

× ***Plectrophenax nivalis*** [Snow Bunting] NHI. BRO: n Eurasia, n N. America. This hybrid has a ring number, but there is no published report. Internet: FOTO5.

Calcarius mccownii [McCown's Longspur]

× ***Calcarius ornatus*** [Chestnut-collared Longspur] NHR. BRO: prairies of n. cen. U.S., s cen. Canada. A ♂ hybrid was taken 29 km e of Regina, Saskatchewan, in June (near Kronau). In display, its song flight was like McCown's, but the song itself just like Chestnut-collared's. It was intermediate with respect to many different traits. Sibley and Pettingill 1955.

Calcarius ornatus [Chestnut-collared Longspur] See: *Calcarius mccownii*.

Camarhynchus aureus [Yellow-bellied Ground-Finch] See: *Camarhynchus parvulus* × *Certhidea olivacea*.

Camarhynchus conjunctus [Swarth's Ground-Finch] See: *Camarhynchus parvulus* × *Certhidea olivacea*.

Camarhynchus giffordi [Gifford's Ground-Finch] See: *Camarhynchus pallidus* × *Certhidea olivacea*.

Camarhynchus pallidus [Woodpecker Finch]

× ***Certhidea olivacea*** [Warbler Finch] NHR (Galapagos). Gifford's Ground-Finch (*Camarhynchus giffordi*), based on a specimen from Santa Cruz I., is now deemed this hybrid. Lack 1947; Paynter 1970. Internet: REM.

Camarhynchus parvulus [Small Tree-Finch]

× ***Camarhynchus pauper*** [Medium Tree-Finch] NHR. BRO: Galapagos Is. (Floreana I.). Lack 1947.

× ***Camarhynchus psittacula*** [Large Tree-Finch] ONHR (Galapagos Is.). Bowman 1983; Lack 1947 (Table XXXII); Paynter 1970.

× ***Certhidea olivacea*** [Warbler Finch] NHR (Galapagos Is.). This hybrid, known from three specimens, has been treated as a species under two names, the Yellow-bellied Ground-Finch (*Camarhynchus aureus*) and Swarth's Ground-Finch (*Camarhynchus conjunctus*). Bowman 1983; Grant 1999; Grant et al. 2005; Lack 1947 (p. 98 and Table XXXII); Paynter 1970. Internet: REM.

Camarhynchus pauper [Medium Tree-Finch] See: *Camarhynchus parvulus*.

Camarhynchus psittacula [Large Tree-Finch] See: *Camarhynchus parvulus*.

Cardinalis cardinalis [Northern Cardinal]

× ***Cardinalis sinuatus*** [Pyrrhuloxia] CANHR. BRO: sw U.S. A ♀ hybrid was collected in Feb., at Komatke, Arizona. Also, the Arizona-Sonora Desert Museum (Tucson, Arizona) had two hybrids in August 2004. Rea 1983; Walkosak 2004.

× ***Gubernatrix cristata*** (♀) [Yellow Cardinal] CHR. DRS. Barnett 1927; Hopkinson 1926 (pp. 178, 197); Page 1914b (p. 37); Silver 1911 (p. 348).

× ***Paroaria coronata*** (↔ usu. ♂) [Red-crested Cardinal] CHR. DRS. These birds are sometimes placed in different families. Anonymous 1907b; *Bird Notes* 1907b; Hopkinson 1926 (pp. 178, 197); Silver 1911 (p. 348); Wolf 1975.

Cardinalis sinuatus [Pyrrhuloxia] See: *Cardinalis cardinalis*.

Certhidea olivacea [Warbler Finch]

See: *Camarhynchus pallidus*; *C. parvulus*.

Chlorophanes purpurascens [Purplish

Honeycreeper] See: *Chlorophanes spiza* × *Cyanerpes cyaneus*; *Chlorophanes spiza* × *Dacnis cayana*.

Chlorophanes spiza [Green Honeycreeper]

× *Cyanerpes caeruleus* (♂) [Purple Honeycreeper] CHR. BRO: n S. America (Amazonia). Kleefisch 1983; Nørgaard-Olesen 1971.

× *Cyanerpes cyaneus* (↔) [Red-legged Honeycreeper] CANHR. BRO: w Amazonia. The Purplish Honeycreeper (*Chlorophanes purpurascens*), based on a specimen from Caracas, Venezuela, is now deemed the product of this cross (or the cross *Chlorophanes spiza* × *Dacnis cayana*). Storer describes a hybrid. This cross connects families Thraupidae and Coerebidae. Auber 1974; IZY 1971; Isler and Isler 1987 (p. 337); Nørgaard-Olesen 1971; Storer 1957; Wolters 1975–1982 (p. 350). Internet: REM.

× *Dacnis cayana* [Blue Dacnis] NHR. BRO: Amazonia. The Purplish Honeycreeper (*Chlorophanes purpurascens*), based on one specimen from Caracas, Venezuela, is now considered to be the product of this cross (or of the cross *Chlorophanes spiza* × *Cyanerpes cyaneus*). Auber 1974; Isler and Isler 1987 (p. 337); Storer 1957. Internet: REM.

Chlorospingus flavigularis [Yellow-throated Bush-Tanager]

× *Chlorospingus ophthalmicus* [Brown-headed Bush-Tanager] ENHI. Ridgely notes that the Tacarcuna Bush-Tanager, *C. tacarcunae*, is often treated as a race either of *C. flavigularis* or *C. ophthalmicus*. This history of treatment suggests *C. tacarcunae* as a PHP of this cross. Ridgely 1976 (p. 327); Sibley and Monroe 1990.

Chlorospingus ophthalmicus [Brown-headed Bush-Tanager]

See also: *Chlorospingus flavigularis*.

× *Chlorospingus punctulatus* [Dotted Bush-Tanager] ENHI (w Panama). A population, *novicus*, is geographically and morphologically

intermediate and, thus, a PHP of this cross.

Olson notes that *novicus* has a very restricted range, extending from the Boquete area to the Caribbean slope of Bocas del Toro, which suggests that *novicus* may actually represent birds collected from a narrow hybrid zone. Since Zimmer found that *novicus* is intermediate, these birds have often been lumped. Olson 1981c (pp. 365–367); Zimmer 1944.

Chlorospingus pileatus [Sooty-capped Bush-Tanager]

× *Chlorospingus zeledoni* [Volcano Bush-Tanager] A mixed pair has been sighted (Costa Rica). The Volcano Bush-Tanager has never been found, even locally, in the absence of the Sooty-capped. On the basis of these and other data, Johnson and Brush suggested that these birds should be lumped. However, the situation (particularly the extremely restricted distribution of *C. zeledoni*) seems equally consistent with the supposition that the rare Volcano Bush-Tanager is the last remnant of a population undergoing genetic swamping by *C. pileatus*. Johnson and Brush 1972.

Chlorospingus punctulatus [Dotted Bush-Tanager] See: *Chlorospingus ophthalmicus*.***Chlorospingus tacarcunae*** [Tacarcuna Bush-Tanager] See: *Chlorospingus flavigularis* × *C. ophthalmicus*.***Chlorospingus zeledoni*** [Volcano Bush-Tanager] See: *Chlorospingus pileatus*.***Conirostrum ferrugineiventre*** [White-browed Conebill]

× *Oreomanes fraseri* [Giant Conebill] NHR (Puno, se Peru). BRO: Peru and Bolivia. Peters (1986) classified conebills of genus *Conirostrum* as parulids, but the AOU Checklist (1983, 1998) treats them as part of the tanager assemblage. Fjeldså and Krabbe 1990; Isler and Isler 1987 (p. 348); Ridgely and Tudor 1989 (p. 206); Schulenberg 1985.

Coryphospingus cucullatus [Red-crested Finch]

× *Coryphospingus pileatus* [Pileated Finch] CAONHR (s Brazil). A PCZ (hybrid zone?) stretches from the Bolivian border to Rio de Janeiro. These birds have been treated both

as finches and as tanagers. *Avicultural Magazine* 1934 (p. 38); Machado 1975a; Sibley and Monroe 1990.

Coryphospingus pileatus [Pileated Finch]

See also: *Coryphospingus cucullatus*.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Cyanerpes caeruleus [Purple Honeycreeper]

See also: *Chlorophanes spiza*.

× *Cyanerpes lucidus* [Shining Honeycreeper] PCZ at Colombian–Peruvian border. No hybrids as yet reported. Haffer 1975; Wetmore et al. 1984.

Cyanerpes cyaneus [Red-legged Honeycreeper]

See also: *Chlorophanes spiza*.

× *Tangara nigrocincta* (♀) [Masked Tanager] CHR. BRO: s Cen. America., n S. America. A mixed pair in the Hummingbird Aviary, San Diego Zoo, in 1970, fledged two pairs of hybrid young. Incubation was 13–14 days. Red-legged Honeycreepers have the longest bills in their group (which is already made up of long-billed birds). A Masked Tanager's bill is short and thick. Both parents were taken in San Jose, Costa Rica. This cross connects families Thraupidae and Coerebidae. Delacour 1972a, 1972b⁺; Lint 1975.

Cyanerpes lucidus [Shining Honeycreeper]

See: *Cyanerpes caeruleus*.

***Cyanocompsa* sp.**

× *Oryzoborus* sp. NHR? BRO: S. America. Sick 1993 (p. 595).

Cyanocompsa brissonii [Ultramarine

Grosbeak]

× *Sporophila caeruleascens* [Double-collared Seedeater] NHR. BRO: Paraguay, s Brazil, Bolivia, nw Argentina. Machado 1975a; Coimbra-Filho and Teixeira 1983.

Cyanoloxia glaucocaulia [Indigo Grosbeak]

× *Oryzoborus* sp. NHR? BRO: S. America. Sick 1993 (p. 595).

Dacnis cayana [Blue Dacnis] See:

Chlorophanes spiza.

Diglossa aterrima [All-black Flower-piercer]

× *Diglossa brunneiventris* [Black-throated Flower-piercer] NHR (Peru). These birds meet 7 km sse of Cutervo where they

have been observed in mixed pairs (♂ *D. aterrima* × ♀ *D. brunneiventris*). Graves 1982.

× *Diglossa humeralis* [Black Flower-piercer] NHR (Colombia). Hybrids are known from Páramo de Sonsón (Antioquia) and Laguneta (Caldas). Graves 1982; Zimmer 1929.

Diglossa baritula [Cinnamon-bellied Flower-piercer]

× *Diglossa plumbea* [Slaty Flower-piercer] ENHI. Hellmayr et al. say specimens of *D. baritula* from Guatemala take “a decided step” in the direction of *D. plumbea*. Hellmayr et al. 1918– (Part VIII, footnote, p. 221).

Diglossa brunneiventris [Black-throated Flower-piercer]

See also: *Diglossa aterrima*.

× *Diglossa carbonaria* [Grey-bellied Flower-piercer] ENHR (w Bolivia). A narrow hybrid zone (no more than 10 km wide) exists 30 km ne of La Paz. These birds are often treated as conspecific. The Smithsonian has a specimen (USNM #211680). Fjeldså and Krabbe 1990; Graves 1982; Niethammer 1956 (pp. 128–129); Ridgely and Tudor 1989; von Berlepsch 1902; Vuilleumier 1969; Zimmer 1929.

× *Diglossa humeralis* [Black Flower-piercer] NHR. ENHI (cen. Cajamarca, Colombia). Graves notes that *D. gloriosa* (Merida Flower-piercer), a bird of the Venezuelan Andes (Cordillera Merida) is morphologically intermediate. The geographic distribution of *D. gloriosa* suggests that it may be the remnant of a geographic isolate of *D. brunneiventris* that has been swamped by interbreeding with *D. humeralis*. Graves 1982.

Diglossa carbonaria [Grey-bellied Flower-piercer] See: *Diglossa brunneiventris*.

Diglossa gloriosa [Merida Flower-piercer] See: *Diglossa brunneiventris* × *D. humeralis*.

Diglossa humeralis [Black Flower-piercer] See also: *Diglossa aterrima*; *D. brunneiventris*.

× *Diglossa nocticolor* [Santa Marta Flower-piercer] ENHR (Colombia). Graves found that all available specimens from Serranía de

Perijá were hybrid. These taxa are now usually lumped. Graves 1982; Zimmer 1929.

Diglossa nocticolor [Santa Marta

Flower-piercer] See: *Diglossa humeralis*.

Diglossa plumbea [Slaty Flower-piercer]

See: *Diglossa baritula*.

Diuca diuca [Common Diuca-Finch]

× *Gubernatrix cristata* [Yellow Cardinal]

ONHR (cen. Argentina). BRO: Gulf of San Matías n to Córdoba. Bertonatti and Guerra 1997.

× *Molothrus badius* (♀) [~~Bay-winged Cowbird~~]

Some cite Shore-Baily (1917, p. 16) or Gray (1958) for this cross. They reported only nesting in captivity.

Emberiza bruniceps [Red-headed Bunting]

- × *Emberiza melanocephala* [Black-headed Bunting] ENHR (n and s ends of Caspian Sea). HPF(vh). A narrow contact zone exists in n Iran, where hybrids are common; a second, less well-studied zone of contact exists along the left bank of the River Volga (on the edge of w Kazakhstan). Intermediates of all degrees occur. Many ♂ hybrids have both rufous and green on mantle; ♀ hybrids are hard to identify because parental ♀♀ are nearly indistinguishable. These birds flock together during winter in India and many birds seen there are intermediate. They are sometimes lumped. Belousov 1999; Byers et al. 1995 (p. 183); Haffer 1977a; Mayr 1942; Paludan 1939; Panov 1989; Schüz 1959; Sibley and Monroe 1990.

- × *Passer indicus* (♂) [Indian House Sparrow] Free-living pairs have been observed nesting together. Old reports. No hybrids were reported. Poll 1911c; Suchetet 1897a.

Emberiza cirius [Cirl Bunting]

- × *Emberiza citrinella* [Yellowhammer] CANHR. BRO: s Europe. Shephard 1954; Suchetet 1897a (p. 271).

Emberiza citrinella [Yellowhammer]

See also: *Carduelis carduelis*; *C. chloris*; *Emberiza cirius*; Appendix 2.

- × *Emberiza leucocephalos* [Pine Bunting] ENHR (Russia). HPF(♂ & ♀). Intensive hybridization occurs in w Siberia and adjacent foothills of nw Altai Mts., but is

only occasional at the eastern end of the zone (Lake Baikal region). Hybrids are also common in e Kazakhstan, and have been repeatedly reported from Britain and adjacent islands. F₁ hybrids look like Pine Buntings, but with yellowish tinge to pale parts of plumage. However, intermediates of all degrees occur. Some hybrids show yellow only on underwing-coverts. Numerous skins in the Moscow Zool. Museum. Hybrids sometimes range far from the zone of contact since more than a dozen sightings have occurred in the U.K. Due to hybridization, these birds are sometimes lumped.

Ackermann 1898; Aye and Schweizer 2003; Balatsky 1992; Bowman 1996; Byers et al. 1995 (p. 111); Charlton 1985; Dement'ev and Gladkov 1966–1970 (vol. 5); Jiguet 2003b; Johansen 1944 (pp. 67–70); Khakhlov 1991; Lansdown and Charlton 1990[†]; Löhr 1955; Mauersberger 1971b; Melling 2003; Oates 1996; Occhiato 2003; Ortvad and Thorup 2001; Panov 1973, 1989; Panov et al. 2003a, 2003b; Pleske 1887[†]; Poll 1911c; Przibram 1910; Radjabli et al. 1970; Riddington 1995; Ripley 1982 (p. 569); Rothschild (Lord) 1923; Sibley and Monroe 1990; Suchetet 1897a (p. 269); Zarudnyi and Koreev 1906. Internet: BNOR (April, 2003).

- × *Emberiza melanocephala* (♂) [Black-headed Bunting] CHR?? Vale lists this hybrid, but says a different cross is probably meant (i.e., *Emberiza citrinella* × *E. schoeniclus*). Hopkinson 1926 (p. 196); Vale 1900.

- × *Emberiza schoeniclus* [Reed Bunting] CANHR. BRO: Eurasia. See: *Emberiza citrinella* × *E. melanocephala*. Ackermann 1898; Gray 1958; Hopkinson 1926 (p. 196); Suchetet 1897a (pp. 268, 974).

- × *Plectrophenax nivalis* (♀) [Snow Bunting] CHR. Fertile eggs reported (but no hatched hybrids). Fitzpatrick 1951.

- × *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Emberiza leucocephalos [Pine Bunting] See: *Emberiza citrinella*.

Emberiza melanocephala [Black-headed Bunting] See: *Emberiza bruniceps*; *E. citrinella*; Appendix 1.

Emberiza schoeniclus [Reed Bunting] See: *Emberiza citrinella*.

Euphonia pectoralis [Chestnut-bellied Euphonia]

× *Euphonia xanthogaster* [Orange-bellied Euphonia] NHR (se Brazil). The Black-throated Euphonia (*Euphonia vittata*), based on a bird taken in Rio de Janeiro, is now deemed this hybrid. Haffer 1970 (pp. 315–317); Hellmayr et al. 1918– (Part IX); Meyer de Schauensee 1966, 1970; Storer 1970; Wolters 1975–1982 (p. 348). Internet: REM.

Euphonia vittata [Black-throated Euphonia] See: *Euphonia pectoralis* × *E. xanthogaster*.

Euphonia xanthogaster [Orange-bellied Euphonia] See: *Euphonia pectoralis*.

Geospiza conirostris [Large Cactus-Finch]

× *Geospiza difficilis* (♀) [Sharp-beaked Ground-Finch] NHR (Galapagos). HPF. Grant and Grant 1989; Grant 1986 (pp. 201, 215).

