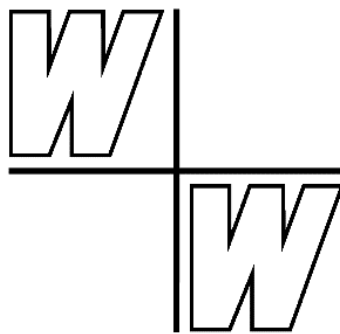


# Data Collection on Intergeneric Hybrids and Basic Types: **AVES 1: non-Passeriformes**

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**<https://www.wort-und-wissen.org/artikel/data-collection-basic-types/>**

## class AVES

birds = Vögel

44 extant orders, 251 families, 11167 species

### part 1: non-Passeriformes

43 extant orders, 107 families, 4453 species

arranged alphabetically according to orders.

All families are listed

Delimitation of orders, families and genera as well as number of species after “birds of the world“ 2026 <https://birdsoftheworld.org/>, which provides an up-to-date and comprehensive overview.

Subdivision of families mainly after en.wikipedia 2026.

#### Abbreviations:

° = taxa not accepted in the rank of a genus by “birds of the world“ 2026, e. g. *Catharacta*<sup>°</sup>  
*skua* = *Stercorarius skua*.

**10: 50** etc. The numbers behind the names of families etc. refer to extant genera and species

**IS** = interspecific hybrid. **IG** = intergeneric hybrid. **IST** = intersubtribal hybrid.

**IT** = intertribal hybrid. **ISF** = intersubfamilial hybrid. **IF** = interfamilial hybrid.

**HY** = assumed intergeneric hybridogeneous origin of a taxon.

**nat. hyb.** = natural hybrid **art. hyb.** = artificial hybrid **capt. hyb.** hybrid in captivity

#### Colors within the crosses:

Red letters: intergeneric hybrids (incl. former IG).

Violet letters: plurigeneric hybrids.

Gray letters: hybridity unconfirmed or erroneous.

Green letters: notes on tribes, subfamilies etc. involved in the hybridization.

Yellow shaded: Notes concerning basic types.

#### Preface: how reliable are the cited hybrids?

In this paper more than thousand interspecific and intergeneric hybrids are mentioned. It is not possible to give an evaluation for all these crosses. Therefore, they must be treated with some caution. Questionable and unconfirmed hybrid combinations are written in gray letters, but certainly some more are unconfirmed. Erroneous reports are also written in gray letters but scored out. – As in other contemporary papers on bird hybrids most data before 2006 go back to McCarthy (2006). This book is very valuable, but between confirmed hybrids, there are

also unconfirmed reports, cf. Graves (2008). A compilation of confirmed/reliable hybrid data is given in the avian hybrids project of Ottenburghs et al. (2015 f.), but the list is not complete.

## Summary

**327 intergeneric hybrids IG** (incl. **IT**, **ISF** and **IF**) have been reported in total.

**61 preliminary basic types** (orders, superfamilies, families or subfamilies) are represented, as for extant taxa. About one half (31) of the basic types comprise only 1–10 species, and 7 comprise >150 species.

\*\* = sole family of an order.

Accipitridae subfamilies Buteoninae,  
 Accipitrinae, and Harpaginae 33: 151  
 Alcidae 11: 25  
 Aegothelidae 1: 10 \*\*  
 Anatidae 53: 174  
 Anhimidae 2: 3  
 Anhingidae 1: 4  
 Anseranatidae 1: 1  
 Apterygidae 1: 5 \*\*  
 Aramidae 1: 1  
 Ardeidae subfamily Ardeinae 13: 57  
 Balaenicipitidae 1: 1  
 Bucerotidae 16: 64  
 Cariamidae 2: 2 \*\*  
 Casuariidae 2: 4 \*\*  
 Cathartidae 5: 7 \*\*  
 Ciconiidae 6: 20 \*\*  
 Columbidae 52: 353 \*\*  
 Cracidae 11: 57  
 Diomedeidae 4: 20  
 Eurypygidae 1: 1  
 Falconidae subfamily Falconinae 4: 45 \*\*  
 Fregatidae 1: 5  
 Gaviidae 1: 5 \*\*  
 Gruidae 4: 15  
 Haematopodidae 1: 12  
 Laridae subfamily Larinae genus Larus s. l.  
 11: 64  
 Leptosomidae 1: 1 \*\*  
 Megapodiidae 7: 21  
 Mesitornithidae 2: 3 \*\*  
 Musophagidae subfamily Musophaginae 3:  
 17 \*\*

Nyctibiidae 2: 7 \*\*  
 Opisthocomidae 1: 1 \*\*  
 Otididae 12: 26 \*\*  
 Pandionidae 1: 1  
 Pelecanidae 1: 8  
 Phaethontidae 1: 3 \*\*  
 Phalacrocoracidae 7: 34  
 Phasianoidea = families Phasianidae /  
 Numididae / Odontophoridae 68: 229  
 Phoenicopteridae 3: 6  
 Picidae subfamily Picinae 25: 200  
 Podargidae 3: 16 \*\*  
 Podicipedidae 6: 22 \*\*  
 Psittaciformes 101: 410  
 Psophiidae 1: 3  
 Pteroclididae 2: 16 \*\*  
 Recurvirostridae 3: 9  
 Rheidae 1: 2 \*\*  
 Rhynochetidae 1: 1  
 Sagittariidae 1: 1  
 Scopidae 1: 1  
 Spheniscidae 7: 20 \*\*  
 Steatornithidae 1: 1 \*\*  
 Stercorariidae 1: 7  
 Strigiformes 27: 248  
 Struthionidae 1: 2 \*\*  
 Sulidae 3: 11  
 Threskiornithidae 13: 36  
 Trochilidae 112: 363  
 Trogonidae 7: 47 \*\*  
 Turnicidae 2: 18  
 Upupidae 1: 3.

## General references on avian hybrids:

- Ackermann K (1898) Thierbastarde. Zusammenstellung der bisherigen Beobachtungen über Bastardirung im Thierreiche nebst Litteraturnachweisen. II: Wirbelthiere. Kassel: Weber und Weidemeyer.
- Aliabadian M & Nijman V (2007) Avian hybrids: incidence and geographic distribution of hybridisation in birds. *Contrib. Zool.* 76 (1), 59–61. <http://dpc.uba.uva.nl/cgi/t/text/get-pdf?c=ctz;idno=7601a06>
- avianhybrids** → see Ottenburghs J et al. (2015 ff.)
- avibase** Avibase - The World Bird Database. Bird checklists - taxonomy - distribution - maps - links. <https://avibase.bsc-eoc.org/avibase.jsp?lang=EN>
- bird-hybrids** → see Dumont 2003–2017 <http://www.bird-hybrids.com/>
- birds of the world** <https://birdsoftheworld.org/>
- Cockrum EL (1952) A check-list and bibliography of hybrid birds in North America north of Mexico. *Wilson Bull.* 64, 140–159.
- Del Hoyo J et al. (1997–1999) Handbook of the birds of the world. Barcelona: Lynx.
- Dumont S (2003–2017) Serge Dumont bird hybrids database: <http://www.bird-hybrids.com/> Search engine on bird hybrids. **Not all taxa with hybrids are included. Data of e.g. Gray 1958 and of McCarthy 2006 are thoroughly listed, but without critical comments! In 2017 all together 8952 bird hybrids and 5622 references were listed.**
- Ericson PGP et al. (2006) Diversification of Neoaves: integration of molecular sequence data and fossils. *Biol. Lett* 2, 543–547.
- Fänger H (2026) Avitaxonomicon website, <https://www.bird-phylogeny.de> private website with many phylograms and other valuable information on the systematics of birds
- Fehrer J (2009) Eine neue Phylogenie der Vögel: Was sagen die Daten wirklich? *Studium Integrale J.* 16, 3–16. <https://www.si-journal.de/index2.php?artikel=jg16/heft1/sij161-1.html> general considerations concerning the taxonomy and the question of basic types in birds and critical comments as to Hackett et al. (2008)
- Grant PR & Grant BR (1992) Hybridization of bird species. *Science* 256, 193–197.
- Graves GR (2008) Review: Handbook of avian hybrids of the world by Eugene M. McCarthy". *The Wilson Journal of Ornithology* 120 (1), 233–235. **see the remarks to McCarthy (2006)**
- Gray AP (1958) Bird hybrids: A check-list with bibliography. Farnham Royal, Bucks: Commonwealth Agricultural Bureaux. 390 p. **some data are questionable. This book is now outdated; for more recent information and critical comments, see McCarthy 2006.**
- Hackett SJ et al. (2008) A phylogenomic study of birds reveals their evolutionary history. *Science* 320, 1763–1767. **cf. Fehrer 2009.**
- Houlton C & Blake J (1986) Cage bird hybrids. Nimrod Press Ltd.
- Livezey BC & Zusi RL (2007) Higher-order phylogeny of modern birds (Theropoda, Aves: Neornithes) based on comparative anatomy. II. Analysis and discussion. *Zool. J. Linn. Soc.* 149, 1–95.
- McCarthy EM (2006) Handbook of avian hybrids of the world. Oxford University Press. 608 pp. <http://spinus.info/Images/books/AH743697479746.pdf> An evaluation is given for many critical or unconfirmed hybrids, but not for all, see the critical remarks of Graves (2008): “However, those who cast a wide net had better be prepared to throw back the by-catch. Unfortunately, McCarthy kept it all – the good, the bad, and the vague. The lack of discrimination reduces the usefulness of his work because readers will have to dig deeply into the cited works to evaluate the quality of the documentation.” Therefore, with regard to the hybrids cited by McCarthy in this paper, it remains a task for future research to double-check all information against the literature. – Most data are also listed in Dumont (see above) and many of them with critical remarks in Ottenburghs et al. (2015 ff.).

- Ottenburghs J et al. (2015 ff.) The avian hybrids project: gathering the scientific literature on avian hybridization. *Ibis*, 157 (4), 892–894. **avianhybrids**  
<https://avianhybrids.wordpress.com/overview-2/> this online-publication is much more critical than McCarthy (2006) or Dumont (2003–2017)
- Ottenburghs J (2023) How common is hybridization in birds? *Journal of Ornithology* 164, 913–920. <https://doi.org/10.1007/s10336-023-02080-w>
- Panov EN (1989) Natural hybridisation and ethological isolation in birds. [Russian]. Moscow: Nauka. **uncritical**
- Randler C (2006) Behavioural and ecological correlates of natural hybridization in birds. *Ibis* 148, 459–467.
- Sanders RW (ed.) (2025) Basic types of life. Tusla (Oklahoma): Blyth Institute.
- Short LS (1969) Taxonomic aspects of avian hybridization. *Auk* 86 (1), 84–105.  
<http://elibrary.unm.edu/sora/Auk/v086n01/p0084-p0105.pdf>
- Sibley CG & Ahlquist JE (1990) Phylogeny and classification of birds: a study in molecular evolution. New Haven (CT): Yale University Press.
- Tyler S (2025) Further candidates for basic types of birds – a resumé. pp. 299–341 in Sanders RW (ed.) Basic types of life. Tusla (Oklahoma): Blyth Institute. **32 prospective basic types are presented**
- Winkler DW et al. (2015) Bird families of the world: A guide to the spectacular diversity of birds. Lynx Edicions, Barcelona. ISBN 978-84-941892-0-3.
- zoochat <https://www.zoochat.com/community/search/9707769/?q=hybrid&o=relevance> An interesting website with many photos of zoo animal hybrids

## **Accipitriformes** 3 families, 252 species

**hawks, eagles, kites, and allies = Greifvögel**

3 families: Accipitridae 74, Pandionidae 1, Sagittariidae 1.

## **Accipitriformes: Accipitridae 74: 250 + extinct taxa. 5 IG + 2 ISF** **eagles, buzzards, hawks and Old World vultures = Habichtartige**

The subdivision varies much.

12 subfamilies: Struthio

Accipitrinae 11: 72 *Accipiter*, *Aerospiza*, *Astur*, *Circus*, *Erythrotriorchis*, *Kaupifalco*, *Megatriorchis*, *Melierax* 3, *Micronisus gabar*, *Tachyspiza* 27, *Urotriorchis*.

Aegyptiinae 6 *Aegyptius*, *Gyps*, *Necrosyrtes*, *Sarcogyps*, *Torgos*, *Trigonoceps*.

Aquilinae 9 *Aquila* 11, *Clanga* 3 *clanga*, *hastata*, *pomarina*, *Ictinaetus*, *Lophaetus*, *Lophotriorchis*, *Polemaetus*, *Spizaetus*, *Stephanoaetus*.

Buteoninae 18 *Busarellus*, *Butastur*, *Buteo* (incl. *Asturina*°), *Buteogallus* 9, *Cryptoleucopteryx*, *Geranoaetus*, *Geranospiza*, *Haliaeetus*, *Haliastur*, *Harpyhaliaetus*, *Helicolestes hamatus*, *Ictinia*, *Leucopternis*, *Milvus*, *Parabuteo*, *Pseudastur*, *Rostrhamus sociabilis*, *Rupornis*.

Circaetinae 4 *Terathopius*, *Circaetus*, *Spilornis*, *Pithecophaga*.

Elaninae 4 *Chelictinia*, *Elanus*, *Gampsonyx*.

Gypaetinae 3 *Gypohierax*, *Gypaetus*, *Neophron*.

Haliaetinae 2 *Haliaeetus*, *Ichthyophaga*.

Harpiinae 4: 4 *Harpia*, *Harpyopsis*, *Macheiramphus*, *Morphnus*.

Harpaginae 2: 4 *Harpagus*, *Microspizias*.

Lophospizinae 1 *Lophospiza*

Perninae 9 *Aviceda*, *Chondrohierax*, *Elanoides*, *Eutriorchis*, *Hamirostra*, *Henicopernis*, *Leptodon*, *Lophoictinia*, *Pernis*.

Polyboroidinae 1 *Polyboroides*.

Probably **basic type family Accipitridae subfamilies Buteoninae, Accipitrinae, and Harpaginae** (33: 151). A view on the phylogeny of Catanach et al. 2024 (see the figure below) shows that the 2 large subfamilies Buteoninae and Accipitridae are connected by hybridization, and that subfamily Harpaginae is included by its position between them. – Thus, the basic type is principally the same as originally described by Zimbelmann (1993, p. 187) but somewhat enlarged because of new hybrids and new systematic insights. – Zimbelmann mentions subfamilies **Aegyptiinae** and **Haliaetinae** as possible further basic types.

**IS:** McCarthy (2006), p. 180 ff.: *Accipiter* 8 IS, *Aquila* (incl. *Clanga*) 5 IS, *Buteo* 14 IS, *Buteogallus* 1 IS, *Circus* 3 IS, *Circus* 4 IS, *Geranospiza* 2 IS, *Gyps* 3 IS, *Haliastur* 1 IS, *Leucopternis* 0–1 IS, *Melierax* 1 IS, *Milvus* 2 IS, *Pernis* 1 IS.

See also: <https://avianhybrids.wordpress.com/accipitriformes/>

*Accipiter gentilis* × *Buteo buteo* **ISF Accipitrinae × Buteoninae** (capt. hyb.) McCarthy 2006  
*Accipiter cooperi* × *Parabuteo unicinctus* **ISF Accipitrinae × Buteoninae** (capt. hyb.) Fox & Sherrod 1999, Dumont 2012

*Aegyptius monachus* × *Gyps fulvus* **Aegyptiinae** (capt. hyb.) McCarthy 2006, avianhybrids 2026

*Aquila chrysaetos* × *Clanga* (“*Aquila*”) *pomarina* **Aquilinae** McCarthy 2006 Dumont 2012

*Aquila heliaca* × *Buteo buteo* (capt. hyb.) **ISF Aquilinae × Buteoninae** McCarthy 2006 (capt. hyb. = pers. comm. Fox 2003), Dumont 2012 (only citation of McCarthy without comment), **questionable**, avianhybrids 2026t (this hybrid has not been published).

*Buteo nitidus* (= *Asturina*<sup>o</sup> *nitida*) × *Buteo lineatus* (nat. hyb.) **IS Buteoninae** McCarthy 2006

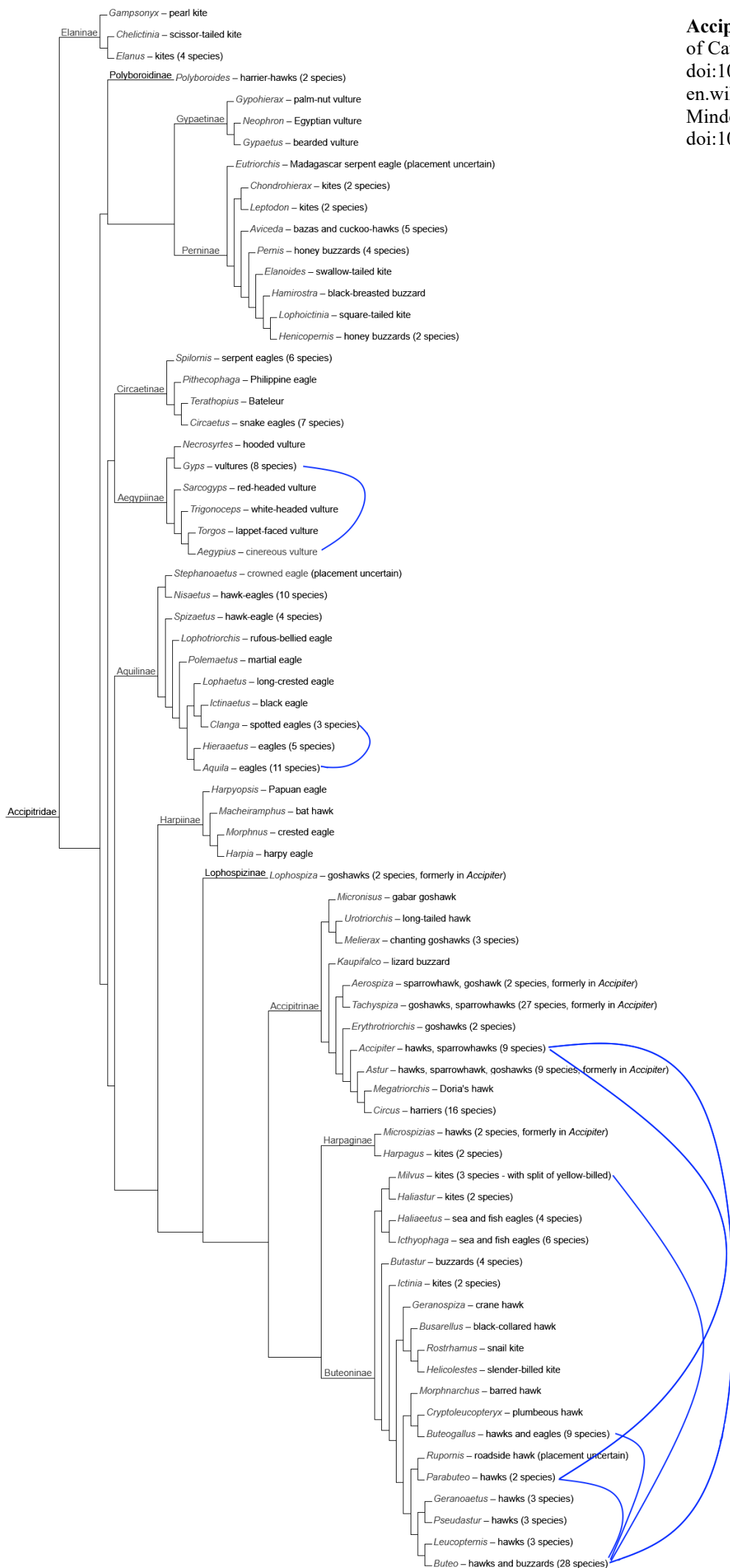
*Buteo lineatus* × *Buteogallus anthracinus* **Buteoninae** Moore & Coulson 2020 (nat. hyb., originally reported by Hug 2016), avianhybrids 2026

*Buteo buteo* × *Milvus migrans* **Buteoninae** (nat. hyb.) McCarthy 2006, avianhybrids 2026 (“possible”)

*Buteo jamaicensis* × *Parabuteo unicinctus* **Buteoninae** (capt. hyb., nat. hyb.) McCarthy 2006

*Buteo buteo* × *Pernis apivorus* **ISF Buteoninae × Perninae** (nat. hyb.) McCarthy 2006 (p. 182: “?. Old report. Suchetet 1897a.”); Ottenburghs et al. 2019 (he lists this hybrid without evaluation)

*Gyps rueppelii* × *Gyps* (= *Pseudogyps*<sup>o</sup>) *africanus* **IS Aegyptiinae** McCarthy 2006, p. 184



**Accipitridae:** hybrids in the phylogeny of Catanach TA et al. (2024)  
 doi:10.1093/biolinnean/blae028, from en.wikipedia (2026, CC BY-SA 4.0). Cf. Mindell DP et al. (2018).  
 doi:10.1007/978-3-319-73745-4\_1.

## References:

- Catanach TA et al. (2024) Enigmas no longer: using ultraconserved elements to place several unusual hawk taxa and address the non-monophyly of the genus *Accipiter* (Accipitriformes: Accipitridae). *Biological Journal of the Linnean Society* 144 (2) blae028. doi:10.1093/biolinnean/blae028
- Fox NC & Sherrod (1999) The use of exotic and hybrid raptors in falconry. Information arising from the International Committee on Hybrids. International Wildlife Consultants Ltd., Carmarthen, Wales, England.
- Moore S & Coulson JF (2020) Intergeneric hybridization of a vagrant common black hawk and a red-shouldered hawk. *J. Raptor Research* 54, 74–80.
- Ottenburghs et al. (2026 etc.) <https://avianhybrids.wordpress.com/accipitriformes/>
- Zimbelmann F (1993) Grundtypen bei Greifvögeln (Falconiformes). pp. 185–195 in Scherer S (Hg.) *Typen des Lebens*. Berlin: Pascal.
- Zimbelmann F (2025) Basic types of diurnal birds of prey (Falconiformes). pp. 253–267 in Sanders RW (ed.) *Basic types of life*. Tusla (Oklahoma): Blyth Institute. [English translation of Zimbelmann \(1993\)](#). *Aquilinae, Accipitrinae/Buteoninae, Aegypiinae, Haliaetinae*

## Accipitriformes: Pandionidae 1: 1

osprey = Fischadler

Sometimes considered as subfamily of Accipitridae.

Monotypic: *Pandion haliaetus*.

Probably **basic type family Pandionidae (1: 1)** as an isolated well-defined monotypic family, or possibly part of basic type Accipitridae s. l.

## Accipitriformes: Sagittariidae 1: 1

secretary bird = Sekretär

Sometimes considered as subfamily of Accipitridae.

Monotypic: *Sagittarius serpentarius*.

Probably **basic type family Sagittariidae (1: 1)** as an isolated well-defined monotypic family, or possibly part of basic type Accipitridae s. l.

## **Aegotheliformes** 1 family, 10 species

### Aegotheliformes: Aegothelidae 1: 10 + 1 extinct genus

owled nightjars = Höhlenschwalme

Sometimes associated with Caprimulgiformes or Apodiformes.

*Aegotheles* 10.

Probably **basic type family Aegothelidae (1: 10)** an isolated family.

IS: McCarthy (2006), Dumont (2017): no hybrids mentioned.

## **Anseriformes** 3 extant families, 178 species + 7 extinct families

waterfowl = Gänseartige

3 extant families: Anatidae 53: 174. Anhimidae 2: 3. Anseranatidae 1: 1.

## **Anseriformes: Anatidae 53: 174. + extinct taxa. 52 IG + 7 IT + 26 ISF**

ducks, swans and geese = Entenvögel

excl. Anseranatidae/Anseranatinae

7 subfamilies (en.wikipedia 2026):

Anatinae (3 tribes):

Anatini *Amazonetta* 1, *Anas* 53, *Lophonetta* 1, *Specularias* 1.

Mergini *Bucephala* 3, *Clangula* 1, *Histrionicus* 1, *Lophodytes* 1 *cucullatus*, *Melanitta* 3, *Mergellus* 1 *albellus*, *Mergus* 5, *Polysticta* 1, *Somateria* 3.

Oxyurini *Heteronetta* 1, *Nomonyx* 1, *Oxyura* 5.

Anserinae *Anser* 11, *Branta* 6, *Cereopsis* 1, *Coscoroba* 1, *Cygnus* 7.

Aythiinae *Aythya* 12, *Marmornetta*, *Netta* 4

Dendrocygnae *Dendrocygna* 8, *Thalassornis* 1.

Plectropterinae *Plectropterus* 1.

Stictonettinae *Stictonetta* 1.

Tadorninae: *Alopochen* 1, *Chloephaga* 5, *Hymenolaimus* 1, *Merganetta* 1, *Neochen* 1, *Salvadorina* 1, *Tadorna* 7.

unresolved *Aix* 2, *Biziura*, *Cairina* 2, *Callonetta* 1, *Chenonetta* 1, *Cyanochen* 1,

*Malacorhynchus* 1, *Marmaronetta*, *Nettapus* 3, *Pteronetta* 1, *Sarkidiornis* 1, *Tachyeres* 3.

**Basic type family Anatidae (53: 174):** Scherer & Hilsberg 1982, Scherer 1993.

This is the longest known basic tribe of all. The large number of **85 IG** incl. 26 interfamilial hybrids is known, which link all 11 tribes/subfamilies (see the two figures below). The former subfamily Anseranatinae is not part of the basic type and has meanwhile been separated as a family of its own taxonomically. – In 1993 no hybrid connections were known with the small subfamily Stictonettinae (and some taxa now integrated in other subfamilies). But modern molecular data show that they all are nested within the other clades. Thus, Anatidae are confirmed as a clear basic type.

**IS:** McCarthy (2006): *Aix* 1 IS, *Anas* 142 IS, *Anser* 22 IS, *Aythya* 34 IS, *Branta* 6 IS, *Bucephala* 3 IS, *Cairina* 1 IS, *Chloephaga* 2 IS, *Cygnus* 13 IS, *Dendrocygna* 11 IS, *Mergus* 1 IS, *Netta* 2 IS, *Oxyura* 2 IS, *Somateria* 2 IS, *Tachyeres* 1 IS, *Tadorna* 11 IS.

For further compilations of interspecific and intergeneric hybrids, see Johnsgard 1960, Scherer & Hilsberg 1982, Gillham & Gillham 1996, 2002, Dumont 2017 and avianhybrids <https://avianhybrids.wordpress.com/anseriformes/> (2026).

Because the systematic subdivision into subfamilies and tribes is permanently changing, the following attribution to subfamilies is provisional:

*Aix* × *Amazonetta* unresolved × **Anatinae Anatini** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aix* × *Anas* unresolved × **Anatinae Anatini** (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aix* × *Aythya* unresolved × *Aythiinae* (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aix* × *Bucephala* IT *Anatinae Anatini* × *Anatinae Mergini* (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aix* × *Callonetta* unresolved (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aix* × *Chenonetta* unresolved (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006 (“?”), Dumont 2012

*Aix* × *Clangula* unresolved × *Anatinae Mergini* (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006 (“?”), Dumont 2012

*Aix* × *Lophodytes* (“*Mergus*”) *cucullatus* unresolved × *Anatinae Mergini* (nat. hyb.) McCarthy 2006, Dumont 2012

*Aix* × *Mergus* unresolved × *Anatinae Mergini* (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aix* × *Netta* unresolved × *Aythiinae* (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aix* × *Tadorna* unresolved × *Tadorninae* (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Alopochen* × *Anas* ISF *Tadorninae* × *Anatinae Anatini* (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006 (“?”), Dumont 2012

*Alopochen* × *Anser* ISF *Tadorninae* × *Anserinae* (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Alopochen* × *Branta* ISF *Tadorninae* × *Anserinae* (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Alopochen* × *Cairina* *Tadorninae* × unresolved (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Alopochen* × *Chenonetta* *Tadorninae* × unresolved (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Alopochen* × *Chloeophaga* *Tadorninae* (capt. hyb., nat. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Alopochen* × *Cyanochen* *Tadorninae* (capt. hyb., fertile) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Alopochen* × *Neochen* *Tadorninae* (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Alopochen* × *Plectropterus* ISF *Tadorninae* × *Plectropterinae* (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Alopochen* × *Tadorna* *Tadorninae* (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Amazonetta* × *Anas* *Anatinae Anatini* (nat. hyb., capt. hyb.) McCarthy 2006, Dumont 2012

*Amazonetta* × *Aythya* ISF *Anatinae Anatini* × *Aythiinae* (capt. hyb.) McCarthy 2006, Dumont 2012

*Amazonetta* × *Callonetta* *Anatinae Anatini* (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anas* × *Anser* ISF *Anatinae Anatini* × *Anserinae* (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anas* × *Aythya* ISF *Anatinae Anatini* × *Aythiinae* (capt. hyb., nat. hyb.) McCarthy 2006, Dumont 2012

*Anas* × *Branta* *Anatinae Anatini* × *Anserinae* ISF (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anas* × *Bucephala* IT *Anatinae Anatini* × *Anatinae Mergini* (nat. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anas* × *Cairina* Anatinae Anatini × unresolved (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anas* × *Callonetta* Anatinae Anatini × unresolved (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anas* × *Clangula* IT Anatinae Anatini × Anatinae Mergini (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anas* × *Cyanochen* Anatinae Anatini × unresolved Scherer & Hilsberg 1982, McCarthy 2006

*Anas* × *Hymenolaimus* ISF Anatinae Anatini × Tadorninae (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006 (“?? Gray 1958 etc.”), Dumont 2012

*Anas* × *Lophodytes* (“*Mergus*”) *cucullatus* IT Anatinae Anatini × Anatinae Mergini (nat. hyb.) McCarthy 2006, Dumont 2012

*Anas* × *Melanitta* IT Anatinae Anatini × Anatinae Mergini (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006 (“? Old record. Leverkühn 1890”), Dumont 2012

*Anas* × *Mergus* IT Anatinae Anatini × Anatinae Mergini ISF (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anas* × *Neochen?* ISF Anatinae Anatini × Tadorninae Scherer & Hilsberg 1982, McCarthy 2006

*Anas* × *Netta* ISF Anatinae Anatini × Aythyinae (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anas* × *Nettapus* Anatinae Anatini × unresolved (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anas* × *Polysticta* IT Anatinae Anatini × Anatinae Mergini (nat. hyb.) McCarthy 2006, Dumont 2012

*Anas* × *Sarkidiornis* Anatinae Anatini × unresolved (nat. hyb.) McCarthy 2006, Dumont 2012

*Anas* × *Somateria* IT Anatinae Anatini × Anatinae Mergini (nat. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anas* × *Tadorna* ISF Anatinae Anatini × Tadorninae (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anser* × *Branta* Anserinae (nat. hyb., capt. hyb., fertile) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012, Kowalczyk & Lukaszewicz 2012

*Anser* × *Cairina* Anserinae × unresolved (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anser* × *Chloeophaga* ISF Anserinae × Tadorninae (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anser* × *Cyanochen* Anserinae × unresolved (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anser* × *Cygnus* Anserinae (nat. hyb., capt. hyb., frequent, hybrids sometimes fertile) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anser* × *Plectropterus* ISF Anserinae × Plectropterinae (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Anser* × *Tadorna* ISF Anserinae × Tadorninae (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006 (“???”), Dumont 2012

*Aythya* × *Bucephala* ISF Aythyinae × Anatinae Mergini (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aythya* × *Callonetta* Aythyinae × unresolved (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aythya* × *Dendrocygna* ISF Aythyinae × Dendrocygnae Scherer & Hilsberg 1982, McCarthy 2006

*Aythya* × *Lophodytes* (“*Mergus*”) *cucullatus* ISF Aythyinae × Anatinae Mergini (capt. hyb.) McCarthy 2006, Dumont 2012

*Aythya* × *Marmaronetta* **Aythiinae** × **unresolved** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aythya* × *Mergus* **ISF Aythiinae** × **Anatinae Mergini** (capt. hyb.) Gillham & Gillham 2002, Dumont 2012

*Aythya* × *Netta* **Aythiinae** (fertile) (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aythya* × *Oxyura* **ISF Aythiinae** × **Anatinae Oxyurini** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006 (“?”), Dumont 2012

*Aythya* × *Somateria* **ISF Aythiinae** × **Anatinae Mergini** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Aythya* × *Tadorna* **ISF Aythiinae** × **Tadorninae** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Branta* × *Cairina* **Anserinae** × **unresolved** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Branta* × *Cereopsis* **Anserinae** (capt. hyb.) Kear & Berger 1980, Banko & Black 1999, Dumont 2012

*Branta* × *Chloephaga* **ISF Anserinae** × **Tadorninae** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Branta* × *Coscoroba* **Anserinae** (capt. hyb.) Gillham & Gillham 2002, Dumont 2012 (not yet in Scherer & Hilsberg)

*Branta* × *Cygnus* **Anserinae** (nat. hyb., capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