× *Geospiza magnirostris* (♀) [Large Ground-Finch] ENHR (Galapagos Islands). A highly variable population, *darwini*, of Culpepper I., treated as a species, *Geospiza darwini*, is probably derived from this cross. Grant and Grant (1982, p. 652) observed hybridization on Genovesa Island. They say (p. 653) hybridization “may be invoked to explain the absence of *magnirostris* from Española [Island] by supposing that *magnirostris* was once present and common became rare, hybridized with *conirostris* and disappeared as a species.” Grant (1986, pp. 215, 247–249) says a ♂ probable hybrid, singing a *G. magnirostris* song, was paired with a *G. magnirostris* ♀, while another hybrid ♂ sang the song of *G. conirostris*, and was paired with a *G. conirostris* ♀. Boag 1981; Grant and Grant 1982, 1989; Grant 1986 (pp. 55, 201, 215); Lack 1947 (pp. 95–97); Mayr 1942.

× *Geospiza scandens* [Common Cactus-Finch] NHI (Galapagos Is.). *G. conirostris* on

Genovesa I. sings two songs. Grant notes that “it is possible that one of the songs of *G. conirostris* originated on another island and was imported to Genovesa by immigrant *G. scandens*. If so, the source was probably Daphne Major or Santa Cruz. Interbreeding probably occurred otherwise the new song would not enter into the repertoire of the resident population.” Grant 1986 (p. 280).

Geospiza darwini See: *Geospiza conirostris* × *G. magnirostris*.

Geospiza difficilis [Sharp-beaked Ground-Finch]

See also: *Geospiza conirostris*.

× *Geospiza fortis* [Medium Ground-Finch] NHR. BRO: Galapagos Is. (Santiago I). Lack 1947 (Table XXXII).

× *Geospiza fuliginosa* [Small Ground-Finch] ENHI (Galapagos Is.). BRO: Pinta, Santiago, s Isabela, and Santa Cruz Is. On islands where they both occur these birds have ACZs. A population on Genovesa I. has been treated as both a race of *G. difficilis* and *G. fuliginosa*, and is thus a PHP of this cross. Lack 1947 (p. 27, Fig. 4); Sibley and Monroe 1990; Vagvolgyi and Vagvolgyi 1989.

Geospiza fortis [Medium Ground-Finch]

See also: *Geospiza difficilis*.

× *Geospiza fuliginosa* [Small Ground-Finch] ONHR (Galapagos). BRO: Santa Cruz, San Cristóbal, and Daphne Major Islands. Boag and Grant 1984; Grant (B. R.) and Grant (P. R.) 1982 (p. 653); Grant 1984, 1986 (p. 201), 1986, 1993, 2004; Grant (P. R.) and Grant (B. R.) 1992a, 1994, 1997b, 1997c; Grant and Price 1981; Harris 1973; Lack 1945, 1947 (Table XXXII), 1969; Lowe 1930a, 1936; Mayr 1942; Yang and Patton 1981.

× *Geospiza magnirostris* [Large Ground-Finch] ENHR (Galapagos). Hybrids occur on Santa Cruz, Santa Maria, and San Cristóbal islands. Lack reported 39 intermediate birds. Sulloway (p. 68) says hybrids “occur between these forms in one or two per cent of all matings.” He equates this hybrid with *Geospiza strenua* Gould. Grant and

- Grant 1982 (p. 653); Lack 1947 (Table XXXII); Sulloway 1982 (pp. 64, 68, and note 56).
- × *Geospiza scandens* (♀) [Common Cactus-Finch] ENHR (Galapagos). HPF Hybrids are known from Daphne, Santa Cruz, and Santa Maria islands. Grant and Grant found that all F₁ ♀♀ whose fathers sang the song of *G. scandens* later paired with a *G. scandens*, while those whose fathers sang the song of *G. fortis* later paired with *G. fortis* males. This hybrid was described as a species, *Cactornis brevisrostris*. Grant and Grant 1994, 1996a, 1996b; Grant 1986 (pp. 200[†], 201, 249), 1993; Grant and Grant 1992a, 1992b, 1994, 1997a, 1997b; Grant et al. 2002, 2004; Lack 1947 (Table XXXII); Panov 1989; Price 1984. Internet: PNAS94.
- Geospiza fuliginosa* [Small Ground-Finch]
See also: *Geospiza difficilis*; *G. fortis*.
- × *Geospiza magnirostris* [Large Ground-Finch] NHR (Galapagos Is.). Grant 1986 (p. 201); Lack 1947 (Table XXXII).
- Geospiza magnirostris* [Large Ground-Finch]
See: *Geospiza conirostris*; *G. fortis*; *G. fuliginosa*.
- Geospiza scandens* [Common Cactus-Finch]
See: *Geospiza conirostris*; *G. fortis*.
- Gubernatrix cristata* [Yellow Cardinal]
See also: *Cardinalis cardinalis*; *Diuca diuca*.
- × *Paroaria coronata* (♂) [Red-crested Cardinal] CHR. Hybrids from this cross can be larger and stronger than either parent. Aronstein 1910; *Bird Notes* 1910 (pp. 199, 229, 231, 363–364); Hopkinson 1926 (p. 197); Page 1914b (p. 37); Walker 1910.
- Guiraca caerulea* [Blue Grosbeak]
× *Spiza americana* [Dickcissel] NHR (U.S.)? BRO: Appalachians to Rockies. Townsend's Bunting (*Emberiza townsendii*) is based on a bird taken in 1833 in Chester, Co., Pennsylvania. The specimen is in the Smithsonian. Cockrum listed it as this hybrid, but Parkes says it has never been definitively identified. Audubon 1834 (p. 183)[†]; Cockrum 1952 (p. 149); Coues 1927 (p. 447); Parkes 1985[†].
- Hemithraupis guira* [Guira Tanager]
× *Hemithraupis ruficapilla* [Rufous-headed Tanager] ONHR (se Brazil). BRO: Minas Gerais, São Paulo, Paraná, and Santa Catarina. Meyer de Schauensee 1966; Ridgely and Tudor 1989 (p. 226).
- Note:** The following juncos differ in appearance, in some cases markedly. All were formerly treated as separate species, but due to hybridization are now usually lumped (with the exception of *J. phaeonotus*). The division of these juncos into geomorphic types here follows Sibley (2000), and Sibley and Monroe (1990). See also *AOU Checklist* 1998 (p. 626).
- Junco aikeni* [White-winged Junco]
× *Junco mearnsi* [Pink-sided Junco] ONHR (U.S.). BRO: e Montana, n Wyoming. Miller 1941, 1949; Short 1969a.
- Junco caniceps* [Grey-headed Junco]
× *Junco dorsalis* [Red-backed Junco] ONHR (U.S.). BRO: n Arizona, cen. New Mexico. Dwight 1918 (p. 300); Miller 1939, 1949.
- × *Junco mearnsi* [Pink-sided Junco] ONHR (U.S.). BRO: Colorado. Conry and Webb 1980; Miller 1939, 1941, 1949; Monson and Phillips 1941; van Tyme and Sutton 1937.
- × *Junco oreganus* [Oregon Junco] CAENHR (U.S.). BRO: in n Utah, n Nevada, and s Idaho. Meise 1975; Miller 1938, 1939, 1941, 1949; van Rossem 1931a.
- Junco dorsalis* [Red-backed Junco]
See also: *Junco caniceps*.
- × *Junco phaeonotus* [Yellow-eyed Junco] PCZ (se Arizona, sw New Mexico). No hybrids as yet reported. Sibley 2000 (p. 502).
- Junco hyemalis* [Slate-colored Junco]
× *Junco oreganus* [Oregon Junco] ENHR (Canadian Rockies). ♂ hybrids are intermediate, but ♀ hybrids are probably unidentifiable in field (♀♀ of the two parental types are quite similar). This cross has generated a stabilized hybrid population that has been treated as a race (*cismontanus*) of *J. hyemalis*. The hybrid zone stretches some 2,000 km from sw Yukon to s Alberta. Dwight 1918 (p. 295); Meise 1975; Miller 1941;

Monson and Phillips 1941; Sibley 2000 (p. 501[†]); Sladen 1966 (p. 134).

- × *Zonotrichia albicollis* (♀) [White-throated Sparrow] ENHR (U.S.). BRO: Canada (Atlantic Maritimes to British Columbia). Jung et al. discuss the behavior and physical characteristics of a hybrid captured in Maryland. Its song was a mixture of the two parents' songs. Analysis of mtDNA indicate that the mother was *Z. albicollis*. Hybrids have the White-throated's striped back and white throat combined with the gray breast and white tail feathers of the junco parent. Nolan et al. say these hybrids are numerous. Dickerman 1961; Donald and Maane 1992; Greenlaw 1977; Hamilton and Hamilton 1957[†]; Jung et al. 1994; Mease 1982; Nolan et al. 2002; Short and Simon 1965; Sibley 2000 (pp. 494[†], 497, 502); Snyder 1954; Stone 1893[†]; Suchet 1897a (pp. 272, 769); Townsend 1883; Warburton 1959.
- × *Zonotrichia atricapilla* [Golden-crowned Sparrow] NHR (w Canada). BRO: e Alberta, nw British Columbia, se Yukon, sw Northwest Territories. Mayr and Short 1970; Sibley 1994[†].

Junco mearnsi [Pink-sided Junco]

See also: *Junco aikenii*; *J. caniceps*.

- × *Junco oreganus* [Oregon Junco] NHR. PCZ (n Idaho, w Montana, U.S.). Sibley 2000 (p. 501); Sibley and Monroe 1990.

Junco oreganus [Oregon Junco] See: *Junco caniceps*; *J. hyemalis*; *J. mearnsi*.

Junco phaeonotus [Yellow-eyed Junco]

See: *Junco dorsalis*.

Lysurus castaneiceps [Olive Finch]

- × *Passerina amoena* (♀) [Lazuli Bunting] CHR? DRS. Better confirmation of this cross is needed; Harrison-Wells provides few details and these birds are considered distantly related. Harrison-Wells 1975.

Note: Two populations (*fallax*, *heermanni*), treated as races of *Melospiza melodia*, hybridize in s California. They differ in song and plumage. Patten et al. 2004.

Melospiza melodia [Song Sparrow]

- × *Zonotrichia albicollis* [White-throated Sparrow] CHR. BRO: n N. America. Seth-Smith obtained hybrids in 1905. *Avicultural Magazine* 1905 (p. 331); Hopkinson 1926 (p. 196).
- × *Zonotrichia leucophrys* [White-crowned Sparrow] NHR (nw U.S.). Dickerman describes a hybrid taken on San Juan I., Washington. Along the n edge of its range *M. melodia* has a long PCZ with the interior/taiga group of *Z. leucophrys*, but it overlaps broadly with the Pacific group of *Z. leucophrys* in the Rockies where the two probably segregate by elevation (ACZ?). Dickerman 1961[†].

Nemosia rourei [Cherry-throated Tanager]

Recently reported from s Espírito Santo, Brazil, and listed as critically endangered, this bird was formerly known from a single specimen taken in 1870 in se Brazil (Rio de Janeiro), which some have alleged to be a hybrid of unknown origin. Bauer et al. 2000.

Nesospiza acunhae [Nightingale Finch]

- × *Nesospiza wilkinsi* [Wilkins's Finch] ENHR. BRO: Inaccessible Island (S. Atlantic). Some 1,900 mixed pairs were observed in 1990. Ryan et al. suggest that these hybrids have been overlooked until recently because they are hard to distinguish in the field and occur mainly in the most inaccessible part of the island. Ryan 2001; Ryan and Maloney 2002; Ryan et al. 1994; Shirihai 2002 (p. 269).

Oreomanes fraseri [Giant Conebill]

See: *Conirostrum ferrugineiventre*.

***Oryzoborus* sp.**

See also: *Cyanocompsa* sp.; *Cyanoloxia glaucocaelula*.

Oryzoborus angolensis [Lesser Seed-Finch]

- × *Oryzoborus crassirostris* [Large-billed Seed-Finch] NHR (São Paulo, Brazil). Lordello 1957[†].
- × *Oryzoborus funereus* [Thick-billed Seed-Finch] ONHR (nw Colombia). Meyer de Schauensee notes that in the Santa Marta region "intermediates between *O. funereus* and *O. angolensis torridus* are found with

mixed black and chestnut bellies." Olsen reports hybrids from the upper Magdalena Valley. These birds are sometimes lumped due to hybridization. Meyer de Schauensee 1966 (p. 512); Olson 1981a; Ridgely and Tudor 1989 (p. 402).

- × *Oryzoborus maximiliani* [Great-billed Seed-Finch] ONHR (n Colombia). Sick 1993 (p. 594); Stiles and Skutch 1989.
- × *Sporophila ardesiaca* [Dubois's Seedeater] NHR (Brazil). See *Sporophila caerulescens* × *S. nigricollis*. Olson 1981b; Sick 1963.
- × *Sporophila caerulescens* [Double-collared Seedeater] ONHR. BRO: sw Peru, n Bolivia, and s Brazil. Sick (1963) describes and discusses several of these hybrids. Some seemed to mix the song of the two parents. Machado 1975a; Olson 1981b (p. 44); Sick 1963[†], 1993 (p. 594).
- × *Sporophila collaris* [Rusty-collared Seedeater] NHR. BRO: Amazonia. Sick 1993 (p. 594).
- × *Sporophila leucoptera* [White-bellied Seedeater] NHR. BRO: Amazonia. Sick 1993 (p. 594).
- × *Sporophila lineola* [Lined Seedeater] NHR. BRO: s Brazil. *S. lineola* is sometimes lumped with *Sporophila bouvronides* (Lesson's Seedeater). Olson 1981b; Sick 1963[†].
- × *Sporophila nigricollis* [Yellow-bellied Seedeater] NHR. BRO: Cen. and S. America. Sick 1993 (p. 594).

Oryzoborus atrirostris [Black-billed Seed-Finch] See: *Oryzoborus crassirostris* × *O. maximiliani*.

Oryzoborus crassirostris [Large-billed Seed-Finch]

See also: *Oryzoborus angolensis*.

- × *Oryzoborus maximiliani* [Great-billed Seed-Finch] ENHI (S. America). A population (*occidentalis*) of w Colombia and w Ecuador is intermediate and has been placed in *O. crassirostris* by some authors and in *O. maximiliani* by others. This history of treatment suggests *occidentalis* as a PHP of this cross. In addition, the Nicaraguan Seed-Finch (*Oryzoborus nuttingi*) and the Black-billed Seed-Finch (*O. atrirostris*) also

are intermediate in appearance, and have both been regarded as races of either *O. crassirostris* or *O. maximiliani*, which suggests them, too, as PHPs. Meyer de Schauensee 1970; Ridgely and Tudor 1989 (p. 403).

Oryzoborus funereus [Thick-billed Seed-Finch] See: *Oryzoborus angolensis*.

Oryzoborus maximiliani [Great-billed Seed-Finch] See: *Oryzoborus angolensis*; *O. crassirostris*.

Oryzoborus nuttingi [Nicaraguan Seed-Finch] See: *Oryzoborus crassirostris* × *O. maximiliani*.

Paroaria coronata [Red-crested Cardinal] See also: *Cardinalis cardinalis*; *Gubernatrix cristata*.

- × *Agelaius ruficapillus* (♂) [Chestnut-capped Blackbird] CHR. BRO: S. America. This cross connects families Cardinalidae and Icteridae. See *Paroaria coronata* × *Molothrus bonariensis*. De Oliveira 1984[†]; Sick 1993 (p. 595).

- × *Molothrus bonariensis* (♂) [Shiny Cowbird] CHR. BRO: S. America. Two hybrids occurred in a Brazilian aviary. This cross connects families Cardinalidae and Icteridae. See *Paroaria coronata* × *Agelaius ruficapillus*. De Oliveira 1984[†] (p. 13); Sick 1993 (p. 595).

- × *Paroaria dominicana* (♀) [Red-cowled Cardinal] CHR. HPF Page lists the reciprocal cross. Anonymous 1907b; *Avicultural Magazine* 1922 (p. 47); Bedford (Duchess of) 1909; *Bird Notes* 1907a, 1907b, 1910 (p. 199), 1912 (p. 224); Hopkinson 1926 (p. 197); Page 1914b; Sick 1993 (p. 595); Silver 1911 (p. 348).

- × *Paroaria nigrogenis* [Black-eared Cardinal] CHR. BRO: S. America. IZY 1963.

Paroaria dominicana [Red-cowled Cardinal] See: *Agelaius ruficapillus* × *Sicalis flaveola*; *Paroaria coronata*.

Paroaria nigrogenis [Black-eared Cardinal] See: *Paroaria coronata*.

Note: Although morphologically and genetically distinct, the following members of *Passerculus* are often lumped due to hybridization.

Passerculus beldingi [Belding's Sparrow]

- × *Passerculus rostratis* [Large-billed Sparrow] ONHR (s Baja California). Wheelwright and Rising 1993 (p. 3). Internet: DIGI.

Passerculus princeps [Ipswich Sparrow]

- × *Passerculus sandwichensis* [Savannah Sparrow] ONHR (e Canada). HPF: These birds are now often lumped due to hybridization. Strobo and McLaren 1975; Wheelwright and Rising 1993 (p. 3). Internet: DIGI.

Passerculus rostratis [Large-billed Sparrow]
See also: *Passerculus beldingi*.

- × *Passerculus sandwichensis* [Savannah Sparrow] ONHR (s California). Wheelwright and Rising 1993 (p. 3). Internet: DIGI.

Passerculus sandwichensis [Savannah Sparrow] See: *Ammodramus savannarum*; *Passerculus princeps*; *P. rostratis*.

Note: The following four birds, all of genus *Passerella*, have often been treated as conspecific races of *Passerella iliaca* (Fox Sparrow), but according to the 1998 AOU Checklist (p. 620), recent studies (Zink 1994; Zink and Blackwell 1996) demonstrating a “correspondence of genetic evidence and plumage types suggest that the groups may represent biological species, but there is at least limited hybridization among them, especially between the *schistacea* and *megarhyncha* groups.” The English common names used here are from the Checklist (pp. 620–621).

Passerella iliaca [Red Fox Sparrow]

- × *Passerella schistacea* [Slate-colored Fox Sparrow] ENHR. Hybrid zone is in w Canada (cen. Brit. Columbia, w Alberta). Webster 1975; Weckstein, Kroodsma, and Faucett 2002 (p. 4); Williamson and Peyton 1962.
- × *Passerella unalaschensis* [Sooty Fox Sparrow] ENHR. Hybrid zone is in w Canada and se Alaska. Webster 1975; Weckstein, Kroodsma, and Faucett 2002 (p. 4); Williamson and Peyton 1962; Zink 1994 (p. 101).

Passerella megarhyncha [Thick-billed Fox Sparrow]

- × *Passerella schistacea* [Slate-colored Fox Sparrow] ENHR (w U.S.). Along the interface of the Great Basin and Sierra Nevada a narrow zone of intense hybridization joins these birds, which are, in terms of mtDNA, the most distinct pair among the four *Passarella* taxa. Zink 1986, 1994; Zink and Weckstein 2003.

- × *Passerella unalaschensis* [Sooty Fox Sparrow] ENHR. Weckstein, Kroodsma, and Faucett 2002 (p. 4).

Passerella schistacea [Slate-colored Fox Sparrow]

See also: *Passerella iliaca*; *P. megarhyncha*.

- × *Passerella unalaschensis* [Sooty Fox Sparrow] ENHR. Hybrid zone is in w Canada (w Brit. Columbia). Webster 1975; Weckstein, Kroodsma, and Faucett 2002 (p. 4); Williamson and Peyton 1962.

Passerella unalaschensis [Sooty Fox Sparrow]
See: *Passerella iliaca*; *P. megarhyncha*; *P. schistacea*.***Passerina amoena*** [Lazuli Bunting]

See also: *Lysurus castaneiceps*.

- × *Passerina cyanea* [Indigo Bunting] ENHR (U.S.). HPF: Hybridization occurs from N. Dakota to Arizona. Baker (1991) found that in allopatry, *P. cyanea* and *P. amoena* ♂♂ each reacted more strongly to their own song type, but in sympatric birds, reactions were equally strong. Klicka et al. say molecular data suggests that these birds are more distantly related than *P. ciris* and *P. versicolor*, and yet they hybridize far more frequently. These birds often flock together. They have occasionally been lumped. Anderson 1965; Baker 1991, 1996; Baker and Boylan 1999; Baker and Johnson 1998; Baker and Miller-Baker 1990; Beecher 1950 (p. 77); Breckenridge 1930; Emlen et al. 1975; Graber and Graber 1951 (p. 146); Greene et al. 1996 (p. 3); Klicka et al. 2001; Kroodsma 1975; Pomarede 1984; Rising 1983a; Rowe and Cooper 1997; Sibley 2000 (p. 470⁺); Sibley and Short 1959b; Sutton 1938; Thompson 1976; Whitmore 1975. Internet: BFR.

Passerina ciris [Painted Bunting]

× *Passerina cyanea* (♂) [Indigo Bunting] CANHR. HPF(♂ & ♀). BRO: s U.S. (e Texas, Louisiana, Arkansas, Oklahoma, se New Mexico). A natural hybrid described by Taylor is in the Smithsonian (USNM #567021), a migrant ♂ collected in Florida in April. *Avicultural Magazine* 1935 (p. 265); *Bird Notes* 1915 (p. 261), 1916 (p. 52), 1923; *Die Gefiederte Welt* 1911 (pp. 246–247, 396–397); Hopkinson 1926 (p. 196); Klicka et al. 2001; Neunzig 1921; Reimann 1910 (p. 102); Taylor 1974[†]; Thomasset 1915a, 1915b.

× *Passerina versicolor* [Varied Bunting] NHR. BRO: sw Texas and adjacent Mexico. A ♂ hybrid was taken June 9, 1934, in Cameron Co., Texas. Klicka et al. 2001; Storer 1961.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Passerina cyanea [Indigo Bunting]

See also: *Passerina amoena*; *P. ciris*.

× ~~*Passerina leclancherii* [Orange-breasted Bunting]~~ Some cite Gray for this cross, but no hybrids have been reported (although these birds have nested together in captivity). *Bird Notes* 1923; Gray 1958.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Passerina leclancherii [Orange-breasted Bunting]

See also: *Passerina cyanea*.

× *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Passerina versicolor [Varied Bunting] See: *Passerina ciris*.

Phaenicophilus palmarum [Black-crowned Palm-Tanager]

× *Phaenicophilus poliocephalus* [Grey-crowned Palm-Tanager] ONHR (se Hispaniola). Bond 1986; McDonald and Smith 1994.

Pheucticus chrysopheplus [Yellow Grosbeak]

× *Pheucticus melanocephalus* (♂) [Black-headed Grosbeak] CHR. BRO: nw Mexico. Two hybrids, a ♂ and a ♀, hatched May 5, 2004 at the Arizona-Sonora Desert Museum, Tucson, AZ. As of Nov. 5, 2004, one was still alive and healthy in the Mixed Species Aviary Exhibit. Walkosak 2004.

Pheucticus ludovicianus [Rose-breasted Grosbeak]

× *Pheucticus melanocephalus* (♀) [Black-headed Grosbeak] ENHR. (Great Plains, U.S., Canada). HPF(♂ & ♀). Hybridization occurs from Nebraska to N. Dakota, and in s Saskatchewan, and s Alberta. The hybrid zone is narrow and moving westward, with Black-headed Grosbeaks losing ground to Rose-breasted Grosbeaks. Adult ♂ plumage differs sharply between these birds. Where Rose-breasted ♂♂ are white, hybrid ♂♂ are mostly orange, but less orange than Black-headed ♂♂; hybrids' breasts also have a red-dish cast. Female hybrids may be unidentifiable in the field. Few F₁ hybrids occur in the zone since matings between pure parental types are rare. Due to hybridization, these birds are sometimes lumped. Anderson 1970; Anderson and Daugherty 1974[†]; Hudson 1933; Hurlburt 1951; Kroodsma 1970, 1974a, 1974b; Rising 1983a; Sibley 2000 (p. 466[†]); Stiles and Skutch 1989; Swain 1933; Swenk 1930, 1936; West 1962. Internet: NPW, RPU, SAO.

Pheucticus melanocephalus [Black-headed Grosbeak] See: *Pheucticus chrysopheplus*; *P. ludovicianus*.

Phrygilus atriceps [Black-hooded Sierra-Finch]

× *Phrygilus gayi* [Grey-hooded Sierra-Finch] NHR (n Chile, nw Argentina). These birds are sometimes lumped. Fjeldså and Krabbe 1990; Marin et al. 1989; Phillippi 1942 (pp. 87–88).

× *Phrygilus punensis* [Peruvian Sierra-Finch] NHR. Hybrids occur in w Bolivia (La Paz and Oruro). Fjeldså and Krabbe 1990.

Phrygilus dorsalis [Red-backed Sierra-Finch]

× *Phrygilus erythronotus* [White-throated Sierra-Finch] NHR (Lauca Nat. Park, n Chile)? Ridgely and Tudor 1989.

Phrygilus erythronotus [White-throated Sierra-Finch] See: *Phrygilus dorsalis*.

Phrygilus gayi [Grey-hooded Sierra-Finch] See also: *Phrygilus atriceps*.

× *Phrygilus patagonicus* [Patagonian Sierra-Finch] ENHR (s S. America). A narrow hybrid zone (~2 km wide) extends from

Patagonia (~38°N) to Tierra del Fuego (Isla Grande). *P. patagonicus* is a forest bird. *P. gayi* occupies dry matorral. Contact is in transitional environments. Vuilleumier 1991 (p. 87).

Phrygilus patagonicus [Patagonian Sierra-Finch] See: *Phrygilus gayi*.

Phrygilus punensis [Peruvian Sierra-Finch] See: *Phrygilus atriceps*.

Pipilo chlorurus [Green-tailed Towhee]

× *Pipilo maculatus* [Spotted Towhee] NHR (w U.S.). Hybrids have black on head and upper breast, grayish upper body, and rufous flanks, as in *maculatus*, but rufous crown and white throat of *chlorurus*. Rising 1996b; Sibley 1994[†]; Wright 1996.

Pipilo crissalis [California Towhee]

× *Pipilo fuscus* [Canyon Towhee] ENHI (sw U.S., nw Mexico). Geographically and morphologically intermediate populations connect these birds (PHPs of this cross). Davis 1951; Johnson and Haight 1996 (pp. 4–5); Oberholser 1919b.

Pipilo erythrophthalmus [Eastern Towhee]

× *Pipilo maculatus* [Spotted Towhee] ENHR (N. America). A narrow hybrid zone extends from s Canada to n Kansas (U.S.). Due to hybridization, these birds are sometimes lumped. Greenlaw 1996a (pp. 3–4); Rising 1983a; Sibley 2000 (p. 474[†]); Sibley and West 1959.

Pipilo fuscus [Canyon Towhee] See: *Pipilo crissalis*.

Pipilo maculatus [Spotted Towhee]

See also: *Pipilo chlorurus*; *P. erythrophthalmus*.

× *Pipilo ocai* [Collared Towhee] ENHR (cen. Mexico). HPF Pure *ocai* is found only in Guerrero and Oaxaca. A hybrid zone runs s from Michoacán to México D. F. with rufous-sided birds to e, collared birds to w. Pure *P. maculatus* are found in the Sierra Madre Oriental, in n of the s Sierra Madre Occidental, as well as in Chiapas and Guatemala. Greenlaw 1996b (pp. 4–5); Meise 1975; Miller et al. 1957; Sibley 1950, 1954; Sibley 1994[†]; Sibley and Monroe 1990; Sibley and Sibley 1964; Sibley and West 1958; Wolters 1975–1982 (p. 330).

Pipilo ocai [Collared Towhee] See: *Pipilo maculatus*.

Piranga bidentata [Flame-colored Tanager]

× *Piranga ludoviciana* (♂) [Western Tanager] ONHR (U.S.). BRO: PCZ (se Arizona and adjacent Mexico). Hybridization occurs in the Chiricahua Mts. Sibley says hybrids are difficult to identify because “they closely resemble variations of pure Flame-colored.” This statement suggests that some penetration of Western traits into Flame-colored populations may have occurred. Hybrid ♂♂ can be told from Flame-rumped ♂♂ by the presence of a bright rump, solid black rear mantle, more yellowish breast (♀ hybrids may be unidentifiable in the field). Burns 1998; Hudon 1999 (p. 4); Morse and Monson 1985; Sibley 2000 (p. 461[†]).

Piranga ludoviciana [Western Tanager]

See also: *Piranga bidentata*.

× *Piranga olivacea* [Scarlet Tanager] NHR.

BRO: sw U.S. Hybrids occur on the Great Plains. Burns 1998; Hudon 1991, 1999 (p. 4); Isler and Isler 1987 (p. 148); Mengel 1963; Phillips et al. 1964; Sibley 1994; Tordoff 1950a[†].

× *Piranga rubra* [Summer Tanager] NHR. Old records. BRO: s Cen. America. McCormick 1893; Suchetet 1897a (p. 775).

Piranga olivacea [Scarlet Tanager]

See also: *Piranga ludoviciana*.

× *Piranga rubra* [Summer Tanager] NHR.

BRO: e N. America. Within regions of overlap, these birds tend to break up into open (*P. rubra*) and wooded (*P. olivacea*) habitat, but meet where such habitats interface. Burns 1998; McCormick 1893; Shy 1984a, 1984b; Suchetet 1897a.

Piranga rubra [Summer Tanager] See: *Piranga ludoviciana*; *P. olivacea*.

Plectrophenax hyperboreus [McKay's Bunting]

× *Plectrophenax nivalis* (♀) [Snow Bunting] ENHR (St. Lawrence I., Bering Sea). HPF(vh). Byers et al. say “males with only the center of the mantle white and with the sides of the mantle and scapulars extensively black, are regularly seen, and are presumably hybrids.” Female hybrids may be undetectable in the field. Some ♀ Snows

resemble ♂ hybrids. Byers et al. 1995 (p. 223); Sealy 1969; Sibley 2000 (pp. 503[†], 506); Swarth 1934. Internet: FLDG.

Plectrophenax nivalis [Snow Bunting] See: *Calcarius lapponicus*; *Emberiza citrinella*; *Plectrophenax hyperboreus*.

Pooecetes gramineus [Vesper Sparrow]

× *Spizella pusilla* [Field Sparrow] NHR. BRO: n U.S., Great Plains to e coast.

Doolittle (p. 41) describes a probable hybrid: “the general appearance was of the Field Sparrow with the typical head markings and flesh colored bill. The wings were barred as in the Field Sparrow, but the lesser coverts were solid bright bay as with the Vesper, while the tail was distinctly like that of the Vesper Sparrow, having the outer feathers white.” Doolittle 1929.

Ramphocelus bresilius [Brazilian Tanager]

× *Ramphocelus carbo* (♀) [Silver-beaked Tanager] ENHR (e Brazil). These birds have a lengthy contact zone stretching for 3,000 km, running parallel to the Atlantic coast (about 100 km inland) from Recife in the north to the Río Uruguay in the south. Hybrids have been observed in the Río Dôce region of Minas Gerais (se Brazil). Brown says the hybrids are more fertile than one of their parents (Brazilian Tanager). Brown 1956, 1957; Meyer de Schauensee 1966 (pp. 480, 481); Novaes 1959; Ridgely and Tudor 1989; Sick 1993 (p. 685).

Ramphocelus carbo [Silver-beaked Tanager]

See also: *Ramphocelus bresilius*.

× *Ramphocelus melanogaster* [Huallaga Tanager] ENHR. (Huánaco, Peru). Ridgely and Tudor (1989) say the Crimson-backed Tanager (*Ramphocelus dimidiatus*) is virtually identical to the geographically distant *R. melanogaster* and may be conspecific. *R. dimidiatus*, is a resident of Colombia and Venezuela and, like *R. melanogaster*, is in contact with *R. carbo*, but has not yet been observed to hybridize. Isler and Isler 1987 (p. 166); Meyer de Schauensee 1966; Novaes 1959.

Ramphocelus chrysonotus See: *Ramphocelus flammigerus* × *R. icteronotus*.

Ramphocelus dimidiatus [Crimson-backed Tanager]

See also: *Ramphocelus carbo* × *R. melanogaster*.

× *Ramphocelus icteronotus* [Yellow-rumped Tanager] NHR (Panama). HPF? Dunstall's Tanager, treated as a species (*Ramphocelus dunstalli*), is this hybrid. Another bird so treated (*Ramphocelus inexpectatus*) is probably a backcross of this hybrid to *R. icteronotus*. This case then may parallel that of Brewster's and Lawrence's warblers (see *Vermivora chrysoptera* × *V. pinus*), where F₁ hybrids and later-generation hybrids were treated as separate species. Olson and Violani 1995[†].

× *Ramphocelus passerinii* [Scarlet-rumped Tanager] NHR (Chiriqui, Panama). Festa's Tanager, described as a species (*Ramphocelus festae*), and based on one specimen, is probably this hybrid. Olson and Violani 1995[†].

Ramphocelus dunstalli [Dunstall's Tanager]

See: *Ramphocelus dimidiatus* × *R. icteronotus*.

Ramphocelus festae [Festa's Tanager] See: *Ramphocelus dimidiatus* × *R. passerinii*.

Ramphocelus flammigerus [Flame-rumped Tanager]

× *Ramphocelus icteronotus* [Yellow-rumped Tanager] CAENHR (sw Colombia). The Yellow-rumped Tanager is one of the most common and conspicuous birds of the nw Pacific coast of S. America; the Flame-rumped is fairly common also. The hybrid zone is on the Pacific slope of the Western Andes in the Río San Juan region. Below 800 m the Flame-rumped Tanager, a velvety black bird with a flame scarlet lower back and rump (♂♂), is replaced by the Yellow-rumped, which has a brilliant yellow lower back and rump (♂♂). The hybrids have rumps in varying shades of orange and are common above 800 m, but virtually unknown below, where nearly all birds are yellow-rumped. Females also differ with Flame-rumped ♀♀ dark brown above and pale yellow below

- with a diffused orange chest band; rump reddish-orange; Yellow-rumped ♀♀ are grayish brown above with rump and entire underparts pale yellow. Hybrids were formerly treated as a species (*R. chrysonotus*). Although long treated as separate species, due to hybridization, both flame-rumped and yellow-rumped birds are now often lumped under “Flame-rumped Tanager.” *Avicultural Magazine* 1975 (p. 66); Berlioz 1927; Brush 1970; Hilty and Brown 1986; Isler and Isler 1987 (p. 170); Meyer de Schauensee 1966 (p. 482); Panov 1989; Ridgely and Tudor 1989; Sibley 1958.
- × *Ramphocelus nigrogularis* [Masked Crimson Tanager] CHR. BRO: sw Colombia? *IZY* 1974.
- Ramphocelus icteronotus*** [Yellow-rumped Tanager]
See also: *Ramphocelus dimidiatus*; *R. flammigerus*.
- × *Ramphocelus passerinii* [Scarlet-rumped Tanager] ONHR (w Panama). Olson notes that these birds have a very narrow contact zone in Bocas del Toro, Panama, where they replace each other abruptly. Berlioz 1927; Novaes 1959; Olson 1993.
- Ramphocelus inexpectata*** See: *Ramphocelus dimidiatus* × *R. icteronotus*.
- Ramphocelus melanogaster*** [Huallaga Tanager]
See: *Ramphocelus carbo*.
- Ramphocelus nigrogularis*** [Masked Crimson Tanager] See: *Ramphocelus flammigerus*.
- Ramphocelus passerinii*** [Scarlet-rumped Tanager]
See: *Ramphocelus dimidiatus*; *R. icteronotus*.
- Sicalis flaveola*** [Saffron Finch]
See also: *Serinus flaviventris*.
- × *Agelaius ruficapillus* [Chestnut-capped Blackbird] CHR? BRO: S. America. Sick says he has known of “crosses between *A. ruficapillus* or *Molothrus bonariensis* and emberizines in captivity such as with *Paroaria coronata*, *P. dominicana* and *Sicalis flaveola*.” Sick 1993 (p. 622).
- × *Serinus domesticus* [Domestic Canary] See: Appendix 1.
- × *Sicalis luteola* (♀) [Grassland Yellow-Finch] CHR. BRO: S. America. Fenk 1911, 1913, 1920.
- × *Sicalis pelzelni* (♀) [Pelzel’s Finch] CHR. HPF (♂ & ♀). BRO: e Brazil. Silver says ♂ hybrids are usually just like *S. flaveola*, but that ♀ hybrids are similar to *S. pelzelni*. Thus, natural hybrids might easily be missed. These birds are sometimes lumped. Butler 1910b (vol. 1, p. 103); Hopkinson 1926 (p. 193); Page 1914b (p. 38); Silver 1911 (p. 358).
- Sicalis luteola*** [Grassland Yellow-Finch]
See: *Sicalis flaveola*.
- Sicalis pelzelni*** [Pelzel’s Finch] See: *Sicalis flaveola*.
- Spiza americana*** [Dickcissel] See: *Guiraca caerulea*.
- Spizella breweri*** [Brewer’s Sparrow]
- × *Spizella pallida* [Clay-colored Sparrow] NHR (N. America)? The occurrence of this cross is in doubt because recent listings of it appear to refer to old records (Poll, Suchetel). BRO: Montana, se British Columbia, s Alberta, sw Saskatchewan. Poll 1911c; Rising 1996b (p. 88); Sibley 2000 (p. 484), Suchetel 1897a (p. 274).
- × *Spizella passerina* [Chipping Sparrow] ENHR? BRO: nw N. America. Morphological data suggest that the Timberline Sparrow (*Spizella taverni*) may be a hybrid population produced by this cross. *S. taverni* is often lumped with *S. breweri*. Pyle and Howell 1996.
- Spizella pallida*** [Clay-colored Sparrow]
See also: *Spizella breweri*.
- × *Spizella passerina* [Chipping Sparrow] ONHR (N. America). BRO: Great Lakes and n plains. In winter these birds are often found together in small flocks. Brooks 1980; Fisk 1988; McIlroy 1961; Parkes 1990; Storer 1954; Tasker 1955.
- × *Spizella pusilla* (♀) [Field Sparrow] NHR. HPF BRO: in U.S. e of Rockies. Hoag observed a ♂ hybrid in Grand Isle, Vermont, in 1997. The next year, it defended a territory and mated with a ♀ Field Sparrow, producing one fledgling. The hybrid’s song had the buzzy notes of *S. palida*, but rose to a final trill like *S. pusilla* (accelerating clear whistles). Brooks 1980; Hoag 1999.