~~*Branta* × *Tadorna* **ISF Anserinae** × **Tadorninae** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006 (“Erroneous. Some cite Gray (1958) for this cross. Pairing in captivity was observed, but no hybrids were reported.”), Dumont 2012~~

*Bucephala* × *Lophodytes* (“*Mergus*”) *cucullatus* **Anatinae Mergini** (nat. hyb.) McCarthy 2006, Dumont 2012

*Bucephala* × *Melanitta* **Anatinae Mergini** (nat. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Bucephala* × *Mergellus* (“*Mergus*”) *albellus* **Anatinae Mergini** (nat. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Bucephala* × *Mergus* **Anatinae Mergini** (nat. hyb.) Suchetet 1896, Sibley 1938, Gray 1958, Johnsgard 1960, McCarthy 2006, Dumont 2012

*Bucephala* × *Netta* **ISF Anatinae Mergini** × **Aythiinae** Scherer & Hilsberg 1982, McCarthy 2006

*Cairina* × *Plectropterus* **unresolved** × **Plectropterinae** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Cairina* × *Sarkidiornis* **unresolved** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Cairina* × *Tadorna* **unresolved** × **Tadorninae** (capt. hyb., nat. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Chenonetta* × *Chloephaga* **unresolved** × **Tadorninae** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006

*Chloephaga* × *Plectropterus* **ISF Tadorninae** × **Plectropterinae** (nat. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Chloephaga* × *Tadorna* **Tadorninae** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Cyanochen* × *Neochen* **unresolved** × **Tadorninae** (capt. hyb.), Dumont 2012 (= Johnsgard 1965)

*Cyanochen* × *Tadorna* **unresolved** × **Tadorninae** (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Dendrocygna* × *Netta* **ISF** Dendrocygnae × Aythyinae (nat. hyb.) Gray 1958, McCarthy 2006, Dumont 2012

*Lophodytes* (= *Mergus*<sup>o</sup>) *cucullatus* × *Mergellus* (= *Mergus*<sup>o</sup>) *albellus* Anatinae Mergini Scherer & Hilsberg 1982, McCarthy 2006

*Lophodytes* (“*Mergus*”) *cucullatus* × *Mergus merganser, serrator* Anatinae Mergini (nat. hyb.) Scherer & Hilsberg 1982, McCarthy 2006

*Melanitta* × *Mergus* Anatinae Mergini McCarthy 2006

*Melanitta* × *Somateria* Anatinae Mergini (nat. hyb.) Scherer & Hilsberg 1982, McCarthy 2006 (“In Iceland a mixed pair was observed with three eggs in the nest, but it was not reported whether actual hybrids resulted. Gudmundsson 1932.”), Dumont 2012

*Mergus* × *Somateria* Anatinae Mergini (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Mergus* × *Tadorna* **ISF** Anatinae Mergini × Tadorninae (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Neochen* × *Tadorna* Tadorninae (capt. hyb., fertile) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

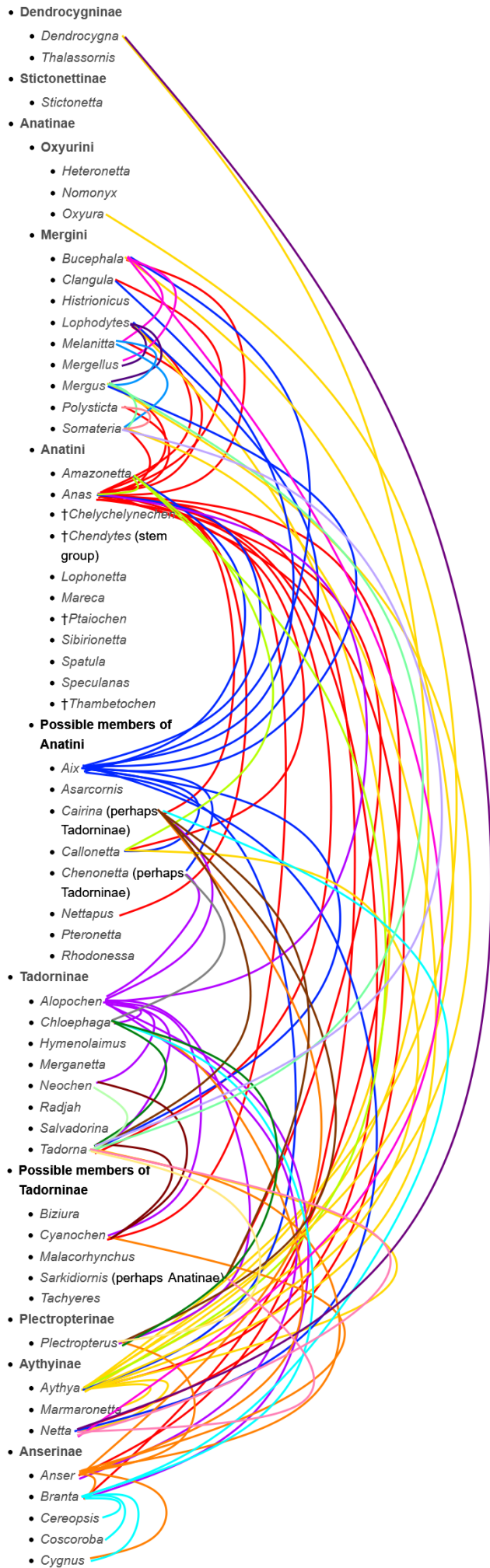
*Netta* × *Sarkidiornis* Aythyinae × unresolved (capt. hyb.) Scherer & Hilsberg 1982, McCarthy 2006, Dumont 2012

*Netta* × *Tadorna* **ISF** Aythyinae × Tadorninae (capt. hyb.) McCarthy 2006, Dumont 2012

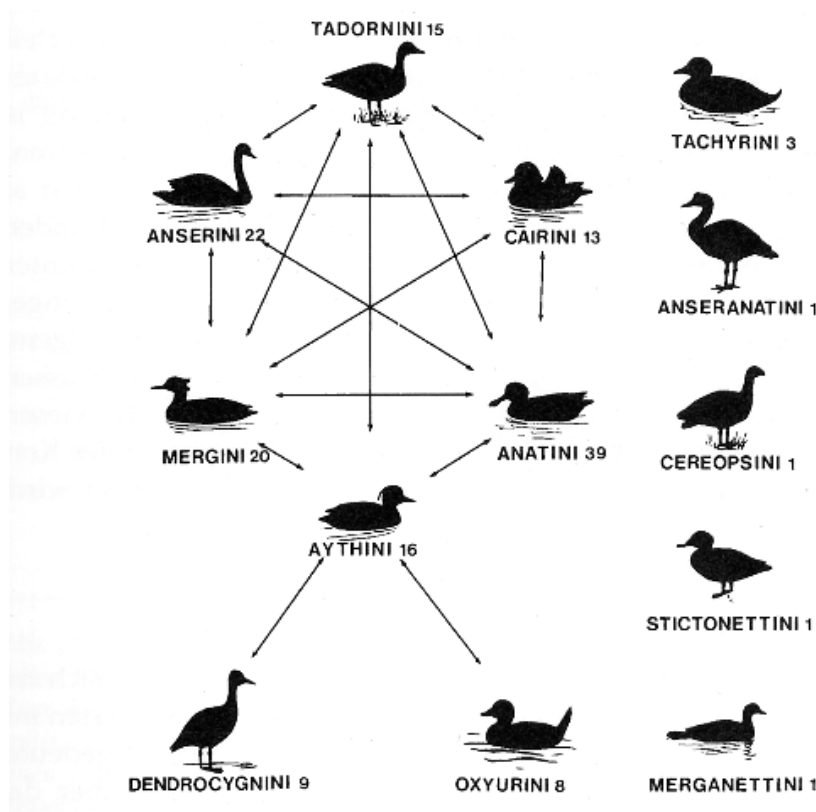
*Plectropterus* × *Tadorna* **ISF** Plectropterinae × Tadorninae (capt. hyb.) Gillham & Gillham 2002, McCarthy 2006, Dumont 2012

*Polysticta* × *Somateria* Anatinae Mergini (nat. hyb.) McCarthy 2006, Dumont 2012

*Somateria* × *Tadorna* **ISF** Anatinae Mergini × Tadorninae (nat. hyb.) Wackernagel 1972, Scherer & Hilsberg 1982 (= Wackernagel 1972), Gillham & Gillham 2002, McCarthy 2006, Dumont 2012



**Anatidae:** hybrids in the phylogeny of Soo HE et al. (2008, fig. 3. doi:10.1111/j.1463-6409.2008.00382.x), from en.wikipedia (2025, CC BY-SA 4.0).



**Anatidae:** classical picture of crossing affinities between the tribes in the system of Johnsgard (1978), from Scherer (1993). The numbers mean species numbers. Most tribes have now the rank of subfamilies. – “Anseranatini” belong to a separate basic type and are now a family of its own.

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## **Anseriformes: Anhimidae 2: 3 + 1 extinct genus**

**screamers = Wehrvögel**

*Anhima 1 vornuta, Chauna 2 chavaria, torquata.*

Probably **basic type family Anhimidae (2: 3)**: this family is monophyletic with unique characteristics, and in morphological and molecular respect is sister to the rest of the order Anseriformes.

**IS:** McCarthy 2006, p. 67: *Chauna 1 IS (chavaria × torquata)*.  
avianhybrids 2026: likewise.

## **Anseriformes: Anseranatidae 1: 1 + 2–3 extinct genera**

**magpie-goose = Spaltfußgänse**

Formerly part of family Anatidae.

Monotypic: *Anseranas 1 semipalmata*.

**Basic type family Anseranatidae (1: 1)**: Scherer (1993b, 2025). As a basic type, the family is distinct from Anatidae.

## **Apodiformes 3 families, 476 species**

Apodidae 19: 109. Hemiprocnidae 1: 4. Trochilidae 112: 363.

### **Apodiformes: Apodidae 19: 109**

**swifts = Segler**

4 tribes.

**IS:** McCarthy (2006), p. 143: *Apus 2 IS, Collocalia 2 IS, Neafrapus 1 IS, Tachymarptis 2 IS*.  
“Note: the unobliging habits and slight plumage differences of swifts mean hybridization may be underreported in these birds.”

avianhybrids <https://avianhybrids.wordpress.com/apodiformes/> 2026: *Apus* 4 IS.

## **Apodiformes: Hemiprocnidae 1: 4**

**crested-swifts = Baumsegler**

*Hemiproctne* 4.

McCarthy (2006), p. 143: *Hemiproctne* intersubspecific.

## **Apodiformes: Trochilidae 112: 363, + extinct taxa. 26 IG + 10 IT + 2 ISF**

**hummingbirds = Kolibris**

Sometimes considered as a separate order. For differences to other families of the order see Weller (2004).

The former distinction between 2 subfamilies Trochilinae (94: 294) and Phaethornithinae (6: 36) is no longer valid.

6 subfamilies (see the figure below):

Florisuginae 2: 4 *Florisuga* 2 (incl. *Melanotrochilus*°), *Topaza* 2.

Lesbiinae 32 (2 tribes):

Heliantheini.

Lesbiini.

Patagoninae 1 *Patagona*.

Phaethornithinae 6: 39 *Anopetia*, *Eutoxeres*, *Glaucis*, *Phaethornis*, *Ramphodon*, *Threnetes*.

Polytminae 12: 30 *Androdon*, *Anthracothorax*, *Avocettula*, *Chrysolampis*, *Colibri*, *Doryfera*, *Eulampis*, *Heliactin*, *Heliathryx*, *Polytmus*, *Schistes*.

Trochilinae 59 (3 tribes):

Lampornithini.

Mellisugini.

Trochilini.

**Basic type family Trochilidae (112: 363):** Weller (1999). Isolated family with unique characteristics and **38 IG** (incl. IT + ISF). No hybrid connections to the 3 small basal subfamilies Florisuginae (2: 4), Phaethornithinae (6: 39), and Polytminae (12: 30) are so far known. But the family is uniform so that the basic type covers the whole family, see the figure below; and see also Weller 2004. – See also the comments of Tyler (2025, p. 313) in her list of “other potential candidates for basic type status”. She restricts the preliminary basic type status to the former subfamily Trochilinae, i.e. she excludes the hermits (Phaethornithinae) due to lack of hybrids.

**IS:** McCarthy (2006) p. 144 f.: *Aglaeactis* 2 IS, *Aglaiocercus* 2 IS, *Amazilia* 10 IS, *Archilochus* 1 IS, *Calypte* 1 IS, *Campylopterus* 1 IS, *Chalybura* 1 IS, *Chaetocercus* 3 IS (incl. *Acestrura*°), *Chlorostilbon* 2 IS, *Coeligena* 3 IS, *Colibri* 3 IS, *Cynanthus* 2 IS, *Eriocnemis* 3 IS, *Heliodoxa* 1 IS, *Heliathryx* 1 IS, *Lampornis* 3 IS, *Lesbia* 1 IS, *Lophornis* 1 IS, *Metallura* 1 IS, *Oreotrochilus* 1 IS, *Phaethornis* 4 IS, *Schistes* 0–1 IS, *Selasphorus* 3 IS, *Thalurania* 2 IS, *Threnetes* 1 IS, *Trochilus* 1 IS, *Urosticte* 1 IS.

See also <https://avianhybrids.wordpress.com/apodiformes/> (2026).

*Aglaiocercus* × *Lesbia* Lesbiinae Lesbiini (nat. hyb.) McCarthy 2006, Dumont 2012

*Agelaiocercus* × *Metallura* Lesbiinae Lesbiini (nat. hyb.) Graves 1998, McCarthy 2006, Dumont 2012

*Agelaiocercus* × *Ramphomicron* Lesbiinae Lesbiini (nat. hyb.) McCarthy 2006, Dumont 2012

*Agelaiocercus* × *Thalurania* ISF Lesbiinae Lesbiini × Trochilinae Trochilini (nat. hyb.) McCarthy 2006, Dumont 2012

*Amazilia* × *Chrysuronia* Trochilinae Trochilini (nat. hyb.) McCarthy 2006, Dumont 2012

*Amazilia* × *Cynanthus* Trochilinae Trochilini (nat. hyb.) Graves 2003a (HY, hybridogeneous origin of *Cyanomyia salvini*), McCarthy 2006, Dumont 2012

*Amazilia* × *Eugenes* IT Trochilinae Trochilini × Trochilinae Lampornithini (nat. hyb.) McCarthy 2006 (p. 146: “?”), Dumont 2012

*Amazilia fimbriata* × *Hylocharis cyanus* Trochilinae Trochilini (nat. hyb.) Weller & Schuchmann 1997, McCarthy 2006, Dumont 2012

*Amazilia* × *Saucerottia* Trochilinae Trochilini (nat. hyb.) van Dort 2011

*Amazilia* × *Thalurania* Trochilinae Trochilini (capt. hyb.) Elgard 1977, Dumont 2012

*Anthracothorax* × *Chrysolampis* Polytminae (nat. hyb.) Dumont 2012

*Archilochus* × *Calothorax* Trochilinae Mellisugini (nat. hyb.) McCarthy 2006, Dumont 2012

*Archilochus* × *Calypte anna, costae* Trochilinae Mellisugini (nat. hyb.) McCarthy 2006, Dumont 2012

*Archilochus* × *Lampornis* IT Trochilinae Mellisugini × Trochilinae Lampornithini (nat. hyb.) McCarthy 2006, Dumont 2012

*Archilochus* × *Selasphorus platycercus, sasin* IT Trochilinae Mellisugini × Trochilinae Trochilini (nat. hyb.) McCarthy 2006, Dumont 2012

*Archilochus* × *Selasphorus* (= *Stellula*<sup>o</sup>) *calliope* Trochilinae Mellisugini (nat. hyb.) McCarthy 2006, Dumont 2012

*Basilinna leucotis* × *Selasphorus platycercus* IT Trochilinae Trochilini × Mellisugini Graves 2007 (cited after avianhybrids 2026)

*Boissonneaua* × *Heliangelus* IT Lesbiinae Heliantheini × Lesbiinae Lesbiini (nat. hyb.) McCarthy 2006, Dumont 2012

*Calliphlox* (= *Philodice*<sup>o</sup>) *mittelli* × *Chaetocercus* (= *Acestrura*<sup>o</sup>) *mulsant* Trochilinae Mellisugini (nat. hyb.) Graves 2003b, McCarthy 2006, Dumont 2012

*Calliphlox* × *Chlorostilbon* IT Trochilinae Mellisugini × Trochilinae Trochilini (nat. hyb.) Graves 1999a, McCarthy 2006, Dumont 2012