Spizella passerina [Chipping Sparrow]

See also: *Passer domesticus*; *Spizella breweri*; *S. pallida*.

× *Spizella pusilla* [Field Sparrow] PCZ (roughly follows U.S.–Canada border). No hybrids as yet reported. Sibley 2000.

Spizella pusilla [Field Sparrow] See: *Pooecetes gramineus*; *Spizella pallida*; *S. passerina*.

Spizella taverni [Timberline Sparrow] See: *Spizella breweri* × *S. passerina*.

Sporophila albogularis [White-throated Seedeater]

× *Sporophila intermedia* (♀) [Grey Seedeater] CHR. *Bird Notes* 1915; Hopkinson 1926 (p. 177); Suggitt 1915.

× *Sporophila nigricollis* (♂) [Yellow-bellied Seedeater] CHR. Brooksbank 1949; Decoux 1924; Hopkinson 1926 (p. 177).

Sporophila americana [Wing-barred Seedeater]

× *Sporophila corvina* [Black Seedeater] ENHR (w Panama). The hybrid zone has split the range of *S. americana* (see p. 22). Due to hybridization, these birds are now often lumped. See Figure 20. Meyer de Schauensee 1966 (p. 507); Olson 1981d.

Sporophila ardesiaca [Dubois's Seedeater]

See also: *Oryzoborus angolensis*; *Sporophila caerulescens* × *S. nigricollis*.

× *Sporophila caerulescens* [Double-collared Seedeater] NHR (Brazil). Hybrids are known from Minas Gerais and Espirito Santo. Sick 1962, 1963 (p. 161).

× *Sporophila nigricollis* [Yellow-bellied Seedeater] NHR (e Brazil). Sick 1962, 1963 (pp. 161, 167).

Sporophila bouvreuil [Capped Seedeater]

× *Sporophila lineola* [Lined Seedeater] NHR. BRO: Amazonia. Sick 1963.

× *Sporophila plumbea* [Plumbeous Seedeater] NHR. BRO: Amazonia. Sick 1963.

Sporophila caerulescens [Double-collared Seedeater]

See also: *Cyanocompsa brissonii*; *Oryzoborus angolensis*; *Sporophila ardesiaca*.

× *Sporophila lineola* [Lined Seedeater] Lordello observed courting between these birds in captivity. No hybrids as yet reported. Lordello 1957.

× *Sporophila nigricollis* [Yellow-bellied Seedeater] NHR (S. America). Meyer de Schauensee suggested that Dubois's Seedeater (*Sporophila ardesiaca*) may be this hybrid. Meyer de Schauensee 1966; Sick 1962, 1963, 1993 (p. 594).

Sporophila castaneiventris [Chestnut-bellied Seedeater]

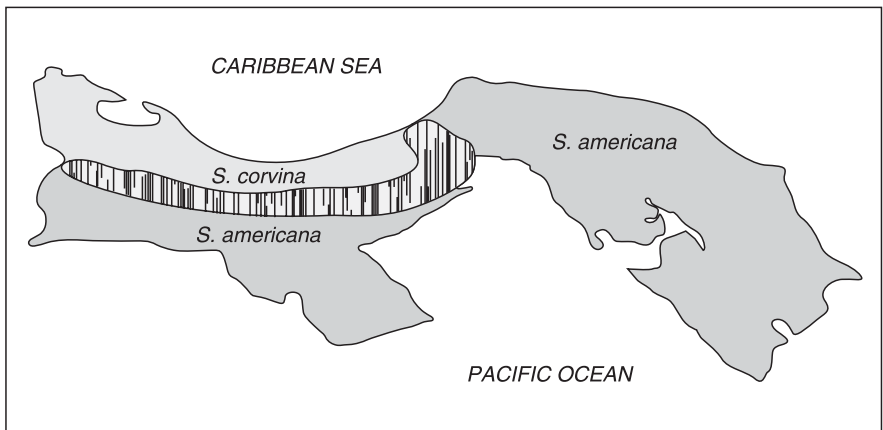


Figure 20. Hybrid zone between Black and Wing-barred seedeaters (*Sporophila corvina* and *S. americana*) in Panama. The zone has split the range of *S. americana* in the vicinity of the Panama Canal.

- × *Sporophila hypochroma* [Grey-and-chestnut Seedeater] NHR (Argentina). Short 1969c.
- × *Sporophila minuta* [Ruddy-breasted Seedeater] NHR. A specimen from Guyana, once attributed to *Sporophila hypochroma* (Grey-and-chestnut Seedeater), is now thought to be this hybrid. Short 1969c.
- Sporophila cinnamomea*** [Chestnut Seedeater]
- × *Sporophila palustris* [Marsh Seedeater] Ridgely and Tudor (1989) suggest that a recently described species, Narovsky's Seedeater (*Sporophila zelichi*), known only from ne Argentina (Entre Ríos), may be this hybrid. Ridgely and Tudor 1989 (p. 425); Vuilleumier and Mayr 1987 (pp. 144–145).
- Sporophila collaris*** [Rusty-collared Seedeater] See also: *Oryzoborus angolensis*.
- × *Sporophila leucoptera* [White-bellied Seedeater] NHR. BRO: n Bolivia, s Brazil, e Paraguay. Lordello 1957; Sick 1963 (p. 161).
- Sporophila corvina*** [Black Seedeater] See: *Sporophila americana*.
- Sporophila falcirostris*** [Temminck's Seedeater]
- × *Sporophila frontalis* [Buffy-fronted Seedeater] CHR. BRO: se Brazil. Sick 1993 (p. 595).
- Sporophila frontalis*** [Buffy-fronted Seedeater] See: *Sporophila falcirostris*.
- Sporophila hypochroma*** [Grey-and-chestnut Seedeater] See: *Sporophila castaneiventris*; *Sporophila castaneiventris* × *S. minuta*.
- Sporophila insulata*** [Tumaco Seedeater] See: *Sporophila minuta* × *S. telasco*.
- Sporophila intermedia*** [Grey Seedeater] See: *Sporophila albogularis*.
- Sporophila leucoptera*** [White-bellied Seedeater] See: *Oryzoborus angolensis*; *Sporophila collaris*.
- Sporophila lineola*** [Lined Seedeater] See: *Oryzoborus angolensis*; *Sporophila bouvreuil*; *S. caeruleascens*.
- Sporophila melanops*** [Hooded Seedeater] This taxon is based on a specimen that may be a hybrid involving *S. nigricollis*. Ridgely and Tudor 1989 (p. 412). Internet: REM.
- Sporophila minuta*** [Ruddy-breasted Seedeater] See also: *Sporophila castaneiventris*.
- × *Sporophila telasco* [Chestnut-throated Seedeater] ENHR (sw Colombia). Ridgely and Tudor (1989) state that the Tumaco Seedeater (*Sporophila insulata*), known only from Tumaco Island, is probably a hybrid population produced by this cross. Ridgely and Tudor 1989 (p. 419).
- Sporophila nigricollis*** [Yellow-bellied Seedeater] See: *Oryzoborus angolensis*; *Sporophila albogularis*; *S. ardesiaca*; *S. caeruleascens*.
- Sporophila palustris*** [Marsh Seedeater] See: *Sporophila cinnamomea*.
- Sporophila plumbea*** [Plumbeous Seedeater] See: *Sporophila bouvreuil*.
- Sporophila telasco*** [Chestnut-throated Seedeater] See: *Sporophila minuta*.
- Sporophila zelichi*** [Narovsky's Seedeater] See: *Sporophila cinnamomea* × *S. palustris*.
- Tangara arnaulti*** [Arnault's Tanager] See: *Tangara cayana* × *T. preciosa*.
- Tangara arthus*** [Golden Tanager]
- × *Tangara icterocephala* [Silver-throated Tanager] CHR. BRO: ne S. America. IZY 1973.
- Tangara cayana*** [Burnished-buff Tanager]
- × *Tangara preciosa* [Chestnut-backed Tanager] NHR. BRO: s Brazil, e Paraguay, ext. ne Argentina. Hybrids of this type were treated as a species, Arnault's Tanager (*Tangara arnaulti*). Bond 1951; Ingels 1971; Isler and Isler 1987 (p. 271); Meyer de Schauensee 1966, 1970; Partridge 1964; Storer 1970. Internet: REM, DIGI.
- Tangara chilensis*** [Paradise Tanager]
- × *Tangara velia* [Opal-rumped Tanager] NHR. BRO: n and w Amazonia. Ingels 2003; Tostain et al. 1992 (p. 176).
- Tangara cyanicollis*** [Blue-necked Tanager]
- × *Tangara fastuosa* (♂) [Seven-colored Tanager] CHR. DRS. *Avicultural Magazine* 1971 (p. 230).
- × *Tangara larvata* (♀) [Golden-hooded Tanager] CHR. PCZ in w Colombia. Hybrids have green rumps and undertail coverts. Head and neck show a mixture of yellow and light blue feathers. Bertagnolio 1968.
- × *Tangara nigrocincta* [Masked Tanager] CHR. Maps in Isler and Isler indicate that there is a PCZ in s Brazil from about 7°S 53°W to

- 14°S 60°W. Ingels 1971; Isler and Isler 1987 (pp. 314, 317).
- × *Tangara velia* (♀) [Opal-rumped Tanager] CHR. An ACZ (hybrid zone?) stretches from sw Colombia to s Peru. *Avicultural Magazine* 1975 (p. 67).
- Tangara cyanoventris*** [Gilt-edged Tanager]
- × *Tangara desmaresti* [Brassy-breasted Tanager] NHR (se Brazil). Gould's Tanager (*Tangara gouldi*), known from one specimen, and formerly treated as a species, is now known to be this hybrid. Meyer de Schauensee says it is exactly intermediate in color between the two parents. Bond 1947; Ingels 1971; Meyer de Schauensee 1966; Sibley and Monroe 1990 (p. 753); Storer 1970; Wolters 1975–1982 (p. 352). Internet: REM.
- Tangara desmaresti*** [Brassy-breasted Tanager] See: *Tangara cyanoventris*.
- Tangara fastuosa*** [Seven-colored Tanager] See also: *Tangara cyanicollis*.
- × *Tangara guttata* [Speckled Tanager] CHR. These birds hybridize readily. DRS. Hybrids are turquoise-blue and show the spotting of *T. guttata*; forehead and chin are black, as in *T. fastuosa*, but the black lores of *T. guttata* are absent. The skin of a hybrid is in the collection of the Western Foundation of Vertebrate Zoology in Caramillo, CA. Ingels 1971, 2003.
- × *Tangara nigrocincta* (♀) [Masked Tanager] CHR. DRS. Hybrids are more like *T. fastuosa* than *T. nigrocinctus*, but lack yellow rump. Merry 1971.
- Tangara gouldi*** [Gould's Tanager] See: *Tangara cyanoventris* × *T. desmaresti*.
- Tangara guttata*** [Speckled Tanager] See: *Tangara fastuosa*.
- Tangara icterocephala*** [Silver-throated Tanager] See: *Tangara arthus*.
- Tangara larvata*** [Golden-hooded Tanager] See: *Tangara cyanicollis*.
- Tangara nigrocincta*** [Masked Tanager] See: *Cyanerpes cyaneus*; *Tangara cyanicollis*; *T. fastuosa*.
- Tangara peruviana*** [Black-backed Tanager]
- × *Tangara preciosa* [Chestnut-backed Tanager] ONHR (s coastal Brazil). These birds are sometimes lumped. Legendre 1936; Sick 1985.
- Tangara preciosa*** [Chestnut-backed Tanager] See: *Tangara cayana*; *T. peruviana*.
- Tangara velia*** [Opal-rumped Tanager] See: *Tangara chilensis*; *T. cyanicollis*.
- Thraupis bonariensis*** [Blue-and-yellow Tanager]
- × *Thraupis darwini* [Darwin's Tanager] ENHR (se Bolivia). Sibley and Monroe 1990 (p. 748).
- Thraupis cyanocephala*** [Blue-capped Tanager]
- × *Thraupis olivicyanea* [Aragua Tanager] ENHR (n Venezuela). An intermediate population exists (Lara, Venezuela). The Blue-bellied Tanager has its entire underparts (except for yellow thighs and crissum) the same blue as its crown and nape, while the Blue-capped has olive yellow flanks below. Though strikingly different in appearance and long considered separate species, these birds are now usually treated as conspecific due to hybridization. Meyer de Schauensee 1966 (p. 480); Ridgely and Tudor 1989.
- Thraupis darwini*** [Darwin's Tanager] See: *Thraupis bonariensis*.
- Thraupis episcopus*** [Blue-grey Tanager]
- × *Thraupis ornata* (♂) [Golden-chevroned Tanager] CHR. DRS. Hopkinson 1931a (p. 246).
- × *Thraupis palmarum* [Palm Tanager] CAONHR (Surinam). BRO: n S. America, Panama. Haverschmidt 1966; IZY 1979.
- × *Thraupis sayaca* [Sayaca Tanager] ENHR. In the lowlands of Bolivia (La Paz, Beni) where these two birds meet, there exists a variable population (*boliviana*) which is geographically and morphologically intermediate and, thus, a PHP of this cross. Additional populations, which are also more or less intermediate, exist in s Peru and e Brazil (and probably in intervening, uninvestigated contact regions in the Amazonian rain forest). Isler and Isler 1987 (p. 183); Meyer de Schauensee 1966 (p. 479); Zimmer 1944.

Thraupis olivicyanea [Aragua Tanager] See:
Thraupis cyanocephala.

Thraupis ornata [Golden-chevrons Tanager]
See: *Thraupis episcopus*.

Thraupis palmarum [Palm Tanager] See:
Thraupis episcopus.

Thraupis sayaca [Sayaca Tanager] See:
Thraupis episcopus.

Tiaris olivacea [Yellow-faced Grassquit]
See: *Lonchura cantans*.

Volatinia jacarina [Blue-black Grassquit]
See: Appendix 1.

Zonotrichia albicollis [White-throated
Sparrow]
See also: *Junco hyemalis*; *Melospiza melodia*.

× *Zonotrichia atricapilla* [Golden-crowned
Sparrow] NHR. BRO: Alaska, Yukon,
and British Columbia. Prior describes a
hybrid. Payne 1979; Prior 1995⁺; Sibley
1956; Wahl 1995.

× *Zonotrichia leucophrys* [White-crowned
Sparrow] NHR (e U.S.)? BRO: nw Canada,
near n limit of tree growth. Abbott
claimed that a ♂ bird (USNM #468554),
taken at Fort Belvoir, Virginia, was a hybrid
(but see Banks *contra*). Abbott 1958, 1959;
Banks 1970.

Zonotrichia atricapilla [Golden-crowned
Sparrow]
See also: *Junco hyemalis*; *Zonotrichia albicollis*.

× *Zonotrichia leucophrys* [White-crowned
Sparrow] NHR. ENHI (Canada, U.S.). HPE
BRO: Alaska, w Canada. Sampled birds'
mtDNA suggests extensive natural hybridiza-
tion. Since few acknowledged hybrids have
been collected, Weckstein et al. suggest that
this hybridization occurred in the past, but is
not ongoing. These hybrids must have been
fertile. Otherwise mtDNA haplotypes could
not have penetrated from one population to
another. Hybridization may be ongoing but
undetected if most hybrids are later-genera-
tion, rather than obvious (F₁) hybrids. In
many zones producing fertile hybrids, very
few F₁ hybrids are present. Hybrids have an
unexpected yellow spot above eye. Miller
1940; Morton and Mewaldt 1960; Sibley
1994⁺; Wahl 1995; Weckstein et al. 2001.

Zonotrichia capensis [Rufous-collared
Sparrow]

× *Zonotrichia leucophrys* (♂) [White-crowned
Sparrow] CHR. DRS. Hopkinson 1926;
Neunzig 1921; Page 1907, 1914b; Seth-
Smith 1907a; Silver 1911.

Note: Two populations (*nuttalli*, *pugetensi*),
treated as races of *Zonotrichia leucophrys*,
have a hybrid zone in n coastal California
(between Ferndale and Manchester).
Genetic variability (average heterozygosity)
increases as the zone is approached and
reaches a maximum at its center. Corbin
1981; Mewaldt et al. 1968.

Zonotrichia leucophrys [White-crowned
Sparrow]
See also: *Melospiza melodia*; *Zonotrichia albi-
collis*; *Z. atricapilla*; *Z. capensis*.

× *Zonotrichia querula* [Harris's Sparrow] NHR.
BRO: n Canada. Healy (AZTR) describes a
probable hybrid seen in Arizona in Feb. It
had the stockiness, posture, and big-headed
look of a Harris, with the black bib and
brown crown stripe of a sub-adult White-
crowned (but wider than usual). Sides of
face were dark, breast and belly unstreaked
and lighter colored than in White-crowned,
but darker than in Harris. Bill was dark
orange. Byers et al. 1995 (p. 238); Payne
1979. Internet: AZTR.

Zonotrichia querula [Harris's Sparrow]
See: *Zonotrichia leucophrys*.

New World Blackbirds

Family Icteridae

Agelaius gubernator [Bicolored Blackbird]

× *Agelaius phoeniceus* [Red-winged Blackbird]
ENHR (Mexico, U.S.). In Mexico, these birds
hybridize extensively in Puebla (Valley of
Toluca). There is a hybrid swarm between
Laguna Rosario and Apizaco, Tlaxcala. They
also interbreed in California (ne and s
Central Valley). The latter hybrid zone is not
well studied. Due to hybridization, these
birds are now often lumped. Hardy and
Dickerman 1965; Jaramillo and Burke
1999 (p. 269).

Agelaius phoeniceus [Red-winged Blackbird]

See also: *Agelaius gubernator*.

- × *Quiscalus mexicanus* (♀) [Great-tailed Grackle] NHR. BRO: Mexico, sw U.S. A specimen called the “Nondescript Blackbird” is now known to be a hybrid between a Red-winged Blackbird and a grackle, probably *Q. mexicanus*. Another hybrid of this type was collected in s California. Brooks 1937; Jaramillo and Burke 1999 (p. 399); Johnson and Peer 2001; Selander and Dickerman 1963.
- × *Xanthocephalus xanthocephalus* [Yellow-headed Blackbird] NHR. BRO: w U.S., w Canada. Jaramillo and Burke 1999 (p. 265).

Agelaius ruficapillus [Chestnut-capped Blackbird]

See also: *Paroaria coronata*; *Sicalis flaveola*.

- × *Molothrus badius* (♀) [Bay-winged Cowbird] CHR. BRO: Uruguay, Paraguay, nw Argentina, s Brazil, and Bolivia. A pair of birds described by Shore-Baily produced numerous hybrids. Hopkinson 1932c; Jaramillo and Burke 1999 (p. 258); Shore-Baily 1928.
- × *Serinus domesticus* [Domestic Canary] See: Appendix 1.

Cacicus chrysonotus [Southern Mountain-Cacique]

- × *Cacicus leucoramphus* [Northern Mountain-Cacique] NHR (Peru). Hybrids are known from Alquimarca. They show yellow fringes on the wing-coverts. Due to hybridization, these birds are now often treated as conspecific. Bond 1953; Jaramillo and Burke 1999; Ridgely and Tudor 1989.

Cacicus chrysopterus [Golden-winged Cacique]

- × *Cacicus koepckeae* [Selva Cacique] NHR? Jaramillo and Burke seem to suggest that natural hybrids of this type exist (two specimens from Ecuador and Peru), but these birds have widely disjunct ranges. Moreover, the Selva Cacique is itself known from only two specimens, and Jaramillo and Burke say it should be considered extremely endangered. Jaramillo and Burke 1999 (pp. 150–151).

Cacicus haemorrhous [Red-rumped Cacique]

- × *Gymnostinops montezuma* (♀) [Montezuma Oropendola] CHR. DRS. The National Aviary (Pittsburgh, U.S.) reared a hybrid. Bremer 2004.

Cacicus koepckeae [Selva Cacique]

See: *Cacicus chrysopterus*.

Cacicus leucoramphus [Northern Mountain-Cacique] See: *Cacicus chrysonotus*.***Cacicus melanicterus*** [Yellow-winged Cacique]

- × *Cacicus uropygialis* [Subtropical Cacique] CHR. DRS. IZY 1993.

Cacicus microrhynchus [Scarlet-rumped Cacique]

- × *Cacicus uropygialis* [Subtropical Cacique] ENHR. A population (*pacificus*) is intermediate in range and morphology (combining the general dimensions of *C. microrhynchus* with the powerful bill of *C. uropygialis*) and is thus a PHP of this cross. These birds are sometimes treated as conspecific. Jaramillo and Burke 1999 (pp. 142–147); Sibley and Monroe 1990 (p. 776); Wetmore et al. 1984 (p. 350).

Cacicus uropygialis [Subtropical Cacique] See: *Cacicus melanicterus*; *C. microrhynchus*.***Dives kalinowskii*** [Peruvian Blackbird]

- × *Dives warszewiczi* [Scrub Blackbird] ENHR (Andes, n Peru). The hybrid zone is near La Libertad. Due to hybridization, these birds are often lumped. Bond 1953; Jaramillo and Burke 1999 (p. 332); Ridgely and Tudor 1989; Schulenberg and Parker 1981 (pp. 231–214).

Euphagus cyanocephalus [Brewer's Blackbird]

- × *Quiscalus mexicanus* [Great-tailed Grackle] NHR. BRO: sw U.S. A bird at first thought to be California's first Purple Grackle was photographed and voice recorded at Preisker Park in Santa Maria, San Bernardino Co. (8 May–5 July, 1999). The California Bird Records Committee concluded it was probably this hybrid. For a month, it helped a pair of Brewer's at the nest, bringing food to their young. Though like a grackle in size and shape, it courted only Brewer's Blackbirds. In display it recalled Great-tailed Grackle, but its vocalizations were those of a

Brewer's. Erickson and Hamilton 2001; Johnson and Peer 2001 (p. 5); Rogers and Jaramillo 2002 (p. 28).

Gymnostinops bifasciatus [Para Oropendola]

× ***Gymnostinops guatimozinus*** [Black Oropendola] NHR? Meyer de Schauensee states that the Baudo Oropendola (*Gymnostinops cassini*), "seems to combine the characters" of *G. bifasciatus* and *G. guatimozinus*. *G. cassini* is known from only four specimens, and is considered critically endangered. Perhaps it is this hybrid? Meyer de Schauensee 1966 (p. 431); Ridgely and Tudor 1989.

× ***Gymnostinops yuracares*** [Olive Oropendola] ENHR (Lower Amazon, Brazil). Haffer says gene flow between these birds is uninhibited, but Jaramillo and Burke suggest that these birds be treated separately and go on to say that since "other icterids (for example, the Baltimore and Bullock's Orioles) hybridize freely where they meet, and after a great deal of research they are considered to be separate species and perhaps not closely related (sister) species, it does seem premature to lump these two oropendolas." They say the *neivae* form of the Olive Oropendola is darker and seems to form a link between these two birds and suggest that "it may be more appropriate to drop the subspecific name for that form and consider it a hybrid swarm between the two oropendolas." This PHP, *neivae*, occurs in the Rio Tocantins drainage s to the Bananal Is. area on Rio Ataguaia. Jaramillo and Burke 1999 (p. 131); Haffer 1974.

Gymnostinops cassini [Baudo Oropendola] See: *Gymnostinops bifasciatus* × *G. guatimozinus*.

Gymnostinops guatimozinus [Black Oropendola] See: *Gymnostinops bifasciatus*.

Gymnostinops montezuma [Montezuma Oropendola] See: *Cacicus haemorrhous*.

Gymnostinops yuracares [Olive Oropendola] See: *Gymnostinops bifasciatus*.

Icterus abeillei [Black-backed Oriole]

× ***Icterus bullockii*** [Bullock's Oriole] ONHR (Mexico). These birds are sometimes lumped. Hybrids occur on the Río Sestín, Durango.

Corbin and Sibley 1977; Jaramillo and Burke 1999; Kondo et al. 2004; Rising 1973.

Icterus bullockii [Bullock's Oriole]

See also: *Icterus abeillei*.

× ***Icterus cucullatus*** [Hooded Oriole] CHR. BRO: sw U.S. Jaramillo and Burke 1999 (p. 210).

× ***Icterus galbula*** [Baltimore Oriole] ENHR (U.S.). HPF(♂ & ♀). These birds have remained distinct in call and morphology despite extensive hybridization. The hybrid zone extends from n Texas across the Great Plains to N. Dakota. Hybrids are generally intermediate, but the further from the center of the zone, the more similar they are to the parent approached. Passing e from the center (toward Baltimore Oriole), the change occurs more slowly than in the direction of Bullock's. The hybrids are intermediate, too, in song. The zone is about 200 km wide. Populations outside it show little sign of hybridization, but occasional vagrant hybrids occur in far distant locations (e.g., Farallon I., California). Hybrids are rarer at the n end of zone. Rosenberg et al. say hybrids also occur along the lower Colorado R. (California, Arizona). *I. bullockii* hybridizes more with *I. galbula* than with *I. abeillei*, yet, at the molecular level differs more from the former. Due to hybridization, these birds are sometimes lumped. Allen estimated this zone to be 6,000–8,000 years old. Allen 2002; Anderson 1970, 1971; Corbin and Sibley 1977; Corbin et al. 1979; Evans and Le Valley 1981; Jaramillo and Burke 1999 (p. 205)*; Lee and Birch 1998; Misra and Short 1974; Rising 1970, 1973, 1983a, 1983b, 1996a; Rising and Flood 1998; Rohwer and Johnson 1992; Rohwer and Manning 1990; Rosenberg et al. 1991; Sibley and Short 1964; Sutton 1942a.

Icterus cayanensis [Epaulet Oriole]

× ***Icterus chryscephalus*** [Moriiche Oriole] NHR (Guyana, Surinam). Jaramillo and Burke 1999 (p. 150); Ridgely and Tudor 1989 (p. 360); Short 1975 (pp. 297–298).

× ***Icterus pyrrhopterus*** [Yellow-shouldered Oriole] ENHR (s Brazil). Due to hybridization,

these birds are usually lumped. Sibley and Monroe 1990.

Icterus chrysater [Yellow-backed Oriole]

× ***Icterus mesomelas*** [Yellow-tailed Oriole] NHR (Colombia). A ♂ hybrid is known from Hacienda Belén, Antioquia (USNM #403540). Of 150 specimens of so-called *I. chrysater* from Colombia and Panama, seven (all ♂♂ from Colombia) had traces of black on the back, indicating hybridity. Jaramillo and Burke 1999 (p. 164); Olson 1983[†].

Icterus chrysocephalus [Moriche Oriole]

See: *Icterus cayanensis*.

Icterus cucullatus [Hooded Oriole] See: *Icterus bullockii*.

Icterus fuertes [Fuerte's Oriole]

× ***Icterus spurius*** [Orchard Oriole] ENHI (Mexico). These birds are sometimes lumped. Near the Orchard Oriole's range, Fuerte's Orioles approach *I. spurius* in morphology. This geographically and morphologically intermediate population is a PHP of this cross. Baker et al. say a specimen (LA-7) collected in Louisiana was phenotypically like *I. spurius*, but had an mtDNA haplotype typical of *I. fuertes*. Another (NVer-2), taken in Mexico (Veracruz), looked like *I. spurius* but had an *I. fuertes* haplotype. Baker et al. say one explanation of this finding is recent speciation with incomplete lineage sorting, another is hybridization and suggest that gene flow is low. Still, high levels of hybridization are not inconsistent with a general congruence between haplotypes and morphotypes so long as the viability/fertility of ♀ hybrids is low. More telling is the morphological approach of Fuerte's to *I. spurius* in the vicinity of *I. spurius*, which does seem inconsistent with a hypothesis of low gene flow. Baker et al. 2003; Graber and Graber 1954; Jaramillo and Burke 1999 (p. 218).

Icterus galbula [Baltimore Oriole] See: *Icterus bullockii*.

Icterus graduacauda [Audubon's Oriole]

× ***Icterus gularis*** (♀) [Altamira Oriole] NHR. BRO: s Texas, e Mexico. A probable hybrid was photographed at Bentsen Rio Grande State Park (Texas). Also, a mixed pair built two nests near Ricardo, Texas, but laid no

eggs. Hybrids have pale streaking in mantle (yellowish feathers) and are big (almost as big as Altamiras). Faces are blacker than Altamira (the hybrid at Bentson is known as "Smudgy"). Two probable hybrids observed by Retter (SRF5) both sang an intermediate song. One at Bentsen, he says, alternated between an Audubon's-like languid series of whistles and livelier, shorter Altamira-like song. He also saw probable hybrids paired with Altamiras. Jaramillo 1999; Jaramillo and Burke 1999. Internet: SRF5.

Icterus gularis [Altamira Oriole] See: *Icterus graduacauda*.

Icterus mesomelas [Yellow-tailed Oriole]

See: *Icterus chrysater*.

Icterus pyrrhopterus [Yellow-shouldered Oriole] See: *Icterus cayanensis*.

Icterus spurius [Orchard Oriole] See: *Icterus fuertes*.

Icterus xantholaemus [Yellow-throated Oriole]

This bird is based on a specimen that may be a hybrid of unknown type. Sibley and Monroe 1990.

Note: In the sw U.S., a mobile hybrid zone exists between two populations, *artemisiae* and *obscurus*, usually treated as races of *M. ater*, with *obscurus* taking over the range of *artemisiae* at the rate of about 5 km/generation. Fleischer and Rothstein 1988; Fleischer et al. 1991; Ortega 1998 (p. 144); Ortega and Cruz 1992.

Molothrus ater [Brown-headed Cowbird]

× ***Molothrus badius*** [Bay-winged Cowbird] CHR. DRS. *Avicultural Magazine* 1928 (p. 191).

Molothrus badius [Bay-winged Cowbird]

See: *Agelaius ruficapillus*; *Diuca diuca*; *Molothrus ater*.

Molothrus bonariensis [Shiny Cowbird]

See: *Agelaius ruficapillus* × *Sicalis flaveola*; *Paroaria coronata*.

Psarocolius alfredi [Russet-backed Oropendola]

× ***Psarocolius angustifrons*** [Black-billed Oropendola] ONHR (se Ecuador). There are hybrid zones between *P. angustifrons* and two different populations, *alfredi* and *neglectus*, usually treated as races of *P. alfredi*. *P. angustifrons* hybridizes with *alfredi* in

se Ecuador, and with *neglectus* in se Colombia (Florencia region, w Caqueta). These birds are often lumped. Jaramillo and Burke 1999 (pp. 114–123); Ridgely and Tudor 1989.

- × *Psarocolius atrovirens* [Dusky-green Oropendola] ONHR (se Peru). Jaramillo and Burke 1999 (p. 117); Ridgely and Tudor 1989.

Psarocolius angustifrons [Black-billed Oropendola] See: *Psarocolius alfredi*.

Psarocolius atrovirens [Dusky-green Oropendola] See: *Psarocolius alfredi*.

Quiscalus major [Boat-tailed Grackle] See also: *Agelaius phoeniceus*.

- × *Quiscalus mexicanus* [Great-tailed Grackle] ENHR (s U.S.). A population in se Texas and w Louisiana (*prosopidicola*), treated as a race of *Q. mexicanus*, is intermediate and, thus, a PHP of this cross. These birds were formerly lumped. Johnson and Peer 2001 (p. 5); Pratt 1973, 1991; Selander and Gillier 1961, 1963; Yang 1968; Yang and Selander 1968.

Quiscalus mexicanus [Great-tailed Grackle] See: *Agelaius phoeniceus*; *Euphagus cyanocephalus*; *Quiscalus major*.

Note: Two types (*monsoni*, *nelsoni*) treated as races of *Quiscalus quiscula*, have invaded California and formed a hybrid swarm. Erickson and Hamilton 2001; Rea 1969.

Quiscalus quiscula [Purple Grackle]

- × *Quiscalus versicolor* [Bronzed Grackle] ENHR (e U.S.). Hybridization occurs from Massachusetts to Louisiana (mapped by Chapman 1936). Intermediate populations, *stonei* and *ridgwayi*, have been treated as races. The former is more like the Purple Grackle than is the latter. Before hybridization of these birds was recognized, the extreme variability of *ridgwayi* was explained in terms of several “morphs” being present within the population (Oberholser 1919). In general, this sort of explanation seems to be fairly common in the case of hybrid populations that are not

yet recognized as being hybrid. Jaramillo and Burke say “this is an illustration of an extremely typological view, trying to fit all individuals into some sort of category, in this case a colour morph within a race when the reality is somewhat more complex.” Due to hybridization, these birds are now usually lumped. Chapman 1892, 1924 (p. 26), 1936; Huntington 1952; Jaramillo and Burke 1999 (p. 347); Mayr 1942 (p. 265); Oberholser 1919a.

Quiscalus versicolor [Bronzed Grackle]

See: *Quiscalus quiscula*.

Note: Members of genus *Sturnella* are so similar that hybrids are hard to identify.

Sturnella lilianae [Lilian’s Meadowlark]

- × *Sturnella neglecta* [Western Meadowlark] ONHR. BRO: desert grasslands of sw U.S. and n Mexico. Jaramillo and Burke say these birds hybridize less often than do the Eastern and Western meadowlarks, but they are more often lumped. Jaramillo and Burke 1999 (p. 303); Rohwer 1972a, 1972b.

Sturnella magna [Eastern Meadowlark]

- × *Sturnella neglecta* (↔) [Western Meadowlark] CAONHR (U.S.). HPF (♂ & ♀). BRO: U.S., n Mexico. Hybrids are hard to recognize due to similarity of parents, which probably contributes to underreporting. Some birds, probable hybrids, have the appearance of one parent, but the call note of the other. In captive breeding experiments, Lanyon found that 90% of 158 F₁ eggs were fertile (comparable to the rate in eggs produced from pure matings). However, only 10% of eggs from matings between hybrids were fertile. Chapman 1900, 1924; Falls and d’Agincourt 1982; Jaramillo and Burke 1999; Lanyon 1957, 1962, 1966, 1979, 1995; Ordal 1976; Rohwer 1972a, 1972b, 1973, 1976, 1995 (pp. 4–5); Sutton and Dickson 1965; Szijj 1963, 1966.