*Calypte anna* × *Lampornis clemenciae* IT Trochilinae Mellisugini × Trochilinae Lampornithini (nat. hyb.) McCarthy 2006, Graves 2007b, Dumont 2012

*Calypte costae* × *Selasphorus div. spec. (incl. Stellula*<sup>o</sup> *calliope)* Trochilinae Mellisugini (nat. hyb.) Graves 2006, McCarthy 2006, Dumont 2012

*Chalcostigma* × *Lesbia* Lesbiinae Lesbiini (nat. hyb.) Graves 1999b HY (→ hybridogeneous origin of *Zodalia glyceria*), McCarthy 2006 (“?”), Dumont 2012

*Chlorestes* × *Hylocharis* Trochilinae Trochilini (nat. hyb.) McCarthy 2006, Dumont 2012

*Chlorestes* × *Thalurania* Trochilinae Trochilini (nat. hyb.) McCarthy 2006, Dumont 2012

*Chlorostilbon* × *Hylocharis* Trochilinae Trochilini (nat. hyb.) McCarthy 2006, Dumont 2012

*Chlorostilbon* × *Leucochloris* Trochilinae Trochilini (nat. hyb.) McCarthy 2006, Dumont 2012

*Chrysuronia* × *Thalurania* Trochilinae Trochilini (nat. hyb.) McCarthy 2006, Dumont 2012

*Coeligena* × *Lafresnaya* Lesbiinae Heliantheini (nat. hyb.) McCarthy 2006, Dumont 2012

*Cynanthus* × *Eugenes* IT Trochilinae Trochilini × Trochilinae Lampornithini (nat. hyb.) McCarthy 2006, Dumont 2012

*Eriocnemis* × *Heliangelus* (nat. hyb.) IT Lesbiinae Heliantheini × Lesbiinae Lesbiini McCarthy 2006, Dumont 2012

*Eugenes* × *Lampornis* Trochilinae Lampornithini (nat. hyb.) McCarthy 2006, Dumont 2012

*Eulidia yarelli* × *Thaumastura cora* Trochilinae Mellisugini van Dongen et al. 2012, 2013 (, cited after avianhybrids 2026)

*Florisuga* (= *Melanotrochilus*<sup>o</sup>) *fusca* × *Thalurania glaucopis* ISF Florisuginae × Trochilinae Trochilini Ruschi 1944 (see McCarthy 2006: nat. hyb. Brasilia, with picture of the hybrid, breeding range overlap), Gray 1958, Dumont 2012, AviBase 2025, an actual confirmation is lacking

*Haplophaedia* × *Heliangelus* Lesbiinae Lesbiini (nat. hyb.) McCarthy 2006 (“?”; not in fig. 6), Dumont 2012

*Heliangelus* × *Heliodoxa* IT Lesbiinae Lesbiini × Lesbiinae Heliantheini (nat. hyb.) Graves & Zusi 1990, McCarthy 2006, Dumont 2012

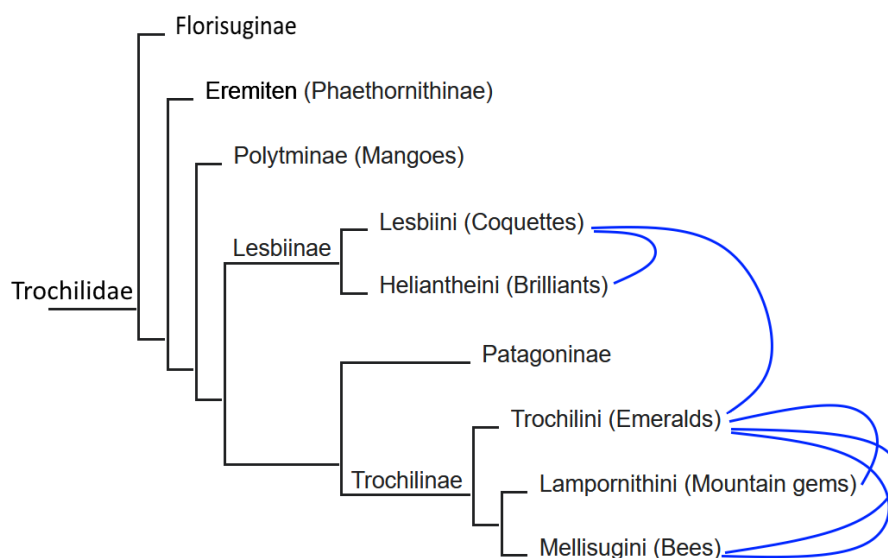
*Heliangelus* × *Ramphomicron* Lesbiinae Lesbiini (nat. hyb.) McCarthy 2006, Dumont 2012

*Hylocharis* × *Selasphorus* IT Trochilinae Trochilini × Trochilinae Mellisugini (nat. hyb.) Graves 2007a, McCarthy 2006, Dumont 2012

*Lesbia* × *Ramphomicron* Lesbiinae Lesbiini (nat. hyb.) McCarthy 2006, Dumont 2012

*Selasphorus* × *Stellula*<sup>o</sup> (= *Selasphorus p. p.*) IS Trochilinae Mellisugini (nat. hyb.) McCarthy 2006, Dumont 2012

*Thalurania furcata* × *Trochilus scitulus* Trochilinae Trochilini (nat. hyb.) McCarthy 2006 (= Krueget et al. 1982), Dumont 2012



**Trochilidae:** hybrids in the phylogeny of McGuire et al. 2014 and Winkler et al. 2015, from de.wikipedia (2025, CC BY-SA 4.0)

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[https://saber.ucv.ve/bitstream/10872/16760/1/TEG\\_MCF24052017\\_Acta.pdf](https://saber.ucv.ve/bitstream/10872/16760/1/TEG_MCF24052017_Acta.pdf)
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[http://www.ibiologia.unam.mx/pdf/links/neo/rev8/vol8\\_1/vol\\_8\\_1\\_107112.pdf](http://www.ibiologia.unam.mx/pdf/links/neo/rev8/vol8_1/vol_8_1_107112.pdf) *Amazilia* × *Hylocharis*

Winkler DW et al. (2015) Bird families of the world: A guide to the spectacular diversity of birds. Lynx Edicions, Barcelona. ISBN 978-84-941892-0-3.

## **Apterygiformes** 1 family, 5 species + 1 extinct family (Palaeognathae)

### **Apterygiformes: Apterygidae 1: 5 + 1 extinct species**

#### **Kiwis**

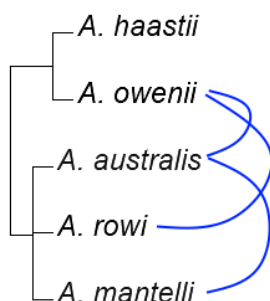
Flightless birds. New Zealand.

*Apteryx* 5 *australis*, *rowi*, *mantellii*, *maxima* (incl. *haastii*), *owenii*.

**Basic type family Apterygidae (1: 5):** isolated and well-defined family with only one genus. All 5 species are connected by hybridization. – It is unresolved if the extinct family Aepyornithidae belongs to the same basic type.

**IS:** McCarthy (2006), p. 39, Dumont 2017: *Apteryx* 2 IS (*australis* × *mantellii*; *australis* × *owenii*).

avianhybrids (2026): <https://avianhybrids.wordpress.com/apterygiformes/> add: *Apteryx owenii* × *rowi*, and cite that *A. haastii* turned out to be a hybrid between these two species (Shepherd et al. 2012).



**Apterygidae** (*Apteryx*): hybrids in the phylogeny of Shepherd LD et al. (2021, fig. 2. <https://doi.org/10.1186/s40657-021-00257-6>), from en.wikipedia (2025, CC BY-SA 4.0).

## **Bucerotiformes** 3 families, 75 species

### **Bucerotiformes: Bucerotidae 16: 64**

**hornbills = Nashornvögel**

Possibly **basic type family Bucerotidae (16: 64)** because of its unique morphology of the bill etc. But intergeneric hybrids have not been reported. – See also the comment of Tyler (2025, p. 313) in her “list of other potential candidates for basic type status!”

**IS:** McCarthy (2006), p. 114: *Anorrhinus* 1 IS, *Anthracoceros* 3 IS, *Buceros* 1 IS, *Ceratogymna* 1 IS, *Tockus* 6 IS.

avianhybrids (2026): *Anthracoceros* (*albirostris* × *coronata*), *Buceros* (*bicornis* × *rhinoceros*), *Bycanistes* (*fistulator* × *sharpei*, conspecific), *Lophoceros* (*fasciatus* × *semifasciatus*), *Tockus* (*damarensis* × *erythrorhynchus*; *deckeni* × *jacksoni*; *erythrorhynchus* × *flavirostris*; *erythrorhynchus* × *jacksoni*; *erythrorhynchus* × *leucomelas*; *flavirostris* × *leucomelas*).

## **Bucerotiformes: Phoeniculidae (incl. Rhinopomastidae) 2: 8**

**woodhoopoes = Baumhopfe**

Tropical Africa.

*Phoeniculus* 4, *Rhinopomastus* 4.

IS: McCarthy (2006), p. 115: *Phoeniculus* 3 IS, *Rhinopomastus* 1 IS (own family, p. 116).  
avianhybrids 2026: *Phoeniculus* 3 IS, *Rhinopomastus* (*aterrima* × *cynomelas*).

## **Bucerotiformes: Upupidae 1: 3 (or 1)**

**hoopoes = Wiedehopfe**

*Upupa* † *antaios*, *epops*, *marginata*.

Probably **basic type Upupidae** (1: 3) as a well-defined monogeneric family. All species are closely related and often lumped. Several intersubspecific hybrids exist within *Upupa epops*.

## **Caprimulgiformes** 1 family, 98 species

### **Caprimulgiformes: Caprimulgidae 22: 98**

**nightjars = Nachtschwalben**

incl. former family Eurostopodidae (1: 7 *Eurostopodus*)

IS: McCarthy (2006), p. 158: *Caprimulgus* 2 IS (*arizonae* × *vociferus*; *guttifer* × *poliocephalus*).

avianhybrids (2026): no hybrids in peer-reviewed papers.

## **Cariamiformes** 1 family, 2 species

### **Cariamiformes: Cariamidae 2: 2 + extinct genera**

**seriemas = Seriemas**

*Cariama cristata*, *Chunga burmeisteri*.

Probably **basic type family Cariamidae** (2: 2): isolated order with only 1 family and 2 species.

## **Casuariiformes** 1 family, 4 species + extinct taxa (Palaeognathae)

### **Casuariiformes: Casuariidae 2: 4 + extinct taxa**

### **emus and cassowaries = Emus und Kasuare**

Flightless birds of Australia-New Guinea. The 2 extant genera are sometimes split into 2 subfamilies or families.

*Casuarius 3 bennetti, casuarius, unappendiculatus, Dromaius 1 novaehollandiae.*

Probably **basic type family Casuariidae** (2: 4) as an isolated well-defined family and sole family of the order. – The fossil genus *Emuarius* (Oligocene) with a skull and femur like *Casuarius* and a lower leg and foot like *Dromaius* seems to belong to the same basic type.

**IS:** *Casuarius 1 IS (bennetti × unappendiculatus)* Ailon Zoo (Rodriguez, Philippines) (see photo: <https://zooinstitutes.com/animals/cassowary-hybrid-avilon-zoo-19302.html> 2012; [https://www.galerie.pierrewildlife.com/main.php?g2\\_itemId=134157](https://www.galerie.pierrewildlife.com/main.php?g2_itemId=134157)) 2018.

## **Cathartiformes** 1 family, 7 species

### **Cathartiformes: Cathartidae 5: 7**

**New World vultures = Neuweltgeier**

Probably **basic type family Cathartidae** (5: 7): Zimbelmann 1993, p. 189, because of its isolated position, though hybrids are unknown. There is no connection to Old World vultures which are now part of family Accipitridae.

*Cathartes aura × Coragyps atratus* (nat. hyb.) McCarthy 2006 (p. 194: “???. Obviously a hoax. ... Palmer ... says: an individual ... alleged to be a hybrid ... with the Black Vulture, proved to be the latter when red paint that had been applied to it wore off its head ...”), Dumont 2012

## **Charadriiformes** 3 suborders, 19 families, 392 species + extinct taxa

### **shorebirds and allies = Regenpfeiferartige**

The division of the order into families is matter of debate!

3 suborders:

Charadrii: 8 families.

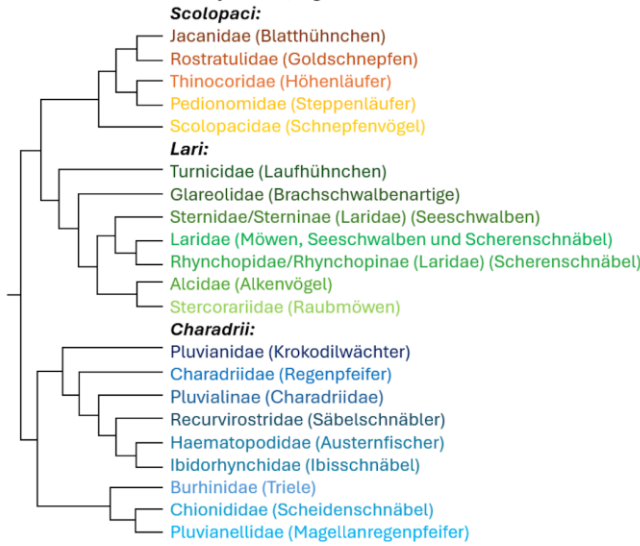
Scolopaci: 5 families.

Lari: 6 families.

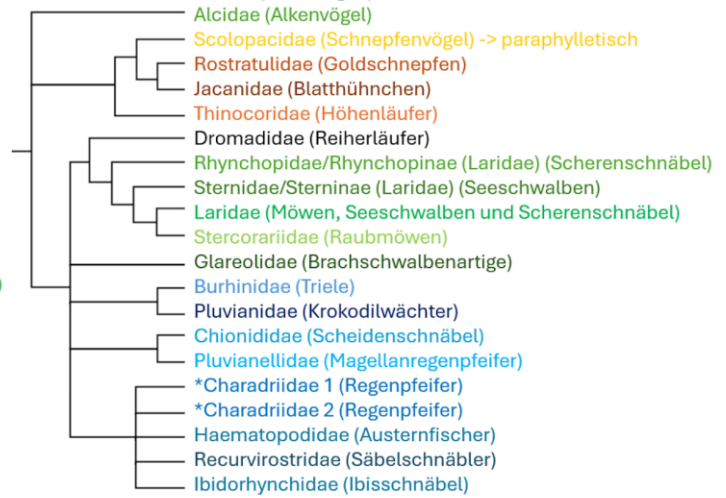
Phylogeny of order Charadriiformes is debated – this network of different relationships is a challenge for evolutionary models and important for basic type studies as well.

# Charadriiformes

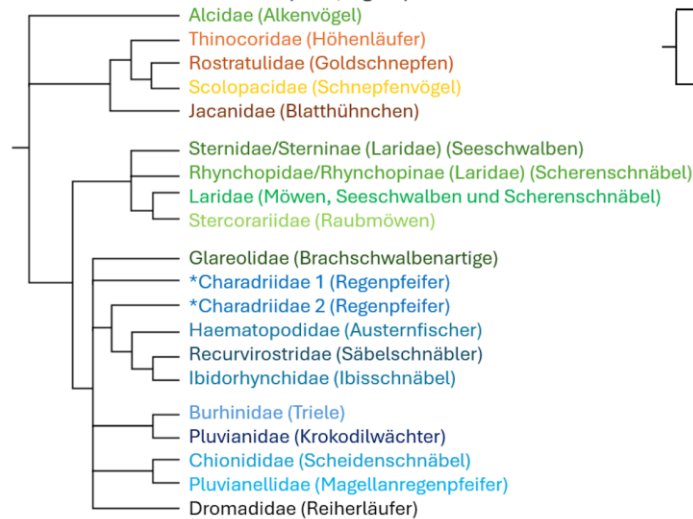
**A. Meyer 2011, Fig. 1**



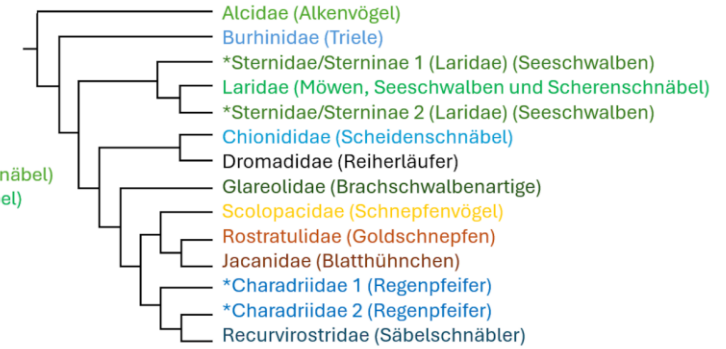
**B. Chu (1995, Fig. 6)**



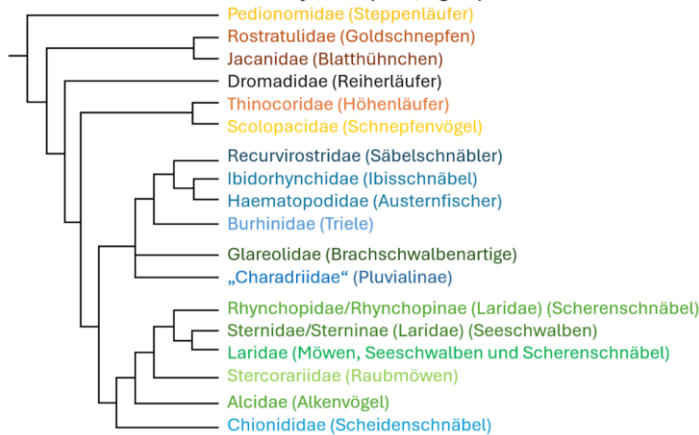
**C. Strauch (1978, Fig. 36)**



**D. Björklund (1994, Fig. 4)**



**E. Livezey & Zusi (2007, Fig. 15)**



**Charadriiformes:** different phylogenies of Charadriiformes (according to Mayr 2011, Fig. 1+2; cf. Baker AJ et al. 2007; Černý & Natale 2021). This example illustrates that it is often impossible to create a final phylogram of many taxa.