Sturnella neglecta [Western Meadowlark]

See: *Sturnella lilianae*; *S. magna*.

Xanthocephalus xanthocephalus [Yellow-headed Blackbird] See: *Agelaius phoeniceus*.

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Appendix 1: Canary Crosses

Note: In this book the domestic canary is specified by the name *Serinus domesticus*, and is treated separately in this appendix. It is appropriate to partition crosses involving this bird from others listed in this book because the domestic canary encompasses a wide variety of breeds that are at least as different in appearance as are other populations treated as separate species, so different that it is by no means certain that substituting them in the same cross would lead to the same results. Moreover, stable populations of this bird do not occur in the wild. The Island Canary (*Serinus canaria*), which does occur naturally (Canary Islands, Azores, Madiera), cannot be equated with the domestic canary any more than the wolf can be equated with the dog. No information on breeding range overlap is provided for domestic canary crosses, because it would not be expected to be found in a wild-living state (except for occasional escapees). The number of known canary crosses is remarkably large. Most such crosses that occur in only one direction involve the canary hen.

Serinus domesticus [Domestic Canary]

See also: *Carduelis carduelis* × *C. flammea*.

- × *Agelaius ruficapillus* (♂) [Chestnut-capped Blackbird] CHR. HPF(♂ & ♀)? Sick says “a male *Agelaius ruficapillus* living in captivity with two female domestic canaries produced a total of seven descendants in eight

months. . . . Five of the offspring died while small, age 2 to 27 days. A sixth, which looked like a badly shaped canary, died at a bit less than eight months. Only one of the young, which looked like a female *A. ruficapillus*, grew well. Later it was proven really to be a female when mated with a male canary. One young was hatched from their first clutch, thus proving the fertility of the hybrid female. I have known of other crosses between *A. ruficapillus* or *Molothrus bonariensis* and emberizines in captivity, such as with *Paroaria coronata*, *P. dominicana*, and *Sicalis flaveola*.” Although no fertile ♂ hybrids have been explicitly reported for this cross, since a fertile ♀ was produced, hybrids may be partially fertile in both sexes (apparently, no avian crosses are known that produce fertile ♀♀, but infertile ♂♂). Jaramillo and Burke 1999 (p. 258); Sick 1993 (p. 622).

- × *Amadina fasciata* (♀) [Cut-throat] CHR?? Chappellier 1921.
- × *Carduelis atrata* (♂) [Black Siskin] CHR. HPF(♂♂). This cross has been obtained on many occasions. Juvenile hybrids are green; adults, black. Beard 1952; Cameron 1951; DZK 1984–1990; Gill 1953, 1955 (p. 90), 1956; Hopkinson 1938a; Krummel 1944; Radtke 1981; Zamparo 1955.
- × *Carduelis barbata* (♂) [Black-chinned Siskin] CHR. DZK 1986; *L'Oiseau* 1927.

- × *Carduelis cannabina* (↔ usu. ♂) [Eurasian Linnet] CHR. HPF(♂&♀). Males more common and more frequently fertile than ♀♀. A three-way hybrid with *Carduelis chloris* has been reported (*Cage Birds* 1951, p. 406): ♂ (*C. cannabina* × *C. chloris*) × ♀ *Serinus domesticus*. Antonius 1933; Armani 1983; Astley 1920; Bechstein 1800 (p. 389); *Cage Birds* 1950 (p. 301[†]), 1951 (pp. 70, 416[†]), 1952 (p. 52); Devy 1915; Fesser 1978; *DZK* 1984–1990; Gill 1955; Gray 1958; Hopkinson 1926 (pp. 184, 190); Mark 1930; Martinez and Munoz 1988; Nicolai 1960; Radtke 1981; Riemann 1910; Robson 1940; Suchetet 1897a (p. 239); van Pelt Lechner 1913.
- × *Carduelis carduelis* (♂) [European Goldfinch] CHR. This cross is extremely common and has been known since at least 1610 (see Birkhead 2003b). HPF(♂♂). Females are almost invariably sterile (~25% lay eggs), but an old report does exist of an F₁ ♀ of the less commonly bred type (♂ Canary × ♀ Goldfinch) producing offspring with a cock Goldfinch (*Cage Birds* 1904, p. 31). Güttinger and Claus say the song of a hybrid combined characteristics of both parents' songs. Swan describes the results of a microscopic examination of impaired spermatogenesis and testis abnormalities in a hybrid. Beckman et al. 1962; Birkhead 2003b; Blakston et al. 1989; Brichovsky 1968 (p. 172); *Cage Birds* 1950[†], 1952[†]; Cookson 1840; Delacour 1936b; Doebner 1862; Eytorf 1982a, 1982b; Feuillée-Billot 1923; Fitzpatrick 1951; *DZK* 1984–1990; Gray 1958; Güttinger and Claus 1982; Hervouët 1951b; Hinde 1956a, 1956b; Hopkinson 1926 (pp. 180, 190); Houlton 1929; Klatt 1901[†], 1902; Mark 1930; Pomarede 1978; Robson 1940[†]; Ruelle 1986b; Swan 1985; Teague 1932. Internet: GEOC[†].
- × *Carduelis chloris* (↔ usu. ♀) [European Greenfinch] CHR. HPF(♂♂). High percentage of fertile eggs. This is one of the easiest canary crosses to produce. Most hybrids are ♂. They are large, strong birds. Ackermann 1898; Antonius 1933; Blakston et al. 1989; Braun 1917; Brichovsky 1968 (p. 171); *Cage Birds* 1950[†], 1952[†]; Carr 1959[†]; Davenport 1908; Dickie 1904; *DZK* 1984–1990; Friederichs 1904; Galloway 1909; Gill 1955 (p. 91); Hertwig 1936; Hinde 1955; Hopkinson 1926 (p. 176); Houlton 1929; Mark 1930; Poll 1910, 1921; Radtke 1981; Robson 1940; Speicher 1970; von Hünefeld 1864; Wickel 1909.
- × *Carduelis cucullata* (♂) [Red Siskin] CHR. HPF(♂♂). Breeders used this cross to produce red ("Red-factor") canaries by backcrossing ♂ hybrids to *S. canarius*. Fertility improves with backcrossing, but apparently not enough; Red-factor canaries are not very well stabilized. Breeders' continuing demand for Red Siskins to produce red-factor canaries indicates that these birds are not sufficiently fertile to maintain themselves as a type. Demand for Red Siskins for hybridization has also prompted intensive trapping activities which have led to *C. cucullata* being listed as endangered. Gill says that, in 52 matings of F₁ ♂♂ with canary ♀♀, 215 eggs were laid, 44 fertile, four dead in shell, 40 hatched, 30 reared (22 ♂♂, 8 ♀♀). Amsler 1935, 1937; Birkhead 2003a, 2003b; Colard 1978; Dean 1953, 1956; Delacour 1917, 1936b; Duncker 1927a, 1927b, 1928, 1934; *DZK* 1984, 1986; Gill 1954, 1955 (pp. 56–62); Gray 1958; Hopkinson 1920, 1926 (p. 181); Nicolai 1960; Otersen 1951; Pomarede 1988; Ridgely and Tudor 1989; Sich 1927a, 1928, 1929a, 1929b. Internet: GEOC[†].
- × *Carduelis flammea* (↔ usu. ♂) [Common Redpoll] CHR. A sombre-colored, but active hybrid. Formerly popular with breeders. Braun 1914a, 1914b, 1915, 1917; Brichovsky 1968 (p. 172); Carr 1959; Eytorf 1987; *DZK* 1984–1987, 1989; Galloway 1909; Gray 1958; Hopkinson 1926; Houlton 1929; Legendre 1936; Noorduyn 1913; Robson 1940. GEOC[†].
- × *Carduelis flavirostris* (↔ usu. ♂) [Twite] CHR. Most (all?) hybrids are male. Hybrid is similar to linnet × canary. Ackermann 1898; Braun 1911, 1914a, 1915, 1917; Carr 1959;

- DZK 1990; Galloway 1909; Houlton 1904, 1929; Radtke 1983; Robson 1940; Silver 1911; Steinbacher 1979; Tomlinson 1913, 1926. GEOC[†].
- × *Carduelis magellanica* (↔ usu. ♂) [Hooded Siskin] CHR. LFH. Astley 1902; *Bird Notes* 1912 (pp. 223, 321–322); Chatelain 1934; Delacour 1931; *DZK* 1984–1990; Francke 1907; Gray 1958; Hopkinson 1926; Kühnel 1975; Mikalauscas 1982; Prestwich 1928; Scott 1927; Silver 1911, 1938.
 - × *Carduelis notata* (♂) [Black-headed Siskin] CHR. *Bird Notes* 1912 (p. 321); *DZK* 1984–1986, 1988; Neunzig 1921 (p. 296).
 - × *Carduelis pinus* (♂) [Pine Siskin] CHR. *DZK* 1989, 1990; Hopkinson 1926.
 - × *Carduelis psaltria* (♂) [Lesser Goldfinch] CHR. HPF *DZK* 1985; Nicolai 1960.
 - × *Carduelis sinica* [Grey-capped Greenfinch] CHR. *DZK* 1985, 1990.
 - × *Carduelis spinoides* (♂) [Yellow-breasted Greenfinch] CHR. *DZK* 1984, 1986, 1988, 1990; Hopkinson 1926 (p. 183).
 - × *Carduelis spinus* (↔ usu. ♂) [Eurasian Siskin] CHR. HPF (♂♂). A common cross. Most eggs are fertile. The hybrids are more similar to the siskin parent, but a little larger. Neunzig notes a three-way hybrid with an *S. atrogularis* ♂. Antonius 1933; Bailey 1903; Bechstein 1800 (p. 389); Becker 1904; Bonser 1952; Braun 1913, 1914a; Brichovsky 1968 (p. 172); Bryan 1945; *Cage Birds* 1950; *DZK* 1984–1990; Galloway 1909; Gill 1955; Gray 1958; Hertwig 1936; Houlton 1929; Neunzig 1913 (p. 308); Poll 1910, 1921; Poll and Tiefensee 1907; Promptov 1928, 1936; Radtke 1981; Silver 1938; Speicher 1970.
 - × *Carduelis tristis* (♂) [American Goldfinch] CHR. Aschenborn 1966; Braune 1910a; Duncker 1928; *DZK* 1984; Hopkinson 1926; Plath 1922; Reisinger 1929; Silver 1911.
 - × *Carduelis yarrellii* (♂) [Yellow-faced Siskin] CHR. Sick says this hybrid is prized for its excellent singing. Sick 1993 (p. 636).
 - × *Carpodacus erythrinus* (♂) [Common Rosefinch] CHR. A common cross. Beneke 1975; *Bird Notes* 1913 (p. 384), 1914 (p. 124); Delacour 1936b; *DZK* 1984–1990; Hopkinson 1926 (p. 194).
 - × *Carpodacus mexicanus* (♂) [House Finch] CHR. HPF (♂ & ♀). Aschenborn 1966; *DZK* 1984, 1986, 1987, 1989; Page 1914b (p. 46); Plath 1922; Silver 1938; Tomlinson 1913, 1926; von Boetticher 1944. Internet: GEOC[†].
 - × *Carpodacus purpureus* (♀ perhaps ↔) [Purple Finch] CHR. Hopkinson felt this hybrid had only been definitely obtained with a Purple Finch mother. *Aviculture Magazine* 1954 (p. 181); Hopkinson 1926. Page 1914b (p. 46); Silver 1911 (p. 351).
 - × *Carpodacus roseus* [Pallas's Rosefinch] CHR. *DZK* 1990.
 - × *Coryphospingus pileatus* [Pileated Finch] CHR? DRS. HPF. Sick 1993 (p. 595).
 - × *Emberiza citrinella* (♂) [Yellowhammer] CHR?? Ackermann 1898; *Cage Birds* 1903 (p. 242); Carr 1956; Gray 1958; Müller 1906; Parfitt 1957; Reisinger 1929; Saueremann 1887; Szielasko 1925.
 - × *Emberiza melanocephala* (♂) [Black-headed Bunting] CHR?? Gray 1958 (p. 263); Hopkinson 1926 (p. 196); Neunzig 1913 (p. 294).
 - × *Estrilda troglodytes* (♀) [Black-rumped Waxbill] CHR? Gray 1958.
 - × *Euplectes franciscanus* (♂) [Orange Bishop] CHR? Page says this report needs confirmation but that the “correspondent in *Cage Birds* [is] very positive as to the parentage of the two young birds reared, viz., Orange Weaver × Canary.” Page 1914b (pp. 45–46).
 - × *Foudia madagascariensis* (♂) [Red Fody] CHR. Hybrid resembles ♂ parent. Gill 1955 (p. 92); Prestwich 1948b.
 - × *Fringilla coelebs* (♂) [Chaffinch] CHR. Many breeders have expressed doubts about the authenticity of reports of this cross. Hybrids do seem actually to occur, but are very difficult to obtain (Brooksbank described it as “impossible”). A photo of this hybrid appears on an internet site (GEOC). *Avicultural Magazine* 1908 (p. 241), 1935 (pp. 256–257); Braun 1911; Brooksbank 1949 (pp. 186–187); Carr 1950; Carr 1959;

- Gorter 1908; Hale 1937; Hopkinson 1925, 1926 (p. 179); Page 1914b (p. 45); Reisinger 1929; Schlusche 1911a, 1911b.
- × *Fringilla montifringilla* (prob. ♂) [Brambling] CHR?? Parfitt 1957.
 - × *Lonchura acuticauda* (prob. ♂) [Bengalese Munia] Fertile eggs have been reported. Szielasko 1925.
 - × *Lonchura cantans* (prob. ♂) [African Silverbill] CHR?? Brooksbank lists this distant cross, but provides no details. Brooksbank 1949 (p. 20).
 - × *Lonchura malacca* (♂) [Indian Black-headed Munia] CHR. In 1935, P. Allen, a breeder of 40 years experience, reported two hybrids. This cross connects estrildid and fringillid finches. *Cage Birds* 1935 (Aug. 9); Gill 1955.
 - × *Loxia curvirostra* (♂) [Red Crossbill] CHR. Abbate 1967; *DZK* 1984–1986, 1989.
 - × *Luscinia luscinia* [~~Thrush Nightingale~~] Some cite Gray (1958) for this cross. She only says mating was observed, not that hybrids were produced.
 - × *Luscinia megarhynchos* [Common Nightingale] No hybrids have been reported. However, according to Birkhead (2003b), in the early 1900s Karl Reich produced canaries that sang like nightingales. He did so by exposing young canaries to singing nightingales. The song was maintained in later generations as canary parents sang to their young. The birds were called “nightingale canaries.” In addition, Birkhead (p. 235) notes that Bechstein (1800) says a mixed mating (nightingale ♂ × canary ♀) produced infertile eggs.
 - × *Passer domesticus* (♂) [House Sparrow] CHR? Old reports. Charbonnier briefly describes a putative hybrid shot by a hunter. Boswell 1952; Braune 1910a; Charbonnier 1901; Przibram 1910; Reisinger 1929; Schultz 1913; Szielasko 1925.
 - × *Passer montanus* [~~House Sparrow~~] Although Gray (1958) says pairing has frequently been observed in captivity, no hybrids have been reported.
 - × *Passerina ciris* (♂) [Painted Bunting] CHR?? Old records. Braune 1910a, 1910b; *Die Gefiederte Welt* 1902 (p. 130).
 - × *Passerina cyanea* (♂) [Indigo Bunting] CHR? These hybrids, of yellow canary and blue Indigo Bunting, are said to be green. Carr says none of the buntings has hybridized with the canary. *Avicultural Magazine* 1911 (p. 353); Butler 1910b (vol. 1, p. 124); Carr 1959 (p. 9); Gill 1955; Page 1914b (p. 45); Reisinger 1929; Salteri 1951.
 - × *Passerina leclancherii* (♂) [Orange-breasted Bunting] CHR? Reportedly, three eggs of four were fertile and one ♂ hybrid hatched. Schumacher 1952.
 - × *Petronia xanthocolis* [Chestnut-shouldered Petronia] Fertile eggs reported, but no hatched hybrids. *Bird Notes* 1914.
 - × *Pyrrhula pyrrhula* (♀) [Eurasian Bullfinch] CHR. These hybrids are difficult to obtain. The percentage of successful matings is very low. The hybrid is very colorful and attractive. Bernard Williams (Internet site GEOC) says “At this time there have been no crosses [of any kind] with the Bullfinch cock, there have been reports over the years but none proven. There seems no reason why the Bullfinch cock should not cross with other finches as the Bullfinch hen has crossed with most.” Bell, Williams, and Westacott all report success (hatched hybrids) with the Bullfinch cock, but it seems these reports need further substantiation. Also with the cross in the “wrong” direction, fertile eggs were reported by von Tschermak (but no hatched hybrids). Ackermann 1898; Anonymous 1951; Bechstein 1800 (p. 404); Birkhead 2003b (pp. 140–142); Bell 1951; Braune 1910a; Carr 1959⁹; Cherry 1905; Clark 1905; Deem 1951; Delacour 1936b; *Die Gefiederte Welt* 1901 (pp. 334–335), 1911 (p. 176); Eytorff 1982c; *DZK* 1984–1986, 1988, 1990; Hale 1937; Hervouët 1951a; Hinde 1956c; Hopkinson 1926 (p. 191); Houlton 1929; McLeod 1905; Murrell 1905; Page 1923; Przibram 1910; Robson 1940; von Tschermak 1910, 1912; Westacott 1952; Williams 1953. Internet: GEOC.
 - × *Rhodopechys githaginea* (♂) [Trumpeter Finch] CHR. Hybrid resembles *R. githaginea* in color and shape, but is markedly smaller.