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- Smith NA & Clarke JA (2015) Systematics and evolution of the Pan-Alcidae (Aves, Charadriiformes). *Journal of Avian Biology* 45, 125–140. doi: 10.1111/jav.00487

## **Charadriiformes: Alcidae 11: 25 + extinct taxa. 2 IG (suborder Lari) auks, murre, and puffins or alcids = Alken**

2 extant subfamilies (+ basal taxa and incertae sedis):

Alcinae 6 *Alca* 1, *Alle* 1, *Brachyramphus* 3, *Cephus* 3, *Synthliboramphus* 5, *Uria* 2.

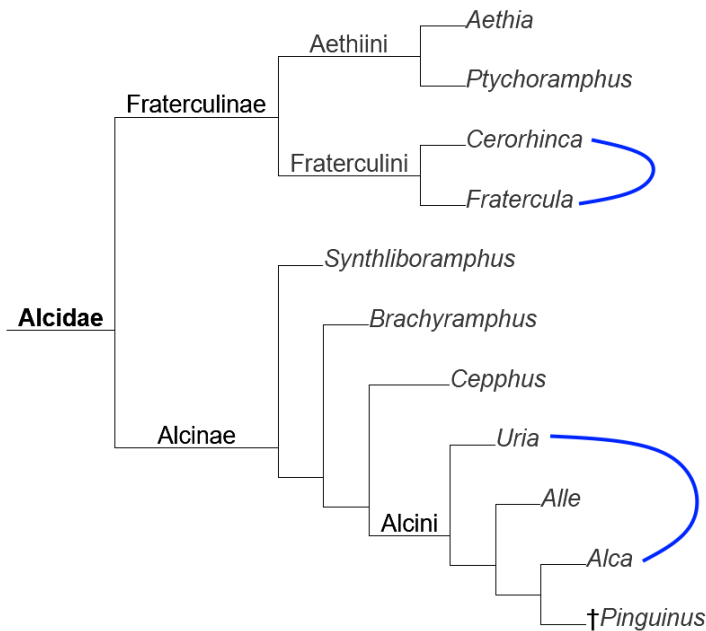
Fraterculinae 5 *Aethia* 4, *Cerorhinca* 1, *Fratercula* 3, *Pinguinus* 1 †, *Ptychorhamphus* 1.

Possibly family Alcidae represents a **basic type** (11: 25), but the few hybrids (**2 IG**) are not sufficient to decide this definitely, see the figure below.

**IS:** McCarthy (2006): *Aethia* 1 IS, *Brachyramphus* 2 IS, *Cephus* 2 IS, *Synthliboramphus* 1 IS, *Uria* 1 IS.

*Alca torda* × *Uria aalge* **Alcinae Alcini** McCarthy 2006 (divergence time according to Smith & Clarke 2015, fig. 2: 17 mya)

*Cerorhinca* × *Fratercula* **Fraterculinae Fraterculini** Douma & Carlson 1994, Dumont 2012 (divergence time according to Smith & Clarke 2015, fig. 2: 12 mya)



**Alcidae:** hybrids in the phylogeny of extant genera after Smith 2011. doi: [10.3897/zookeys.91.709](https://doi.org/10.3897/zookeys.91.709) and Smith 2014. <https://doi.org/10.1080/14772019.2012.742147>, from fr.wikipedia (2026, CC BY-SA 4.0)

#### References:

- Douma B & Carlson M (1994) Breeding alcids at the Seattle Aquarium. *International Zoo Yearbook* 33 (1), 142–147.
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### Charadriiformes: Burhinidae 3: 10 (suborder Charadrii)

#### thick-knees or stone-curlews

Related to Chionidae and Pluvianellidae.

*Burhinus* 6, *Esacus* 2, *Hesperoburhinus* 2.

### Charadriiformes: Charadriidae 13: 69 (suborder Charadrii)

#### plovers and lapwings = Regenpfeifer und Kiebitze

3 subfamilies:

Charadriinae 10 *Anarhynchus* 24, *Charadrius* 4, *Eudromias* 1, *Oreopholus* 1, *Hoploxypterus* 1, *Peltohyas* 1, *Oreophilus* 1, *Phegornis* 1, *Thinornis* 7, *Zonibyx* 1.

Pluvialinae 1 *Pluvialis* 4.

Vanellinae 2 *Erythrogonis* 1, *Vanellus* 23.

**IS:** McCarthy (2006), p. 169 (sub Scolopacidae): *Charadrius* 1 IS, *Pluvialis* 2–3 IS, *Vanellus* 4 IS.

[https://en.wikipedia.org/wiki/Hybridisation\\_in\\_shorebirds](https://en.wikipedia.org/wiki/Hybridisation_in_shorebirds): no hybrids mentioned for Charadriidae.

*Calidris* (= *Philomachus*<sup>o</sup>) *pugnax* × *Vanellus coronatus* **IF** Scolopacidae × Charadriidae (capt. hyb.) Antonius 1933, McCarthy 2006 (= Braithwaite & van Tets 1975), Dumont 2012. **unconfirmed**

*Thinornis* (“*Charadrius*”) *novaeseelandiae* × *Vanellus miles* ISF Charadriinae × Vanellinae  
(nat. hyb.) Panov 1989, McCarthy 2006, Dumont 2012. **unconfirmed**

### **Charadriiformes: Chionidae 1: 2 (suborder Charadrii)**

**sheathbills = Scheidenschnäbel**

Related to Burhinidae and Pluvianellidae.

*Chionis* 2 *albus*, *minor*.

### **Charadriiformes: Dromadidae 1: 1 (suborder Lari)**

**crab plover = Reiherläufer**

Monotypic: *Dromas ardeola*. Arabia/Iran.

### **Charadriiformes: Glareolidae 4: 17 (suborder Lari)**

**pratincoles and coursers = Brachschwabenartige**

*Cursorius* 5, *Glareola* 8, *Rhinoptilus* 3, *Smitsornis* 1.

IS: McCarthy (2006), p. 172: *Glareola* 2 IS. (*nuchalis liberiae* × *nuchalis*, now intersubspecific; *maldivarum* × *pratincola*; *nordmanni* × *pratincola*).

### **Charadriiformes: Haematopodidae 1: 12 (suborder Charadrii)**

**oystercatchers = Austernfischer**

Sometimes included in Ibidorhynchidae.

*Haematopus* 12.

Probably **basic type family Haematopodidae** (1: 12). *Haematopus* as sole genus is clearly distinct morphologically from other genera of the order Charadriiformes and its species are connected by hybridization. But possibly the basic type is larger, including e. g. family Ibidorhynchidae, see the different phylogenies of order Charadriiformes above.

McCarthy (2006), p. 171: *Haematopus* >6 IS.

[https://en.wikipedia.org/wiki/Hybridisation\\_in\\_shorebirds](https://en.wikipedia.org/wiki/Hybridisation_in_shorebirds) *Haematopus* 2 IS (*bachmani* × *palliatius frazari*; *finschii* × *unicolor*).

avianhybrids (2026): *Haematopus* 3 IS (*ater* × *leucopodus*; *bachmani* × *palliates*; *finschii* × *unicolor*).

### **Charadriiformes: Ibidorhynchidae 1: 1 (suborder Charadrii)**

**ibisbill = Ibisschnabel**

*Ibidorhyncha struthersii*.

### **Charadriiformes: Jacanidae 6: 8 (suborder Scolopaci)**

**jacanas = Blatthühnchen**

*Actophilornis* 2, *Jacana* 2, ...

McCarthy (2006), p. 171: *Jacana: 1 IS*.

## **Charadriiformes: Laridae 23: 115 (suborder Lari)**

**gulls, terns, and skimmers = Möwenverwandte**

incl. Sternidae

3–5 subfamilies: see below.

Larinae 11: 64.

Rhynchopinae 1: 3.

Sterninae 11: 48 (incl. Anoinae 1: 3, Gyginae 1: 5).

### **Larinae 11: 64. 4 IG**

**gulls = Möven**

*Chroicocephalus* 10, *Creagrus* 1, *Hydrocoloeus* 1, *Ichthyaetus* 6, *Larus* 25, *Leucophaeus* 5, *Pogophila* 1, *Rhodostethia* 1, *Rissa* 2, *Saundersilarus* 1 (= *Chroicocephalus*) *saundersi*, *Xerna* 1. – Please note that other authors include the following genera in *Larus*: *Chroicocephalus*, *Hydrocoloeus*, *Ichthyaetus*, *Leucophaeus*, *Saundersilarus*.

In **Laridae** subfamily (11: 64) the greatest part belongs to the former **genus *Larus* s. l.** (5: 46) which is now divided in 5 genera. 4 of them are connected via hybridization (**4 IG**) and therefore belong to the same basic type, see the figure below. – See also the comment of Tyler (2025) in her list of “other potential candidates for basic type status”.

McCarthy (2006), p. 173, 174 *Chroicocephalus* 5 IS (sub *Larus*), *Ichthyaetus* 1 IS (sub *Larus*), *Larus* s. l. 48 IS.

[https://en.wikipedia.org/wiki/Hybridisation\\_in\\_gulls](https://en.wikipedia.org/wiki/Hybridisation_in_gulls)

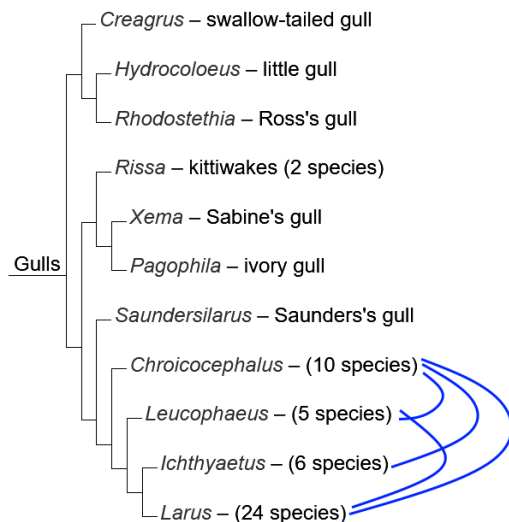
*Chroicocephalus* (“*Larus*”) *brunnicephalus*, *ridibundus* × *Ichthyaetus* (“*Larus*”) *ichthyaetus*, *relictus* (nat. hyb., capt. hyb.) McCarthy 2006 (sub *Larus*), Dumont 2012 (sub *Larus*)

*Chroicocephalus* (“*Larus*”) *div. spec.* × *Larus* *div. spec.* (nat. hyb.) McCarthy 2006 (sub *Larus*), Dumont 2012 (sub *Larus*)

*Chroicocephalus* (“*Larus*”) *cirrocephalus*, *novaehollandiae*, *ridibundus* × *Leucophaeus* (“*Larus*”) *atricilla* (capt. hyb.) McCarthy 2006 (sub *Larus*), Dumont 2012 (sub *Larus*)

*Chroicocephalus* *ridibundus* × *Ichthyaetus* *melanocephalus* Zielinski et al. 2019 (cited after Tyler 2025)

*Larus* *canus*, *delawarensis* × *Leucophaeus* (“*Larus*”) *atricilla*, *pipixcan* (capt. hyb., nat. hyb.) McCarthy 2006 (sub *Larus*), Dumont 2012 (sub *Larus*)



**Laridae subfamily Larinae:** hybrids in the phylogeny of Černý & Natale (2021) doi: 10.1016/j.ympcv.2022.107620, from en.wikipedia (2026, CC BY-SA 4.0).

## Rynchopinae 1: 3

**skimmers = Scherenschnäbel**

*Rynchops 3 albicollis, flavirostris, niger.*

## Sterninae 11: 48. 1 IG

**terns and noddies = Seeschwalben**

incl. Anoinae 1: 5, Gyginae 1: 3.

*Anous 5* (incl. *Procelsterna*<sup>o</sup>), *Chlidonias 4*, *Gelochelidon 2 macrotarsa, nilotica*, *Gygis 3*, *Hydroprogne 1 caspia*, *Larosterna 1 inca*, *Onychoprion 4*, *Phaetusa 1 simplex*, *Sterna 13*, *Sternula 7*, *Thalasseus 7*.

**IS:** McCarthy (2006) p. 173 f.: *Anous 2 IS* (incl. *Procelsterna*<sup>o</sup>), *Gygis 1 IS*, *Sterna 12 IS*, *Sternula 1 IS* (sub *Larus*), *Thalasseus 2–3 IS* (sub *Larus* s. l.).

Ottenburghs & Nisbet (2025): *Chlidonias 1–2 IS*, *Sterna 6 IS*, *Sternula 2 IS*, *Thalasseus 4 IS*, [https://en.wikipedia.org/wiki/Hybridisation\\_in\\_terns](https://en.wikipedia.org/wiki/Hybridisation_in_terns) *Chlidonias 1 IS*.

*Sterna hirundo* × *Sternula albifrons* McCarthy 2006 (sub *Sterna*), Dumont 2012 (sub *Sterna*), Ottenburghs & Nisbet 2025 (“not evaluated”)

*Gelochelidon* (“*Sterna*”) *nilotica* × *Sterna forsteri* McCarthy 2006 (sub *Sterna*), Dumont 2012 (sub *Sterna*), Ottenburghs & Nisbet 2025 (“refuted”)

## References:

Černý D & Natale R (2021) Comprehensive taxon sampling and vetted fossils help clarify the time tree of shorebirds (Aves, Charadriiformes), Preprint, <https://doi.org/10.1101/2021.07.15.452585> (Now published in *Molecular Phylogenetics and Evolution*. doi: 10.1016/j.ympcv.2022.107620).

Ottenburghs J & Nisbet ICT (2025) Hybridization in terns: A review. *Marine Ornithology*. 53 (1), 83–89. <http://doi.org/10.5038/2074-1235.53.1.1616> with critical evaluation

Sternkopf V (2010) Molekulargenetische Untersuchung in der Gruppe der Möwen (Laridae) zur Erforschung der Verwandtschaftsbeziehungen und phylogeographischer

### **Charadriiformes: Pedionomidae 1: 1 (suborder Scolopaci)**

**plains-wanderer = Steppenläufer**

Monotypic: *Pedionomus torquatus*. Australia.

### **Charadriiformes: Pluvianellidae 1: 1 (suborder Charadrii)**

**magellanic plover**

Distinct from Charadriidae by behavior and DNA. Related to Chionidae and Burhinidae. South America.

*Pluvianellus socialis*.

### **Charadriiformes: Pluvianidae 1: 1 (suborder Charadrii)**

**Egyptian plover**

*Pluvianus aegyptius*.

### **Charadriiformes: Recurvirostridae 3: 9. 1 IG (suborder Charadrii)**

**stilts and avocets = Säbelschnäbler**

The subdivision of the family, i. e. the relations of the three genera to one another are matter of debate,

*Cladorhynchus 1 leucocephalus* (= **banded stilt**), *Himantopus himantopus*, *leucocephalus* ( **pied stilt**, not to be confused with *Cladorhynchus leucocephalus*!), *mexicanus*, *novaezelandiae*, *Recurvirostra 4*.