- Blume 1907; *DZK* 1984–1990; Despott 1917 (p. 303). Internet: GEOC[†].
- × *Rhodopechys sanguinea* [Crimson-winged Finch] CHR. *DZK* 1984.
 - × *Serinus alario* (♂) [Black-headed Canary] CHR. HPF. Some authors, citing van den Elzen, say that ♀ hybrids are fertile in this cross, but that ♂ hybrids are sterile, which would represent a rare violation of Haldane's Rule. However, van den Elzen herself (2004, personal communication) says that, while some evidence suggests that ♀♀ are more fertile than ♂♂, the fact has not been proven. *Aviculture Magazine* 1935 (p. 292); *Bird Notes* 1910 (pp. 363–364); *DZK* 1984–1990; Fehrer 1993; Gray 1958; Gill 1955 (p. 91); Hopkinson 1926 (p. 187); Nicolai 1960 (p. 351); Page 1907; Silver 1938; van den Elzen 1985 (p. 438), 2004.
 - × *Serinus atrogularis* (♂) [Southern Yellow-rumped Seed eater] CHR. HPF (♂♂). *Bird Notes* 1920a; Cameron 1951; Gill 1955 (p. 91); Hopkinson 1926 (p. 187); Nicolai 1960; Teague 1932.
 - × *Serinus burtoni* [Thick-billed Seed eater] CHR. *DZK* 1988.
 - × *Serinus canicollis* (♂) [Cape Canary] CHR. *Bird Notes* 1910 (pp. 177, 228); Butler 1910b (vol. 1, p. 105); Daly 1899; *DZK* 1985; Gray 1958; Nicolai 1960; Reisinger 1929; Silver 1911; Speicher 1970[†].
 - × *Serinus citrinella* (♂) [Citril Finch] CHR. Gray 1958; Nicolai 1960; Reisinger 1929; Szielasko 1925; Vale 1900.
 - × *Serinus donaldsoni* [Abyssinian Grosbeak-Canary] CHR. GEOC[†].
 - × *Serinus dorsostrigatus* [White-bellied Canary] CHR. HPF *DZK* 1984, 1990; Speicher 1970[†], 1971.
 - × *Serinus flaviventris* (♂) [Yellow Canary] CHR. A common cross. Anonymous 1908a, 1909; Aschenborn 1966; Becker 1975; Braun 1911; Butler 1912; *DZK* 1984–1990; Gray 1958; Hopkinson 1926 (p. 189); Nicolai 1960; Reisinger 1929; Silver 1911 (p. 351); Walmsley 1952.
 - × *Serinus flavivertix* (♂) [Yellow-crowned Canary] Silver's account (1940a) should have reported *S. flavivertix*, not *S. flaviventris* (see correction: *Avicultural Magazine* 1941, vol 6, p. 30). Silver 1940a, 1955.
 - × *Serinus gularis* (♂) [Streaky-headed Seed eater] CHR. Silver 1940b; Speicher 1970. Internet: GEOC[†].
 - × *Serinus hypostictus* [East African Citril] CHR. *DZK* 1989.
 - × *Serinus leucopygius* (♂) [White-rumped Seed eater] CHR. Hybrid is similar to the seed eater in color, but the canary in size. Anonymous 1912; Aschenborn 1966; Boosey 1952; Brichovsky 1968 (p. 171); Brooksbank 1949 (p. 101); Cornillon 1988; *DZK* 1985, 1988; Gray 1958; Nicolai 1960; Reisinger 1929; Silver 1911.
 - × *Serinus mozambicus* (♂) [Yellow-fronted Canary] CHR. Brichovsky 1968 (p. 171); *Die Gefiederte Welt* 1904 (p. 88); *DZK* 1984–1986, 1988, 1990; Francke 1904, 1906; Gill 1955 (p. 91); Gostling 1905; Hopkinson 1926 (p. 190); Nicolai 1960; Schmitter 1911; Speicher 1970[†].
 - × *Serinus nigriceps* [Abyssinian Siskin] CHR. *DZK* 1986.
 - × *Serinus pusillus* [Fire-fronted Siskin] CHR. *DZK* 1990.
 - × *Serinus reichenowi* [Kenya Yellow-rumped Seed eater] CHR. *DZK* 1986.
 - × *Serinus serinus* (♂) [European Serin] CHR. This is a common cross. F₁ ♂♂ said to be as fertile as purebred canaries. Females are also at least partially fertile (but less so, and less often than ♂♂). Anonymous 1906; Antonius 1933; Aschenborn 1966; Braun 1910, 1911, 1913, 1914a, 1914b, 1915, 1917; Brichovsky 1968[†]; de Faveri 1989a, 1989b; *DZK* 1984–1988, 1990; Fenk 1911, 1920; Gray 1958; Hertwig 1936; Hopkinson 1926 (p. 191); Mark 1930; Nicolai 1960; Radtke 1981; Schürer 1904; Taibell 1929; Zimka 1968. Internet: GEOC[†].
 - × *Serinus sulphuratus* (♂) [Brimstone Canary] CHR. *DZK* 1984–1990; Gill 1955 (p. 91); Page 1914b (p. 46); Silver 1911 (p. 351), 1938; Speicher 1970.
 - × *Serinus thibetanus* [Tibetan Serin] CHR. *DZK* 1987.

- × *Serinus totta* (♂) [Cape Siskin] CHR. HPF: Gill 1955 (p. 91); Hopkinson 1926.
- × *Serinus tristriatus* [Brown-rumped Seedeater] CHR. Hemmer 1976.
- × *Serinus xanthopygius* [Abyssinian Yellow-rumped Seedeater] CHR. *Cage Birds* 1948 (July 26); Gill 1955 (p. 91); Speicher 1971.
- × *Sicalis flaveola* [Saffron Finch] CHR?? This cross has been reported in both directions. Supposedly Butler obtained it in 1898. But there has been some doubt whether it has actually occurred. Writing in 1949, Brooksbank said this cross “has been tried many times and in only one case is there a doubtful record [i.e., Butler’s hybrid] of its being successful.” Hopkinson also thought available records were dubious, as did Gray. *Avicultural Magazine* 1902 (pp. 235, 273); Brooksbank 1949 (p. 187); Butler 1898, 1902; Gray 1958; Hopkinson 1926 (pp. 190, 193); Silver 1911 (p. 348), 1950.
- × *Taeniopygia guttata* (♂) [Zebra Finch] CHR?? Bicker-Caarten reported seeing the supposed parents mate and later finding a young bird in the nest. Russ reported a hybrid hatching. Bicker-Caarten 1903; Russ 1911.
- × *Volatinia jacarina* (♂) [Blue-black Grassquit] CHR. HPF Sick 1993 (p. 595).
- × *Zosterops virens* [Green White-eye] CHR?? This distant cross, although reported, needs confirmation. See: *Zosterops pallidus* × *Z. virens*. *Bird Notes* 1920a; Hopkinson 1926.

Appendix 2: Dubious Reports

Note: Most crosses listed in this section are ones included in A. P. Gray's (1958) list of avian hybrids, but which are of very questionable authenticity. A few from other sources are also listed. Although they have all been reported, they require further confirmation. In every case, either the cross is too distant to allow credence, or the documentation is too old and sketchy, or both. They are listed here for the sake of completeness. But none of them should be construed as having actually occurred, although perhaps some of them may upon further investigation turn out to be correct. Since it is unknown exactly how similar two birds must be if they are to produce hybrids, distant crosses, when verified, are especially interesting. However, they also require rigorous documentation if they are to be accepted. All crosses listed here are stricken through to indicate that available evidence appears insufficient to confirm their occurrence.

Anas platyrhynchos [Mallard]

× ~~*Gallus gallus* [Domestic Fowl/Red Jungle Fowl]~~ Gray lists this cross. But, given the age of the reports and the disparity of the alleged parents, she rejects its authenticity. In a letter published by W. Peters in *Journal für Ornithologie* in 1862 (vol. 10, pp. 209–212), Dr. Sommer, a German headmaster, describes a bird he believed to be this hybrid. He says “it hatched from a duck egg, but was a dark-colored thing halfway between chicken and duck. In the form of its body, however, it was more duck-like, in the head and bill, more chicken-like. The feet were entirely like a chicken's except that they were half-webbed ... It remained with the duck brood it hatched out with, allowed itself to be herded into the water with them, and, indeed, swam quite well, but would soon return to shore, and on its own entered the water only to bathe, and then only where it could touch bottom” (translated by E. M. McCarthy*). Sommer says it was killed

*Original German: “Dort war aus einem Entenei ein dunkelfarbiges Mittelding zwischen Huhn und Ente hervorgegangen, in der Körperform jedoch mehr der Ente, am Kopfe und in der Schnabelbildung mehr dem Huhne gleichend, mit vollständigen Hühnerfüssen, deren Zehen jedoch bis zur Hälfte durch eine Schwimmhaut verbunden waren.... Es hielt sich zu der Entenbrut, unter welcher es ausgekommen war, liess sich mit diesen aufs Wasser treiben, schwamm auch recht gut, kehrte aber immer bald ans Ufer zurück, und ging freiwillig nur dann ins Wasser, wenn sich's baden wolte, und dann auch nur soweit, als es gründen konnte.”

by a cage-mate, but claims he later repeated the cross by mating a drake raised by chickens with a tame hen. He says two hybrids resulted, one crushed by its mother, the other, trampled by a cow at 6 weeks of age. In a letter published in *Natural History Magazine* (1834, p. 516), Arthur Biggs of the Cambridge Botanic Garden describes three alleged hybrids: “they were bred at a small farm at Gamingay, Cambs, and were bought, about seven years ago, by Mr. Bowles, veterinary surgeon, Cambridge, who sent them to the Botanic Gardens, and ... [later] they were added to the London [Zoological Society’s] farm at Kingston, Surrey ... they differed from common ducks in the upper part of their beak being twisted and jagged, and so much smaller than the lower part, that it was with some difficulty that they could gather up their food; and in being not web-footed, but having feet like those of a hen. The colour of one of them was a dark brown, like that of some hens; the other two were nearly of the usual colour of common ducks. One of them manifested a dislike to go into water; so much so, that, when driven to the water, it would turn away. The general appearance, and habits of all were such as to induce many persons to suppose that they were mule beings which had been produced from a union between the common species of duck and the common species of fowl.” Gray lists another cross of this nature, Mallard × Guineafowl. She says, quite rightly, that “the authenticity of the report is extremely doubtful,” and cites Ackermann and Przibram. Przibram merely cites Ackermann, who cites very early authors (i.e., Bronn et al. 1841–1843; Hofacker and Notter 1828). Ackermann 1898; Bechstein 1789–1795; Biggs 1834 (pp. 516–517); de Selys-Longchamps 1845; Gray 1958; Peters 1862; Przibram 1910 (p. 80).

Carduelis carduelis [European Goldfinch]

× ***Hirundo rustica*** [Barn Swallow] Albin describes and pictures a hybrid (allegedly, *H. rustica* ♂ × *C. carduelis* ♀). Macpherson pictures a bird closely similar to Albin’s

illustration. This distant cross requires confirmation. Albin 1731–1738^f; Birkhead 2003b (pp. 140, 235); Macpherson, H. A. 1880.

Chloebia gouldiae [Gouldian Finch]

× ~~***Lonchura malabarica*** [White-throated Silverbill]~~ Fehrer lists this cross, but it does not seem to appear in the cited reference. Fehrer 1993.

Fringilla coelebs [Chaffinch]

× ~~***Cardinalis cardinalis*** [Northern Cardinal]~~ A bird exhibited in 1903 may have been this hybrid. *Avicultural Magazine* 1935 (pp. 256–257); Gray 1958.

× ~~***Pyrrhula pyrrhula*** (♀) [Eurasian Bullfinch]~~ This cross needs confirmation. Carr rejects Jamieson’s report. Carr 1959; Jamieson 1950.

Gallus gallus [Domestic Fowl /Red Jungle Fowl]

× ~~***Alectura lathami*** (♂) [Australian Brush-Turkey]~~ Gray lists this cross on the basis of an old report that claims three hybrids were bred from a mating of a Brush-Turkey with a domestic hen, but this disparate cross requires additional confirmation. Gray 1958; Kearthland 1901.

× ~~***Bonasa bonasia*** [Hazel Grouse]~~ This cross is attested by a single very old report. Suchetet 1897a.

× ~~***Bonasa umbellus*** [Ruffed Grouse]~~ This cross, listed by many modern authors, is attested only by an anonymous report from the late 1800s. Anonymous 1886.

× ~~***Menura novaeollandiae*** (♂) [Superb Lyrebird]~~ This distant cross is attested by some evidence, but not enough to allow its acceptance. However, this case warrants further investigation (via artificial insemination?). In an article in the *Victorian Naturalist* J. G. O’Donoghue (1914, p. 15) states that “The association of the Lyre-bird with the settlers’ broods, both in a state of captivity and in its feral state, has often been chronicled, but, so far as my knowledge extends, I can only recall one instance of interbreeding being made public. Some eighteen years ago the well-known ornithologist, Mr. A. W. Milligan, then resident at

Traralgon, had in captivity several hybrids, a cross between the male Lyre-bird and the domestic fowl. These unique birds, when exhibited at a Melbourne dog and poultry show, occasioned much interest, and were awarded a special prize. They were fowl-like in form, but built on a somewhat smaller scale. The plumage was lax and indeterminate, and ashy-brown in colour. The wing feathers, protruding in sheaths like a camel-hair paint brush, closely resembled hair in texture, but in any other respects, except voice, they approximated more to the characteristic features of the domestic than to the wild stock. Mr. Milligan began a series of experiments with these hybrids, which bred freely *inter se*." In a 1904 letter to the editor of *Aviculture Magazine*, Milligan himself (p. 46) says the following: "Whilst living in Victoria I kept many of the native birds in captivity. I was never able to rear *Menura superba*, although I made many attempts to do so. I had, however, hybrids between the Lyre bird and the common fowl, and exhibited them at the Victoria Poultry Show many years ago." In addition, Whittell (1951) quoting from *The Emu* (1909, vol. 9), states that C. W. Maclean exhibited "a rough skin of apparently a hybrid between a Lyrebird and an Andalusian Fowl." Chisholm 1947, 1950, 1964; Finsch 1892; Hertzog 1964, 1965; Milligan 1892, 1904; Peterle 1951; Whittell 1946, 1948, 1951.

× *Tinamus solitarius* [Solitary Tinamou] Helmut Sick notes that "a domestic fowl variety called Araucana Fowl, Chilean Hen, Creole Chicken, or Pre-Hispanic Chicken (*G. inaurarus* or *G. castelloi*) is erroneously assumed to be a hybrid of *G. gallus domesticus* and *Tinamus solitarius*. The Araucana lacks a tail ('anurous,' having the occygeal [sic] vertebrae or pygostyle absent) but has some feather tufts on the head and green legs; it lays light blue, turquoise blue, or greenish blue eggs and is noted for combative disposition. It is generally considered a creation of the Araucana Indians of Chile, but everything

leads to the conclusion that it was introduced there from the islands of the Pacific." However, if the Araucana is simply a breed of *G. gallus*, its egg color is unique. No other breed of domestic chicken lays a blue egg. This is a dominant trait, that is, when other chickens are crossed with Araucanas, the offspring lay blue eggs. *T. solitarius*, however, does lay blue eggs (FOZDO). One of the major characteristics usually mentioned in distinguishing Tinamous (as well as kiwis, moas, emus, ostriches, and cassowaries) from other birds is the pygostyle is weakly developed or absent (Glenny 1946; VPTH). Internet reports say the Araucana was first developed by a Dr. Bustos of Valparaiso, Chile, who crossed two breeds of fowl kept by the Araucana tribe. Glenny 1946; Sick 1993 (p. 202). Internet: AMRAU; ANGF; ARAUC; BEBE; FOZDO; OKST[†]; VPTH.

Passer domesticus [House Sparrow]

- × ~~*Carduelis chloris*~~ [European Greenfinch] Old reports of natural hybridization. Suchetet 1897a (p. 975).
- × ~~*Emberiza citrinella*~~ [Yellowhammer] In describing the 1926 Crystal Palace Bird Show, Gurney says he "noticed" this hybrid (p. 56), but this distant cross needs confirmation. Gurney 1926.
- × ~~*Fringilla coelebs*~~ [Chaffinch] Pavlyuk reported fertile eggs, but none hatched. Older reports of actual hybrids need confirmation. Braune 1910a; Pavlyuk 1986; Suchetet 1897a (p. 286).
- × ~~*Padda oryzivora*~~ [Java Sparrow] Neunzig reported this distant cross, but gave no details. Neunzig 1915.
- × ~~*Sicalis flaveola*~~ (♂) [Saffron Finch] Old report of natural hybridization. Suchetet 1897a (pp. 240, 284).

Passer italiae [Italian Sparrow]

- × ~~*Carduelis chloris*~~ [European Greenfinch] Old report of natural hybridization. Suchetet 1897a (p. 285).

Pyrenestes minor [Lesser Seedcracker]

- × ~~*Uraeginthus bengalus*~~ [Red checked Cordonbleu] Fehrer lists this cross, but it

does not seem to appear in the book he cites. Fehrer 1993.

Scolopax rusticola [Eurasian Woodcock]

× ~~*Vanellus vanellus* [Northern Lapwing]~~ Old report of natural hybridization. Ackermann 1898 (p. 21).

Serinus canicollis [Cape Canary]

× ~~*Lonchura domestica* [Bengalese]~~ Some cite Gray for this cross, but both she and Hopkinson mention this hybrid only to say it was probably a case of mistaken identity. There seems to be no evidence this cross occurred. *Aviculture Magazine* 1903 (p. 222), 1911 (p. 353); Gray 1958; Hopkinson 1926 (pp. 192, 210).

Serinus domesticus [Domestic Canary]

× ~~*Leiothrix lutea* [Red-billed Leiothrix]~~ This cross reported by Russ (1892b) has since been re-identified as a probable linnet × canary hybrid. Gray 1958.

× ~~*Lonchura domestica* (♂) [Bengalese]~~ In referring to a report of this cross in *Die Gefiederte*

Welt, Butler says “although the production of such a hybrid may perhaps be possible the statement was never confirmed.” Hopkinson concurred. Butler 1906c (p. 351); Hopkinson 1926 (pp. 192, 210).