Probably **basic type family Recurvirostridae** (3: 9): well-defined family. 2 of the 3 genera and 8 of the 9 species are linked by hybridization. – It is possible but unresolved if families Haematopodidae or Ibdorhynchidae belong to the same basic type. – See also the comment of Tyler (2025, p. 320) in her list of “other potential candidates for basic type status”.

**IS:** McCarthy (2006), p. 172: *Himantopus 3-4 IS* (*himantopus* × *leucocephalus*; *himantopus* × *mexicanus*; *leucocephalus* × *novaezelandiae*; *melanurus* × *mexicanus*, conspecific).

[https://en.wikipedia.org/wiki/Hybridisation\\_in\\_shorebirds](https://en.wikipedia.org/wiki/Hybridisation_in_shorebirds): *Himantopus 1 IS* (*leucocephalus* × *novaezelandiae*).

*Himantopus himantopus*, *mexicanus* × *Recurvirostra americana* (capt. hyb., nat. hyb.)

McCarthy 2006; Dumont 2012, [https://en.wikipedia.org/wiki/Hybridisation\\_in\\_shorebirds](https://en.wikipedia.org/wiki/Hybridisation_in_shorebirds) **2026**, avianhybrids 2026 (Principe 1977)

### **Charadriiformes: Rostratulidae 2: 3 (suborder Scolopaci)**

**painted snipes = Goldschnepfen**

Aberrant family.

*Rostratula 2*, *Nycticryptes 1*.

## Charadriiformes: Scolopacidae 15: 98 (suborder Scolopaci)

### sandpipers and allies = Schnepfenvögel

Isolated family.

*Actitis* 2, *Arenaria* 2, *Bartramia* 1, *Calidris* 24 (incl. *Philomachus*° 1 *pugnax*, *Tryngites*°), *Gallinago* 20, *Coenocrypha* *Limnodromus* 3, *Limosa* 3, *Lymnocyrtus* 1, *Numenius* 9, *Phalaropus* 3, *Prosobonia* 4, *Scolopax* 8, *Tringa* 13, *Xenus* 1.

IS: Mc Carthy (2006), p. 169: *Calidris* 9 IS, *Gallinago* 1 IS, *Numenius* 1–2 IS?, *Phalaropus* 1 IS, *Tringa* 4 IS.

[https://en.wikipedia.org/wiki/Hybridisation\\_in\\_shorebirds](https://en.wikipedia.org/wiki/Hybridisation_in_shorebirds) *Calidris* several IS/HY

*Calidris canutus* × *Limosa lapponica* ISF **Arenariinae** × **Limosinae** (nat. hyb.) McCarthy 2006 (“This hybrid has a ring number, but there seems to be no published report. Internet: FOTO5” = engelstedsgade.dk/Foto05-Faunaen/euringnummer.htm. link no longer active) **unconfirmed**

*Calidris ferruginea* × *Calidris* (= *Philomachus*°) *pugnax* IS McCarthy 2006 (p. 169: erroneous)

*Calidris bairdii*, *fuscicollis* × *Tryngites*° (*Calidris*) *subruficollis* IS (nat. hyb.) McCarthy 2006, Dumont 2012

*Calidris* (= *Philomachus*°) *pugnax* × *Vanellus coronatus* IF **Scolopacidae** × **Charadriidae** (capt. hyb.) McCarthy 2006 (= Antonius 1933), Dumont 2012. **unconfirmed**

## Charadriiformes: Stercorariidae 1: 7 (suborder Lari)

### jaegers and skuas = Raubmöven

*Stercorarius* 7 (incl. *Catharacta*° *skua*) *antarcticus*, *chilensis*, *longicaudus*, *maccormicki*, *parasiticus*, *pomarius*.

Probably **basic type family Stercorariidae** (1: 7). Isolated family. All 7 species are connected by hybridization!

IS: McCarthy (2006), p. 173: sub *Catharacta*° and *Stercorarius* 6 IS (*antarctica* × *chilensis*; *antarctica* × *maccormicki*; *chilensis* × *maccormicki*; *maccormicki* × *skua*; *parasitica* × *pomarius*; *pomarius* × *skua*, see below).

Dumont (2017) lists also: *Catharacta*° *skua* × *Stercorarius longicaudus*.

See also Ritz (2009).

*Catharacta*° (= *Stercorarius*) *skua* × *Stercorarius pomarius* IS (hybridogeneous) McCarthy 2006, Dumont 2012

### References:

Ritz M (2009) Speciation and hybridisation in skuas (*Catharacta* spp.). Dissertation, Universität Jena. <https://d-nb.info/99431499x/34>

## Charadriiformes: Thinocoridae 2: 4 (suborder Scolopaci)

### seedsnipes = Höhenläufer

*Attagis* 2, *Thinocoris* 2.

## Charadriiformes: Turnicidae 2: 18 (suborder Lari)

## **buttonquails or hemipodes = Laufhühnchen oder Kampfwachteln**

Isolated family. Traditionally placed in Galliformes or Gruiformes.  
*Ortyxelos 1, Turnix 17.*

Probably **basic type family Turnicidae (2: 18)**. Isolated family.

## **Ciconiiformes** 1 family, 20 species

excl. Ardeidae and Threskornithidae, which have been shifted to Pelecaniformes.

### **Ciconiiformes: Ciconiidae 6: 20 + several extinct genera. 1 IG**

**storks = Störche**

*Anastomus 2, Ciconia 7 abdimii, boyciana, ciconia, episcopus, microscelis, muagari, stormi, nigra, Ephippiorhynchus 2, Jabiru mycteria, Leptoptilos 3, Mycteria 4.*

Probably **basic type family Ciconiidae (6: 20)**: Scholl 2023. The family is uniform in morphological, behavioral and molecular respect. But hybrids are rare. Only 1 intergeneric hybrid has been reported. Most cladograms (Scholl 2023, fig. 3) including the entered IG show that this is a basic type. – See also the comment of Tyler (2025, p. 317) in her “list of other potential candidates for basic type status”!

**IS:** McCarthy (2006), p. 194: *Ciconia 3 IS (abdimii × episcopus, boyciana × ciconia; boyciana × nigra).*

Scholl (2023): *Mycteria 1 IS (cinerea × leucocephala), Ciconia 2 IS (abdimii × episcopus; ciconia × nigra).*

avianhybrids (2026): *Mycteria 1 IS (cinerea × leucocephala).*

*Leptoptilos javanicus × Mycteria leucocephala* McCarthy 2006 (capt. hyb., hybrids resemble *Leptoptilos*), Dumont 2012. closely related, unconfirmed.

#### **References:**

Scholl B (2023) Schwarz- und Weißstorch-Paar zieht Junge in freier Wildbahn auf. Studium Integrale J. 30, 103–107.

## **Coliiformes** 1 family, 6 species + extinct families

### **Coliidae 2: 6 + many extinct taxa**

**mousebirds = Mausvögel**

Africa.

*Colius 4, Urocolius 2.*

**IS:** McCarthy (2006), p. 120: *Colius striatus*: hybrids between races.

## **Columbiformes** 1 family

### **Columbiformes: Columbidae 52: 353 + some extinct and fossil taxa.**

**18 IG**

**pigeons and doves = Tauben**

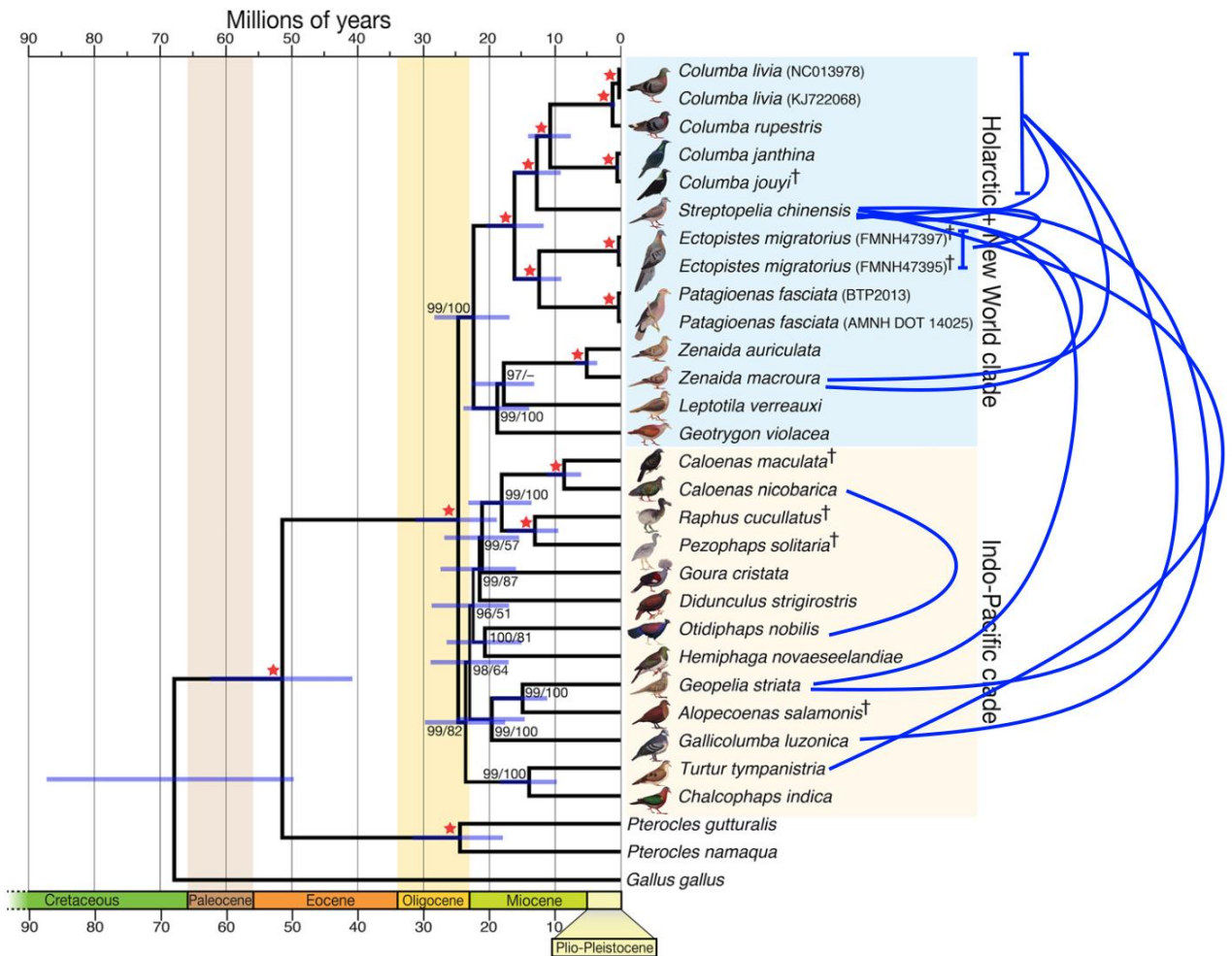
Subdivisions of the family vary much and are therefore omitted here.

**Basic type family Columbidae** (52: 353). Isolated family with unique characteristics. All larger clades are connected by hybridization (**18 IG**), see the figure below. This was already stated by Siegler (1973) and Lönnig (1993). The family is uniform, and attempts to subdivide it are still matter of debate. But in any case, there are many connections between the subgroups. – See also the comment of Tyler (2025, p. 325) in her list of “other potential candidates for basic type status”.

**IS:** Mc Carthy (2006): *Chalcophaps* 1 IS, *Columba* 19 IS, *Columbina* 2 IS, *Ducula* 1 IS, *Gallucolumba* 3 IS, *Geopelia* 4 IS, *Geophaps* 2 IS, *Goura* 3 IS, *Phaps* 1 IS, *Streptopelia* 32 IS, *Treron* 1 IS (races), *Turtur* 3 IS.

For further IS and intersubspecific hybrids see: Dumont (2017) (bird-hybrids) and avianhybrids (2026).

- Caloenas* × *Otidiphaps* (capt. hyb.) McCarthy 2006, Dumont 2012
- Columba* × *Geopelia* (capt. hyb.) McCarthy 2006, Dumont 2012
- Columba* × *Leucosarcia melanoleuca* (capt. hyb.) McCarthy 2006, Dumont 2012
- Columba* × *Streptopelia* McCarthy 2006, Dumont 2012 (ca. 15 combinations)
- Columba livia* × *Zenaida* (= *Zenaidura*<sup>o</sup>) *macroura* McCarthy 2006, Dumont 2012
- Columbina piculi* × *Geopelia striata* (capt. hyb.) McCarthy 2006, Dumont 2012
- Columbina talpacoti* × *Metriopelia melanoptera* (capt. hyb.) McCarthy 2006, Dumont 2012
- Ectopistes migratorius* × *Streptopelia turtur* (capt. hyb.) McCarthy 2006, Dumont 2012
- Gallucolumba* × *Streptopelia* (capt. hyb.) McCarthy 2006
- Geopelia* × *Geophaps* (nat. hyb.) McCarthy 2006, Dumont 2012
- Geopelia cuneata* × *Streptopelia turtur* McCarthy 2006, Dumont 2012
- Oena capensis* × *Spilopelia* (“*Streptopelia*”) *chinensis* (fertile) Gray 1958, Dumont 2012
- Oena capensis* × *Spilopelia* (“*Streptopelia*”) *senegalensis* (capt. hyb.) McCarthy 2006, Dumont 2012
- Oena* × *Turtur tympanistrisia* (capt. hyb.) McCarthy 2006, Dumont 2012
- Spilopelia* (= *Streptopelia* p. p.) *chinensis* × *Streptopelia turtur* (fertile) Gray 1958, Dumont 2012
- Stigmatopelia*<sup>o</sup> (= *Spilopelia*, *Streptopelia* p. p.) × *Streptopelia* **IS** (fertile) Gray 1958
- Streptopelia senegalensis* × *Turtur chalcospilos* (capt. hyb.) McCarthy 2006, Dumont 2012
- Streptopelia decaocto* × *Zenaida aurita* Dumont 2012 (capt. hyb.)
- Streptopelia decaocto* × *Zenaida* (= *Zenaidura*<sup>o</sup>) *macroura* (capt. hyb.) McCarthy 2006, Dumont 2012
- Streptopelia roseogrisea* × *Zenaida asiatica* (capt. hyb.) Dumont 2012
- Turtur afer*, *chalcospilos* × *Tympanistrisia*<sup>o</sup> (= *Turtur* p. p.) **IS** Gray 1958, Dumont 2012
- Zenaida aurita*, *graysoni* × *Zenaidura*<sup>o</sup> (= *Zenaida*) *macroura* **IS** (nat. hyb., capt. hyb.) McCarthy 2006



**Columbidae:** important hybridizations in the phylogram of Soares AER et al. (2016, fig. 1, Complete mitochondrial genomes of living and extinct pigeons revise the timing of the columbiform radiation. BMC Evolutionary Biology 16, 230. doi: 10.1186/s12862-016-0800-3, CC BY 4.0).

**References:**

Johnson KP & Clayton DH (2000) Nuclear and mitochondrial genes contain similar phylogenetic signal for pigeons and doves (Aves: Columbiformes). *Molecular Phylogenetics and Evolution* 14, 141–151.

Lönnig WE (1993) *Artbegriff, Evolution und Schöpfung*. Köln <http://www.weloennig.de/AesIITaEnHu.html> with a long list of interspecific and intergeneric hybrids after Siegler (1973)

More ERJ (1998) The created kind – Noah's doves, ravens, and their descendants. In Walsh RE (ed.) *Proc. Fourth Int. Conf. Creationism*. Creation Science Fellowship, Pittsburgh, pp. 407–419.

Siegler H (1973) *Evolution or degeneration – which?* Milwaukee, Wisconsin. with a long list of hybrids within Columbidae, see Lönnig (1993)

**Coraciiformes** 6 families, 34 genera, 185 species

**rollers, kingfishers and allies = Rackenvögel**

for Bucerotidae, Phoeniculidae, and Upupidae see Bucerotiformes, for Leptosomidae see Leptosomiformes.

6 families: Alcedinidae 18: 117, Brachypteraciidae 4: 5, Coraciidae 2: 13, Meropidae 3: 31, Momotidae 6: 14.

For a phylogeny (genus level time tree) of the order see: <https://www.bird-phylogeny.de/superorders/coraciimorphae/coraciiformes/>

## **Coraciiformes: Alcedinidae 18: 117**

**kingfishers = Eisevögel**

3 subfamilies.