× ~~*Melopsittacus undulatus* (♀) [Budgerigar]~~ Tomlinson, quoted in Prestwich, reports the following with regard to a Nov. 1935 meeting of an ornithological group in southern California: “A Mr. Stone showed a bird which he claims is a cross between a canary and a Shell Parrakeet. The bird looks like a good sized green canary with the back and wings streaked with almost a buff, tail long and narrow, head and beak like the parrakeet with the heavy curved upper mandible. Of course, this is very hard to believe as the canary is of the Fringillidae family while the Parrakeet is of the Psittacine family.” This distant cross requires additional confirmation. Prestwich 1949c (p. 56).

Appendix 3: Internet Citations

AGAP	agapornidenclub.be/personata1.htm
AMAZ	amazilia.net/images/Birds/NewWarblers/Hybrid_Warbler.htm
AMRAU	ameraucana.org/faq.html
ANGF	angelfire.com/nj/foursbar/ameraucanas.html
ANTD	antdiv.gov.au/
APAN	rosella.apana.org.au/bird-det.htm
ARAUC	araucana.org.uk/
ASIA96	camacdonald.com/birding/tripreports/Asia9697.html
ASITI	aw.users.netlink.co.uk/abc/feature/asities2.html
AVBI	avianbiotech.com/
AVES	aves.net/birdnews/wwgulls2001.htm
AVES97	aves.be/bulletins/1997_1.htm
AVIN	avesint.com/
AVS1	avisnatura.com/carnegie_museum/hybrid_warblers1.htm
AVS2	avisnatura.com/carnegie_museum/hybrid_warblers2.htm
AZTR	aztrogon.com/Logs/1998/ML9802.htm
BAFR	bafrenz.com/birds/Spring2003.htm
BALIN	balinsky.com/gallery/nature
BAUS	birdsAustralia.com.au/
BBAB	birdbaby.com/pseudos.htm
BCHI	birdtours.co.uk/tripreports/China/China2/China.htm
BDTR	birdtours.co.uk/tripreports/uae/uae3/mar02.htm
BEBE	browneggblueegg.com/Araucana.html
BFR	bafrenz.com/birds/Spring2003.htm
BHAW	birdinghawaii.co.uk/Sightings2002a2.htm
BHAW2	birdinghawaii.co.uk/PiedStilt2.htm
BII	janeczek.com/start_e.php?i=artenliste
BIWA	birdingwa.iinet.net.au/birds/species/long_billed_corella.htm
BKOR	birdskorea.org/BLMar04.asp
BKOR2	birdskorea.org/birdskorea_review2004.asp
BLK	baylink.org/kestrel/pass.html
BMAC	bluemacaws.org/hist20.htm
BNOR	birdingnorway.no/news/archive.htm
BOSL	birdsofsouthland.com/breeders.mv
BOUG	bou.org.uk/recrep28.html

350 Appendix 3: Internet Citations

BPGR	birdphotographique.com/
BQST	birdquest.co.uk/frameset.cfm?tripReports=0
BRDN	birdsnways.com/mowen/ganggang.htm
BRTR	birdtreks.com/highlites/keea03birds.doc
BTAI	birdtours.co.uk/tripreports/taiwan/taiwan1/taiwan2001.htm
BTNZ	birdtours.co.uk/tripreports/new-zealand/nz3/nz-dec2000.htm
BWLD	birdworld.com.au/
CAMA	camacdonald.com/birding/Sampler3-Parrots.html
CAMA2	camacdonald.com/birding/tripreports/Zimbabwe00.html
CAPN	capenature.org.za/know_how/html/avifauna.pdf
CENP	search.centralpets.com/pages/critterpages/birds/parrots/PRT5752.shtml
CINN	cincinnatibirds.com/message/showthread.php?Thread=156#message2
CMUS	cmusun30.unige.ch/ebn/obs/ebn_9_2000.html
CNP	classnatureprints.com/pr.Jackson%20Birds/Jackson.anas.html
CRAIG	craigharris.org/
CYB	cyberbirding.uib.no/gull/
DBD4	dutchbirding.nl/journal/2001-4.html
DECN	defra.gov.uk/wildlife-countryside/resprog/findings/aewa.pdf
DECT	dec.ctu.edu.vn/cdrom/cd6/projects/uci_www_course/spixnl45.htm
DEEB	gla.ac.uk/ibls/DEEB/rwf/resint.htm
DIGI	digilander.libero.it/avifauna/classificazione/sibley's_index.htm
DKVB	dkb-online.de/
EBN5	ebn.unige.ch/ebn/obs/ebn_5_95.html
EBN9	ebn.unige.ch/ebn/obs/ebn_9_2000.html
EDUBI	ups.edu/biology/museum/Sibleycomments.html
ERL	home.earthlink.net/~richditch2/hybridyellowthroat3.htm
EROS	members.dodo.com.au/~psoa/eastern_rosella_review.htm
EXOT	exoticbird.com
FEAT	feathersite.com/Poultry/CGP/Rapa/BRKAyamBek.html
FETH	feathert.com/yellow-sided.html
FISOC	efinch.com/species/society.htm
FIZE	efinch.com/zebrahybrid.htm
FLDG	fieldguides.com/2003weblists/ak103aLIST.pdf
FOG10	feltornitologene.no/artikler/pbg10.jpg
FOGBR	feltornitologene.no/artikler/pbgbreed.htm
FON	focusnature.com/PhiladelphiaBirdlineArchives2002.htm
FOZDO	fozdoiguacu.com/main.php?run=articles&rkey=32
FOTO5	engelstedsgade.dk/Foto05-Faunaen/eurinumnummer.htm
FRIG	afrigalah.com/birds.html
FSIN	fsinet.or.jp/~bird/bird/photo/newspc/newspc.html
FSNET	the-soc.fsnet.co.uk/sb_index3.htm
FWCS	wld.fwc.state.fl.us/bba/RCPA.htm
FWIE	fwie.fw.vt.edu/WWW/esis/lists/e102002.htm
GEOC	geocities.com/mules_hybrids/index.htm
GGAT	goldengateaudubon.org/birding/observations/obs073102.htm
GLDE	golden-eagle.org/ppageidx.htm
GUIN	guineas.com
HBWC	hbw.com/hbw/volume5/speci501.html
HILL	hillcountryaviaries.com/color_mutations.htm
HOHE	uni-hohenheim.de/~pfiz/hybrid.html
HOLON	my.ort.org.il/holon/birds/an3a.html
HOME	hometown.aol.com/darwinpage/zoo/AOUd.htm
HYP0	web.uct.ac.za/depts/fitzpatrick/docs/hypolist.html

IDOVE	internationaldovesociety.com/
INDI	indianaadubon.org/guide/photoarchive.htm
IRA2	osme.org/osmetrip/iran2.html
ISIS	isis.org
KCBB	kcbbs.gen.nz/lori/hybrid.html
KING	members.dodo.com.au/~psoa/aust_king_parrot_review.htm
KIWI	kiwilhouse.org.nz/news.htm
KRASU	res.krasu.ru/birds/eng/txt/txt_phau.shtml
LOXI	c3.hu/~loxia/sebn.htm
LVOS	landofvoz.com/dal/history3.html
MAD03	fieldguides.com/2003weblists/mad03LIST.pdf
MAHER	philipmaher.com/2001to2002.html
MBD	ville.montreal.qc.ca/biodome/e2-coll/enouf101.htm
MCSL	mcs.le.ac.uk/~ferjan/BIRDS/Feb200024.html
MCUE	menura.cse.unsw.edu.au:64800/2002/06/msg00325.html
MCUE7	menura.cse.unsw.edu.au:64800/2002/11/msg00375.html
MECC	mecca.org/~rporter/PARROTS/buffons.html
MERS	merseyvalley.org.uk/docs/Cwp02.txt
MRTR	martinreid.com/gwwep04.html
MUEN	biologie.uni-muenchen.de/ou/morpho/downloads/ibis.htm
MYPA	mypage.direct.ca/w/writer/ducks.html
MYST3	surfbirds.com/myst%20photos/myst3.html
NESB	neseabirds.com/Midway/blackfoot.htm
NFIO	nfi.org.za/Birds/Groud%20Hornbill/Convrence/ (see linked pdf. file: "GuidelinesFinalEAZA.pdf").
NPW	npwrc.usgs.gov/resource/distr/birds/platte/species/pheumela.htm
NUTW	birds.cornell.edu/BOW/NUTWOO/
NZBDS	nzbirds.com/Skuas.html
NZGOV	doc.govt.nz/Publications/004-Science-and-Research/Older-series/PDF/ir191a.pdf
OBAY	og-bayern.de/
OCNW	oceanwanderers.com/Shorebirds.html
OCOB	oceanwanderers.com/OddBrant.html
OFOP	ofo.ca/photos/
OHIO	ohiobirds.org/news.php?News_ID=97
OHIO2	ohiobirds.org/news.php?News_ID=88
OKST	ansi.okstate.edu/poultry/chickens/araucana/
ONTB	mailman.hwcn.org/pipermail/ontbirds/2003-May/subject.html#4240
ORNI	ornitaxa.com/SM/New/NewSparrows.htm
ORNIT	ornitaxa.com/SM/Split/SplitsNoncommit.htm
PALE	members.dodo.com.au/~psoa/pale_headed_review.htm
PAPG	fieldguides.com/2003weblists/png03LIST.pdf
PARR	parrotsociety.org.au/
PBAS	pbase.com/alexandersson/20040818
PCCC	pc.cc.va.us/Patterson/report.html
PMAED	pma.edmonton.ab.ca/natural/birds/projects/prevwk.htm
PMAED3	pma.edmonton.ab.ca/natural/birds/projects/_bird3.htm
PNAS94	pnas.org/cgi/content/full/94/15/7768
POPRZ	poprzednia.univ.gda.pl/eou/varia.html
PPAR	ladywildlife.com/animal/princessparrot.html
PREV	members.dodo.com.au/~psoa/princess_review.htm
PRTH	birdsofperth.com/terrestrials/parrots/C.html
PRUK	theparrotsocietyuk.org/ggm.htm
PWRC3	mbr-pwrc.usgs.gov/id/framlst/i3970id.html

352 Appendix 3: Internet Citations

- PWRC4 mbr-pwrc.usgs.gov/id/framlst/i4090id.html
RAPT raptorfoundation.org.uk/species.html
RARE rarebird.org/forum/forum_posts.asp?TID=774&PN=1
RBDO rarebird.org/forum/forum_posts.asp?TID=334&PN=1
RBSP rarebirdspain.net/arbsr307.htm
RCC rosssilcock.com/2.htm
RDB rd.bird.or.id/view_html.php?id=74&op=oxyuleuc
REDS redstart.com/checklists/PPC/notes.htm
REM museum.lsu.edu/~Remsen/SACCHybridList.html
RING ringneckdove.com/
RINGN birdworld.com.au/records/parrots/ringneck.html
RPU rip.physics.unk.edu/nou/Johnsgard/Page15.html
SACC museum.lsu.edu/~Remsen/SACCBaseline02.html
SANTC santacruzbirdclub.org/CBC%20Report/woodpeckers.html
SAO stanfordalumni.org/birdsite/text/essays/Great_Plains_Hybrids.html
SCAL birdworld.com.au/records/lorikeets/scalyori.html
SCRI scricciolo.com/
SCZL scholtz.org/bill/nature/Loons2Trop/
SFAU surfbirds.com/mb/trips/Australia-0801-jc.html
SFEC amazilia.net/images/Birds/Owls/Strix_sp_Ecuador.htm
SFRC sfr.c.ufl.edu/Extension/FFSn1/ffsn193.htm#duck
SIB sibleyguides.com/
SINI sinica.edu.tw/zool/english/lis.htm
SPKG 212.187.155.84/pass_06june/Lists_specieskingdoms/Living_Kingdoms.htm
SRF surfbirds.com/mb/trips/Mexico-ne-0302-nb.html
SRF5 surfbirds.com/phorum/read.php?f=51&i=2425&t=2425
SRF6 surfbirds.com/mb/Features/waders/wader-gallery-part6.html
SRF7 surfbirds.com/ID%20Articles/adriaensgulls1203.html
SRF9 surfbirds.com/Rarities/usjuly.html
SULF birdworld.com.au/records/cockatoo/sulph.html
SWIP home.swipnet.se/~w-48087/faglar/materialmapp/arlmapp/ywref.html
TERR terra.es/personal7/jidies/idfiles.htm
TRN turnstonenaturediscovery.com.au/recent sightings.htm
TROC trochilids.com/hybrid.html
TRP members.tripod.com/~tbrc/syie.htm
TURI natura.per.sg/buloh/birds/Streptopelia_chinensis.htm
TXB texasbirds.org/2000_spring/2000_spring_r4_warblers.html
UCT web.uct.ac.za/depts/stats/adu/bn8_1_09.htm
UKRAP nbpc.co.uk/
UNSW menura.cse.unsw.edu.au:64800/1998/08/msg00307.html
UQUE uqac.quebec.ca/~gsavard/grue.htm
USGS npwrc.usgs.gov/resource/distr/birds/cranes/cranes.htm
VIRID viridans.com.au/RAREAN/Varare06.htm
VPTH users.tamuk.edu/kfjab02/dinos/VP THEROPOD.htm
VXDR fieldguides.com/2003weblists/png03LIST.pdf
WANA home.wanadoo.nl/psittaculaworld/Mutations/Hybridization.htm
WBKE wbkenglish.com/hybducks.asp
WFLR wildflorida.org/mallard/
WFR users.wirelessfrontier.net/~bbbirders/sightings_01_2q.htm
WLDF wld.fwc.state.fl.us/duck/Mottled_Ducks/mottled_duck.htm
WLDP worldparrottrust.org/publications/Pap/chapter4.pdf
WOS62 wos.org/WNComp62.htm#STJA
WRMW homepages.mcb.net/wormwell/pages/sedge_x_reed.htm

WWTO	www.wwt.org.uk/threatsp/hybrid/threat.htm
YARA	yarakbirdsofprey.co.uk/photo_gallery.htm
ZERO	zeroextinction.org/examples.htm
ZIAN	zianet.com/SLlover/page4a.html
ZIBY	zibycom.com/members/002269304/Site1/little_corellas.html
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ZOO307	zoonews.ws/IZN/307/IZN-307.html

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Note: Taxa for which a hybrid origin is known, probable, or suspected are marked with an asterisk (see cross accounts for specifics). Populations associated with two different taxa are listed under both, with each taxon parenthetically appended to the population's name.

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Abbreviation Key

Rates and Types of Hybridization

CHR	Captive <i>hybridization reported</i> . Hybrids reported in captivity. See p. 7.
NHR	Natural <i>hybridization reported</i> . Hybridization has been reported to occur under natural circumstances. When a cross is classified as NHR, it either occurs rarely or has been reported rarely, perhaps due to a lack of study. Since these two cases are often hard to distinguish, an NHR classification is best interpreted as indicating a general lack of specific information concerning the frequency with which a cross occurs. See p. 7.
ONHR	Ongoing <i>natural hybridization reported</i> . “Ongoing” indicates either that (1) multiple reports exist of the cross occurring in a natural setting <i>or</i> that (2) at least one report indicates that natural hybrids occur on an ongoing basis (at relatively low levels). See p. 7.
ENHR	Extensive <i>natural hybridization reported</i> . “Extensive” indicates either that (1) many reports exist of the cross occurring in a natural setting <i>or</i> that (2) at least one report indicates that many natural hybrids occur on an ongoing basis. See p. 7.
CANHR	Captive <i>and natural hybridization reported</i> . Hybridization has been reported to occur both in captivity and in a state of nature.
CAONHR	Captive <i>and ongoing natural hybridization reported</i> . See note under ONHR.
CAENHR	Captive <i>and extensive natural hybridization reported</i> . See note under ENHR.
NHI	Natural <i>hybridization inferred</i> .
ENHI	Extensive <i>natural hybridization inferred</i> . See p. 20. Here “extensive” refers to the existence of a probable hybrid population.
CAENHI	Captive <i>and extensive natural hybridization inferred</i> . See note under ENHI.

Fertility/Viability of Hybrids

HPF	Hybrids are <i>partially fertile</i> (i.e., known to have had offspring).
HPF(vh)	Hybrids are inferred to be <i>partially fertile</i> due to the existence of <i>variable hybrids</i> . See p. 19.
HPF(♂♂)	Male <i>hybrids are partially fertile</i> (i.e., known to have had offspring).

HPF(♂ & ♀)	<i>Hybrids are partially fertile in both sexes (i.e., both have had offspring).</i>
HPF(+)	<i>Available data suggests that the hybrids are exceptionally fertile.</i>
LFH	<i>Low fertility in hybrids—available data suggests that the hybrids in question are incapable of producing offspring or that they very rarely do so.</i>
LFH(-)	<i>Very low fertility in hybrids—Available data strongly indicates that the hybrids in question are incapable of producing offspring.</i>
LVH	<i>Low viability in hybrids. Hybrids are less viable than the parental types.</i>

Breeding Contact

BRO	<i>Breeding range overlap. See p. 10.</i>
DRS	<i>Disjunct ranges. The breeding ranges of hybridizing pair are disjunct.</i>
ACZ	<i>Altitudinal contact zone. See p. 26.</i>
PCZ	<i>Parapatric contact zone. See p. 26.</i>

Miscellaneous

PHP	<i>Putative hybrid product. See p. 19.</i>
♂/♂♂	<i>Male/males.</i>
♀/♀♀	<i>Female/females.</i>
#	<i>Specimen number.</i>
sp.	<i>Unknown member (e.g., <i>Crax</i> sp. = “an unknown member of genus <i>Crax</i>”)</i>
↔	<i>Cross is reversible. See p. 8.</i>
F ₁	<i>First filial generation. An “F₁ hybrid” is one produced by an initial cross between two types (as opposed to one produced in later generations).</i>
†	<i>Citations marked with this symbol have illustrations of the hybrid.</i>
~	<i>Approximately.</i>
?/??	<i>Indicates doubt/marked doubt.</i>