*Actenoides* 6, *Alcedo* 8, *Ceyx* 23, *Dacelo* 5, *Halcyon* 12, *Pelargopsis* 3, *Syma* 2, *Todiramphus* 27, ...

McCarthy (2006), p. 118/119 (sub Alcedinidae and Dacelonidae): *Alcedo* 1 IS, *Ceyx* 1 IS, *Dacelo* 1 IS, *Halcyon* 1–2 IS, *Pelargopsis* 1 IS, *Syma* 1 IS, *Todirhamphus* 3 IS.

## **Coraciiformes: Brachypteraciidae 4: 5**

**ground rollers = Erdracken**

Madagascar. Sometimes subfamily of Coraciidae.

*Brachypteracias*, ...

McCarthy (2006): no hybrids mentioned.

## **Coraciiformes: Coraciidae 2: 13**

**rollers = Racken**

*Coracias* 9, *Eurystomus* 4 *azureus*, *gularis*, *glaucurus*, *orientalis*.

McCarthy (2006), p. 117: *Coracias* s. str. 9 IS.

## **Coraciiformes: Meropidae 3: 31**

**bee-eaters = Bienenfresser**

*Meropogon* 1 *forsteni*, *Merops* 28, *Nyctornis* 2.

McCarthy 2006), p. 119: *Merops* 3 IS.

## **Coraciiformes: Momotidae 6: 14. 1 IG**

**motmots = Sägeracken**

*Aspatha* 1, *Baryphthengus* 2 *masrtiii*, *ruficapillus*, *Electron* 2, *Eumomota* 1, *Hylomanes* 1, *Momotus* 7.

McCarthy (2006), p. 117: *Momotus* 1 IS.

*Baryphthengus* × *Momotus momota* Marcondes et al. 2013 (*B. ruficapillus* × *M. momota*)  
Cerqueira et al. 2020 (*B. martii* × *M. momota*), avianhybrids 2026. The 2 genera are closely related.

### **References:**

Cerqueira PV et al. (2020) Two intergeneric hybrids between motmots from the Amazon forest: Rufous Motmot (*Baryphthengus martii*) × Amazonian Motmot (*Momotus momota*). Ornithology Research 28, 57–60.

Marcondes RS et al. (2013) Occurrence of hybrids between *Momotus momota* and *Baryphthengus ruficapillus* (Momotidae) in central Brazil. The Wilson Journal of Ornithology 125, 674–679. <https://doi.org/10.1676/13-024.1>

## **Coraciiformes: Todidae 1: 5 + extinct taxa**

**todies = Todids**

*Todus* 5.

McCarthy (2006), p. 118: no hybrids mentioned.

## **Cuculiformes 1 family**

For Musophagidae and Opisthocomidae see Musophagiformes and Opisthocomiformes.

## **Cuculiformes: Cuculidae 36: 156 + fossil genera**

**cuckoos = Kuckucke**

Including the former families Centropidae and Coccyzidae.

5 subfamilies.

McCarthy (2006), p. 120: *Cacomantis* 0–1 IS, *Centropus* 3 IS, *Chrysococcyx* 1 IS, *Coccyzus* 1 IS?, *Cuculus* 0–1 IS.

## **Eurypygiformes 2 families**

### **Eurypygiformes: Eurypygidae 1: 1**

**sunbittern = Sonnenralen**

Monotypic: *Eurypygia helias*.

Probably **basic type family Eurypygidae (1: 1)** as a monotypic family with an isolated position.

### **Eurypygiformes: Rhynochetidae 1: 1**

**kagu = Kagu**

*Rhynochetos jubatus*.

Probably **basic type family Rhynochetidae (1: 1)** as a monotypic family with an isolated position.

## **Falconiformes 1 family**

### **Falconidae 10: 68 + extinct genera**

**falcons and caracaras = Falkenartige**

4 subfamilies:

Falconinae 4: 45 *Falco* 39, *Microhierax* 5 *caerulescens*, *erythrogenys*, *latifrons*, *melanoleucos*, *Neohierax* 1 *insignis*, *Polihierax* 1 *semitorquatus*,

Herpetotherinae 2: 8 *Herpetotheres* 1 *cachinnans*, *Micrastur* 7.

Polyborinae/Caracarinae 4: 11 *Caracara* (incl. *Polyborus*<sup>o</sup> *plancus*, † *lutosa*), *Daptrius* 7 (incl. *Phalcoboenus*<sup>o</sup>), *Ibycter* 1 *americanus*, *Spiziapteryx* 1 (the position is matter of debate).

Probably **basic type Falconidae subfamily Falconinae** (4: 45), because the 39 species of the main genus *Falco* are linked by many hybrids, see also Zimbelmann (1993). The most distant species of the genus *Falco* (*cherrug/peregrinus* and *tinnunculus/sparverius*) are linked by hybridization in the cytochrome-C based phylogeny of Wink (2018, fig. 2)

**IS:** Falconinae: McCarthy (2006, 184), Dumont 2017 *Falco* ca. 33 IS.

For some further information see Eastham & Nicholls (2005).

Polyborinae: McCarthy (2006, 184) *Phalcoboenus*<sup>o</sup> (= *Daptrius*) 3 IS (*P. albogularis* × *P. megalopteris* → *Ibycter circumcinctus*), *Caracara* (sub *Polyborus*<sup>o</sup>) 1 IS.

**References** (see also Accipitriformes):

Eastham CP & Nicholls MK (2005) Morphometric analysis of large falco species and their hybrids with implications for conservation. *J. Raptor Res.* 9, 386–393.

<https://digitalcommons.usf.edu/jrr/vol39/iss4/4/>

Wink M (2018) Phylogeny of Falconidae and phylogeography of Peregrine Falcons. *Ornis Hungarica* 26 (2), 27–37. DOI: 10.1515/orhu-2018-013

## **Galliformes** 5 extant families 86: 307

**land fowl or galliforms = Hühnervögel**

Megapodiidae 7: 21.

Cracidae 11: 57.

superfamily Phasianoidea 68: 229: **58 IG + 18 ISF + 6 IF**

Numididae 4: 8.

Odontophoridae 10: 34.

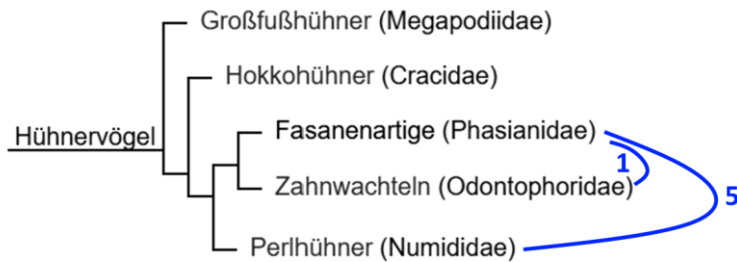
Phasianidae (incl. *Tetraonidae* and *Meleagridae*) 54: 187.

In this order there are probably 3 basic types: Klemm (1993):

**1. superfamily Phasianoidea** (= families *Phasianidae*/*Numididae*/*Odontophoridae*) (68: 229). The question, if *Cracidae* can be included in this basic type is unresolved. But several facts favour the idea that they do not: There are markable differences so that they are generally not accepted as part of the superfamily *Phasianoidea*, and hybrids between the two groups are either erroneous or unconfirmed. – McConnachie (2007), McConnachie & Brophy (2008), Brophy & McConnachie (2021) as well as Tyler (2025) prefer the inclusion of *Cracidae*, mainly due to the unconfirmed hybrids cited in McCarthy (2006).

**2. family Cracidae** (11: 57): all 4 subfamilies are connected by hybridization.

**3. family Megapodiidae** (7: 21) is a separate basic type, see below.



**Galliformes:** interfamilial hybrid connections in the phylogram of Chen D et al. (2021. doi: 10.1186/s12862-021-01935-1), from de.wikipedia (2025, CC BY-SA 4.0). There are probably 3 basic types: 1. Megapodiidae, 2. Cracidae, 3. Phasianidae + Odontophoridae + Numididae.

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- Besserer Freih. von L (1914) Über einen Bastard von Fasan und Birkwild. *Verh. Ornith. Ges.* 1914, (48–52).
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- Johnsgard PA (1970) A summary of intergeneric new world quail hybrids, and a new intergeneric hybrid combination. *The Condor* 72, 85–88. <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1076&context=biosciornithology>
- Johnsgard PA (2008) Grouse and quails of North America, 4. Hybridization. University of Nebraska – Lincoln. <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1005&context=bioscigrouse> *Callipepla × Colinus 4, Callipepla × Oreortyx 1, Callipepla × Philortyx. grouse = Phasianidae p. p., quails = Odontophoridae.*
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- McConnachie M (2007) A baraminological analysis of the Land Fowl (Class Aves, Order Galliformes). Senior Thesis. Liberty University. [https://digitalcommons.liberty.edu/cgi/viewcontent.cgi?article=1062&context=bio\\_chem\\_fac\\_pubs](https://digitalcommons.liberty.edu/cgi/viewcontent.cgi?article=1062&context=bio_chem_fac_pubs)
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[http://en.wikipedia.org/wiki/Chicken\\_hybrids#Chicken\\_Hybrids](http://en.wikipedia.org/wiki/Chicken_hybrids#Chicken_Hybrids)  
[http://en.wikipedia.org/wiki/Gamebird\\_hybrids](http://en.wikipedia.org/wiki/Gamebird_hybrids)  
<http://www.messybeast.com/genetics/hybrid-birds.htm>

## **Galliformes: Cracidae 11: 57. 3 IG + 3 ISF**

**chachalacas, curassows, guans = Hokkohühner**

4 subfamilies:

Cracinae 4: 14 *Crax* 7, *Mitu* 4, *Nothocrax* 1, *Pauxi* 2.

Oreophasinae 1: 1 *Oreophasis derbianus*.

Ortalinae 1: 16 *Ortalis* 16.

Penelopinae 5: 24 *Aburria* 1, *Chamaepetes* 2, *Penelope* 16, *Penelopina* 1, *Pipile* 5.

Probably **basic type family Cracidae** (11: 57): the 4 subfamilies are connected by hybridization. Hybrid connections to other families of the order Galliformes have been proposed but are either erroneous or unconfirmed, see the comments to basic types in the order Galliformes above.

McCarthy (2006), p. 41: *Crax* 8 IS, *Mitu* 2 IS, *Ortalis* 8 IS, *Penelope* 9 IS, *Pipile* 4 IS.  
avianhybrids (2026): *Pauxi* 1 IS (*mitu* × *tuberosa*)

*Crax alberti* × *Gallus gallus* **IF Cracidae** × **Phasianidae** (capt. hyb.) McCarthy 2006 (“All listings of this hybrid seem to trace back to a single very old report. Aquarone 1869.”)

*Crax blumenbachii* × *Gallus gallus* **IF Cracidae Cracinae** × **Phasianidae** (capt. hyb.)

McCarthy 2006 (he cites Ruschi & Amadon 1959, but this paper is about “Numididae × Cracidae”, see *Gallus* × *Penelope*)

*Crax alberti* × *Mitu mitu*, *tuberosa* **Cracinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Crax alberti*, *rubra* × *Penelope jacucaca*, *pileata* **ISF Cracinae** × **Penelopinae** (capt. hyb.)

Klemm 1993, McCarthy 2006 (= Del Hoyo 1994), Dumont 2012

*Crax rubra* × *Penelopina nigra* **ISF Cracinae** × **Penelopinae** McCarthy 2006 (“erroneous.

Some authors cite Gray (1958) for this cross, but she does not list it.”), Dumont 2012 (= Gray 1958)

*Gallus gallus* × *Ortalis guttata*, *vetula* **IF Phasianidae** × **Cracidae** (capt. hyb.) McCarthy 2006 (2 very old reports, “questionable”), Dumont 2012

*Gallus gallus* × *Penelope superciliaris* **IF Phasianidae** × **Cracidae** (capt. hyb.) McCarthy 2006 (one questionable report and one of Ruschi & Amadon 1959, but this paper is about

Cracidae × Numididae and the hybrid has turned out to be Phasianidae/*Gallus* × Numididae/*Numida*), Dumont 2012

*Mitu tomentosa* × *Ortalis poliocephala* **ISF Cracinae** × **Ortalinae** (capt. hyb.) McCarthy 2006 (= Del Hoyo 1994), Dumont 2012

*Mitu tuberosa* × *Pauxi unicornis* **Cracinae** McCarthy 2006 (nat. hyb.), Dumont 2012

~~*Numida meleagris* × *Penelope superciliaris* **IF Numididae** × **Cracidae**, erroneous, see Numididae~~

*Ortalis canicollis* × *Pipile cumanensis* **ISF Ortalinae** × **Penelopinae** (capt. hyb.) McCarthy 2006 (= Del Hoyo 1994), Dumont 2012

*Penelope* × *Pipile* **Penelopinae** (capt. hyb.) McCarthy 2006 (3 crosses), Dumont 2012

## **Galliformes: Megapodiidae 7: 21**

**mound builders or megaodes = Großfußhühner**

*Alectura 1, Aepyodius 2, Eulipoa 1, Leipoa 1, Macrocephalon 1, Megapodius 12, Talegalla 3.*

**Basic type family Megapodiidae (7: 21):** Klemm (1993). – See also McConnachie 2007, McConnachie & Brophy 2008, Brophy & McConnachie 2021).

McCarthy (2006), p. 39–40: *Megapodius 6 IS, Talegalla 1–2 IS.*

*Alectura lathamii* × *Gallus gallus* **IF Megapodiidae** × **Phasianidae** McCarthy 2006 (“dubious report; Gray lists this report on the basis of ... Keartland 1901.”)

## **Galliformes: Numididae 4: 8. 1 IG + 5 IF (superfamily Phasianoidea)**

**guineafowl = Perlhühner**

Formerly subfamily of Phasianidae.

*Acryllium 1, Agelastes 2, Guttera 4, Numida 1.*

Part of basic type superfamily Phasianoidea (see above).

*Acryllium vulturinum* × *Gallus gallus* **IF Numididae** × **Phasianidae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Acryllium vulturinum* × *Numida meleagris* **Numididae** (capt. hyb., fertile) Klemm 1993, McCarthy 2006, Dumont 2012

*Gallus gallus* × *Numida meleagris* **IF Phasianidae** × **Numididae** (nat. hyb.) McCarthy 2006, Dumont 2012, 2026, avianhybrids 2026 (several citations)  
<https://avianhybrids.wordpress.com/galliformes/>, Alfieri et al. 2023: 47 mya divergence time

*Meleagris gallopavo* × *Numida meleagris* **IF Phasianidae** × **Numididae** (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Numida meleagris* × *Pavo cristatus* **IF Numididae** × **Phasianidae** (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Numida meleagris* × *Penelope superciliosus* **IF Numididae** × **Cracidae** (capt. hyb.) McCarthy 2006 (= Esteban 1963), Dumont 2012, avianhybrids 2026 (sub *Numida*: genetic analyses of this putative hybrid Ruschi & Amadon, 1959... revealed that it was actually a hybrid ...  
*Numida meleagris* × *Gallus gallus*, Alfieri et al. 2023 <https://doi.org/10.1002/ece3.9689>)

*Numida meleagris* × *Phasianus colchicus* **IF Numididae** × **Phasianidae** (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Numida meleagris* × *Tragopan caboti* **IF Numididae** × **Phasianidae** (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

## **Galliformes: Odontophoridae 10: 34. 3 IG + 1 IF (superfamily Phasianoidea)**

**New World quails = Zahnwachteln**

Formerly subfamily of Phasianidae.

*Callipepla 4, Colinus 4, Cyrtonyx 2, Dactylortyx 1, Dendrortyx 3, Odontophorus 15, Oreortyx 1, Philortyx 1, Rhynchortyx 1.*

Part of basic type superfamily Phasianoidea (see above).

McCarthy (2006), p. 65–67: *Callipepla 6 IS, Colinus 2 IS, Cyrtonyx 1 IS, Odontophorus 1 IS.*

*Ammoperdix heyi* × *Callipepla californica* **IF Phasianidae** × **Odontophoridae**, see Phasianidae  
*Callipepla douglasii, gambelii, squamata* × *Colinus virginianus* (nat. hyb. + capt. hyb.)  
 Klemm 1993, McCarthy 2006 (4 crosses), Dumont 2012  
*Callipepla* (= *Lophortyx*<sup>o</sup>) *californica* × *Oreortyx pictus* (nat. hyb.) Johnsgard 1970, Klemm  
 1993, McCarthy 2006, Johnsgard 2008, Dumont 2012  
*Callipepla squamata* × *Philortyx fasciatus* (capt. hyb.) Klemm 1993, McCarthy 2006 (=  
 Johnsgard 1973), Johnsgard 2008, Dumont 2012  
*Colinus* × *Coturnix* **IF Odontophoridae** × **Phasianidae** McCarthy 2006 (p. 45: “??”)  
*Colinus* × *Perdix* **IF Odontophoridae** × **Phasianidae** McCarthy 2006 (p. 45: “??”)

## **Galliformes: Phasianidae 56: 193. 53 IG + 18 ISF + 6 IF** (superfamily Phasianoidae)

**pheasants = Fasanenartige**

4 subfamilies:

Meleagridinae 1: 2, Perdicinae 26: 111, Phasianinae 16: 54, Tetraoninae 8: 19.

**Part of basic type superfamily Phasianoidae (see above).**

McCarthy 2006, p. 41 f: *Alectoris* 8 IS, *Arborophila* 2 IS, *Chrysolophus* 1 IS, *Coturnix* 5 IS.

*Acryllium vulturinum* × *Gallus gallus* **IF Numididae** × **Phasianidae** (capt. hyb.) McCarthy  
 2006 (plausible), Dumont 2012  
*Agriocharis*<sup>o</sup> (= *Meleagris*) *ocellata* × *Meleagris gallopavo* **IS Meleagridinae** (capt. hyb.,  
 fertile) McCarthy 2006, Dumont 2012  
*Alectoris graeca* × *Gallus gallus* **ISF Perdicinae** × **Phasianinae** (capt. hyb.) Klemm 1993,  
 McCarthy 2006 (“??”; modern listings of this cross trace to the 19th century papers cited  
 by Ackerman 1898.”), Dumont 2012  
*Alectoris graeca, rufa* × *Perdix perdix* **Perdicinae** (nat. hyb.) Klemm 1993, McCarthy 2006  
 (“??”), Dumont 2012  
*Ammoperdix heyi* × *Callipepla californica* **IF Phasianidae** × **Odontophoridae** (capt. hyb.)  
 Klemm 1993, McCarthy 2006, Dumont 2012  
 “*Bonasa*” (= *Tetrastes*) *bonasia* × *Gallus gallus* **ISF Tetraoninae** × **Phasianinae** McCarthy  
 2006 (“dubious report; this cross is attested by a single very old report of Suchetet 1997a”)  
*Bonasa umbellus* × *Dendragapus canadensis, obscurus* **Tetraoninae** (nat. hyb.) Klemm 1993,  
 McCarthy 2006, Dumont 2012  
*Bonasa umbellus* × *Gallus gallus* **ISF Tetraoninae** × **Phasianinae** Klemm 1993, McCarthy  
 2006 (“dubious report; this cross, listed by many modern authors, is attested only by an  
 anonymous report from ... 1886”)  
*Bonasa umbellus* × *Phasianus colchicus* **ISF Tetraoninae** × **Phasianinae** (nat. hyb.) McCarthy  
 2006 (the specimen has been lost), Dumont 2012  
*Canachites* (“*Falci pennis*”, “*Dendragapus*”) *canadensis* × *Dendragapus obscurus*  
**Tetraoninae** Klemm 1993, McCarthy 2006  
*Canachites* (“*Falci pennis*”) *canadensis* × *Lagopus lagopus* **Tetraoninae** (nat. hyb.) Klemm  
 1993, McCarthy 2006, Johnsgard 2008, Dumont 2012  
*Catreus wallichi* × *Chrysolophus pictus* **Phasianinae** (capt. hyb.) McCarthy 2006 (“??”)  
*Catreus wallichi* × *Lophophorus impejanus* **Phasianinae** (capt. hyb.) Klemm 1993, McCarthy  
 2006, Dumont 2012  
*Catreus wallichi* × *Lophura div. spec.* **Phasianinae** (capt. hyb.) Klemm 1993, McCarthy 2006,  
 Dumont 2012

*Catreus wallichi* × *Phasianus colchicus* Phasianinae (capt. hyb.) McCarthy 2006, Dumont 2012

*Catreus wallichi* × *Pucrasia macrolopha* Phasianinae (capt. hyb.) McCarthy 2006, Dumont 2012

*Catreus wallichi* × *Syrmaticus reevesi* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Catreus wallichi* × *Tragopan temminckii* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Centrocercus urophasianus* × *Dendragapus obscurus* Tetraoninae (nat. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Centrocercus urophasianus* × *Tympanuchus phasianellus* Tetraoninae (nat. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012, avianhybrids 2026

*Chrysolophus pictus* × *Gallus gallus* Phasianinae Klemm 1993, McCarthy 2006

*Chrysolophus amherstiae* × *Lophophorus impejanus* Phasianinae (capt. hyb.) McCarthy 2006, Dumont 2012

*Chrysolophus amherstiae, pictus* × *Lophura leucomelanos, nycthemera* Phasianinae (capt. hyb.) McCarthy 2006, Dumont 2012

*Chrysolophus pictus* × *Meleagris gallopavo* ISF Phasianinae × Meleagridinae Klemm 1993

*Chrysolophus amherstiae, pictus* × *Phasianus colchicus, versicolor* Phasianinae (capt. hyb., nat. hyb., fertile) Klemm 1993, McCarthy 2006, Dumont 2012

*Chrysolophus amherstiae, pictus* × *Syrmaticus div. spec.* Phasianinae (capt. hyb., fertile) McCarthy 2006, Dumont 2012

*Chrysolophus amherstiae* × *Tragopan caboti* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Coturnix japonica* × *Gallus gallus* ISF Perdicinae × Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Coturnix japonica* × *Meleagris gallopavo* ISF Perdicinae × Meleagridinae (capt. hyb.) McCarthy 2006 (“fertile eggs by artificial insemination”), Dumont 2012

*Coturnix spec.* × *Perdix perdix* Perdicinae (capt. hyb.) McCarthy 2006 (“???”)

*Coturnix japonica* × *Phasianus colchicus* Perdicinae × Phasianinae ISF (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Crax* × *Gallus* IF Cracidae × Phasianidae, see Cracidae

*Crossoptilon mantchuricum* × *Lophophorus impejanus* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Crossoptilon spec.* × *Lophura nycthemera* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006 (= Beever 1932), Dumont 2012

*Dendragapus obscurus* × *Lagopus lagopus* Tetraoninae Klemm 1993

*Dendragapus obscurus* × *Phasianus colchicus* (nat. hyb.) Klemm 1993, McCarthy 2006, Johnsgard 2008, Dumont 2012

*Dendragapus obscurus* × *Tympanuchus phasianellus* Tetraoninae (nat. hyb.) Klemm 1993, McCarthy 2006, Johnsgard 2008, Dumont 2012, avianhybrids (sub *Tympanuchus*)

*Francolinus pictus* × *Pternistis* (“*Francolinus*”) *clappertonii* Perdicinae (nat. hyb.) McCarthy 2006, Dumont 2012

*Gallus gallus* × *Lagopus lagopus* ISF Phasianinae × Tetraoninae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Gallus gallus* × *Lophophorus impejanus* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Gallus gallus* × *Lophura diardi, leucomelanos, nycthemera* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Gallus gallus* × *Meleagris gallopavo* ISF Phasianinae × Meleagridinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Gallus gallus* × *Numida meleagris* **IF** Phasianidae × Numididae (nat. hyb.) McCarthy 2006, Dumont 2012. Interestingly, a hybrid cited in McCarthy 2006 sub *Numida* × *Penelope* turned out to be a hybrid of just this type *Numida* × *Gallus*.

*Gallus gallus* × *Ortalis guttata, vetula* **IF** Phasianidae × Cracidae (capt. hyb.) McCarthy 2006 (2 very old reports, “questionable”), Dumont 2012

*Gallus gallus* × *Pavo cristatus* Phasianinae (art. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Gallus gallus* × *Ortalis guttata, vetula* **IF** Phasianidae × Cracidae (capt. hyb.) McCarthy 2006 (2 very old reports, “questionable”), Dumont 2012

*Gallus gallus* × *Penelope superciliaris* **IF** Phasianidae × Cracidae (capt. hyb.) McCarthy 2006 (one questionable report and one of Ruschi & Amadon 1959, but this paper is about Cracidae × Numididae and turned out to be Phasianidae/*Gallus* × Numididae/*Numidia*), Dumont 2012

*Gallus gallus* × *Perdix perdix* **ISF** Phasianinae × Perdicinae (capt. hyb.) McCarthy 2006, Dumont 2012

*Gallus gallus* × *Phasianus colchicus, versicolor* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012, avianhybrids 2026

*Gallus gallus* × *Pipile jacutinga* **IF** Phasianidae × Cracidae McCarthy 2006 (= Ruschi & Amadon 1959), Dumont 2012, unconfirmed

*Gallus gallus* × *Syrnaticus soemerringi* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Gallus gallus* × *Tetrao tetrix, urogallus* Phasianinae × Tetraoninae **ISF** (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Gallus gallus* × *Tetrastes* (“*Bonasa*”) *bonasia* Phasianinae × Tetraoninae **ISF** Klemm 1993 (without special reference)

*Lagopus lagopus* × *Perdix perdix* **ISF** Tetraoninae × Perdicinae (nat. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Lagopus lagopus, mutus* × *Phasianus colchicus* **ISF** Tetraoninae × Phasianinae (nat. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Lagopus lagopus* × *Tetrao tetrix, urogallus* Tetraoninae (nat. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Lagopus lagopus, mutus* × *Tetrastes* (“*Bonasa*”) *bonasia* Tetraoninae (nat. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Lagopus leucurus* × *Tympanuchus phasianellus* Tetraoninae (nat. hyb.) McCarthy 2006, Dumont 2012

*Lophophorus impejanus* × *Lophura leucomelanos, nycthemera* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Lophophorus impejanus* × *Pucrasia macrolopha* Phasianinae (capt. hyb.) McCarthy 2006, Dumont 2012

*Lophura leucomelanos, nycthemera* × *Phasianus colchicus, versicolor* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Lophura nycthemera* × *Perdix perdix* **ISF** Phasianinae × Perdicinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Lophura swinhoi* × *Phasianus versicolor* Phasianinae (capt. hyb.) McCarthy 2006, Dumont 2012

*Lophura* div. spec. × *Syrnaticus* div. spec. Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Lophura nycthemera* × *Tetrao tetrix* **ISF** Phasianinae × Tetraoninae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Lophura swinhoi* × *Tragopan satyri* Phasianinae (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Lyrurus*<sup>o</sup> (= *Tetrao*) *tetrix* × *Phasianus*, see *Phasianus* × *Tetrao*

*Meleagris gallopavo* × *Numida meleagris* **IF** *Phasianidae* × *Numididae* (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Meleagris gallopavo* × *Pavo cristatus* **ISF** *Meleagridinae* × *Phasianinae* (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Meleagris gallopavo* × *Phasianus colchicus* **ISF** *Meleagridinae* × *Phasianinae* (nat. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

~~*Meleagris gallopavo* × *Tetrao urogallus* **ISF** *Meleagridinae* × *Tetraoninae* McCarthy 2006~~  
 (“erroneous. All modern listings of this cross appear to trace back to a single, very old report. Beckmann 1832.”)

*Numida meleagris* × *Pavo cristatus* **IF** *Numididae* × *Phasianidae* (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Numida meleagris* × *Phasianus colchicus* **IF** *Numididae* × *Phasianidae* (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Numida meleagris* × *Tragopan caboti* **IF** *Numididae* × *Phasianidae* (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Ortyornis* (= *Dendroperdix*<sup>o</sup>, “*Francolinus*”) *sephaena* × *Pternistis* (= *Falcolinus*<sup>o</sup>) *swainsonii* *Perdicinae* (nat. hyb.) Dumont 2012 (= Engelbrecht & Grosel 2007)

*Perdix perdix* × *Phasianus colchicus* **ISF** *Perdicinae* × *Phasianinae* (capt. hyb.) Klemm 1993, McCarthy 2006 (“? Ghigi 1936a, Gray 1958), Dumont 2012

*Pavo cristatus* × *Phasianus colchicus* *Phasianinae* (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Phasianus colchicus*, *versicolor* × *Syrmaticus ellioti*, *reevesii*, *soemmerringi* *Phasianinae* (capt. hyb.) McCarthy 2006, Dumont 2012

*Phasianus colchicus* × *Tetrao tetrix*, *urogallus* (nat. hyb.) McCarthy 2006, Dumont 2012

*Phasianus colchicus* × *Tragopan caboti* *Phasianinae* (capt. hyb.) McCarthy 2006, Dumont 2012

*Phasianus colchicus* × *Tympanuchus cupido* **ISF** *Phasianinae* × *Tetraoninae* (nat. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Pucrasia macrolopha* × *Tragopan temminckii* *Phasianinae* (capt. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

*Tetrao tetrix* × *Tetrastes* (“*Bonasa*”) *bonasia* *Tetraoninae* (nat. hyb.) Klemm 1993, McCarthy 2006, Dumont 2012

**References:** see above, order Galliformes

## **Gaviiformes** 1 family, 5 species

### **Gaviiformes: Gaviidae 1: 5 + fossil taxa.**

**loons, divers = Seetaucher**

No relatives are known. Fossil taxa reach back to the Paleocene.

*Gavia* 5 *adamsii*, *arctica*, *immer*, *pacifica*, *stellata*.

**Basic type family Gaviidae** (1: 5). Isolated family with only 1 genus and unique characteristics. All 5 species are connected by hybridization. – See also the interesting comments of Tyler (2025, p. 303 f.) in her “candidates for basic type status” and Matthews et al. (2022) who discuss the possible inclusion of the extinct genus *Columboides*.

**IS:** McCarthy (2006), p. 195: *Gavia* 4 IS (*adamsii* × *immer*; *arctica* × *immer*; *arctica* × *stellata* (capt. hyb.); *immer* × *pacifica*; *immer* × *stellata*).

According to Roselaar et al. (2006) all species can overlap in range. Hybridization have been reported between all species, but only *Gavia adamsii* × *G. immer* has been confirmed.



**Gaviidae:** hybrids of the sole genus *Gavia* in the phylogeny of Lindsay AR (2002) <https://hdl.handle.net/2027.42/132444>, cf. Fänger 2026

### References:

- Sprengelmeyer QD (2014) A phylogenetic reevaluation of the genus *Gavia* (Aves, Gaviiformes) using next generation sequencing. All NMU Master's Theses. 1. <https://commons.nmu.edu/theses/1>
- Lindsay AR (2002) Molecular and vocal evolution in loons (Aves: Gaviiformes) Doctoral dissertation, University of Michigan. <https://hdl.handle.net/2027.42/132444>
- Matthews M-C et al. (2022) A baraminological analysis of the loons (Gaviiformes: Gaviidae) reveals their holobaraminic status. CBS Annual Conf. Abstracts, JCTS Series B.
- Roselaar C et al. (2006). Hybrids in divers (Gaviiformes). *Journal of Ornithology*, 147, 24–30.

**Gruiformes** 2 suborders, 6 families, 193 species, + many extinct taxa

cranes, rails and allies = Kranichartige

Many extant families formerly placed in this order are no longer placed here.

2 suborders, 6 families:

suborder Gruj: Aramidae 1: 1, Gruidae 4: 15, Psophiidae 1: 3.

suborder Ralli: Heliornithidae 3: 3, Rallidae 38: 156, Sarothruridae 3: 15.

**Gruiformes: Aramidae 1: 1 (suborder Gruj)**

limpkins = Rallenkraniche

*Aramus guarauna*.

Probably basic type family **Aramidae** (1: 1) because of the isolated position as a monotypic family. Further studies must show if Gruidae belongs to the same basic type.

**Gruiformes: Gruidae 4: 15 + extinct genera. 4 IG (suborder Gruj)**

cranes = Kraniche

*Antigone* 4 *antigone*, *canadensis*, *rubicunda*, *vipio*, *Balearica pavonina*, *regulorum*, *Grus* 8 (incl. *Anthropoides*° *paradisea*, *virgo*, *Bugeranus*° *carunculatus*) *americanus*, *grus*, *japonensis*, *monachal*, *nigricollis*, *Leucogeranus leucogeranus*.

**Basic type Gruidae** (4: 15): Fehrer 1994. Well-defined, isolated family. All genera are linked by hybridization and often lumped as 1 genus. In total 23 hybrid combinations have been observed. New data confirm Gruidae as a clear basic type, see the figure below. Further studies must show if the monotypic family is separate or belongs to the same basic type. – See also the comments of Tyler (2025, p. 300 f.) in her “candidates for basic type status”.

IS: McCarthy (2006), p. 165: *Antigone* 2 IS (*antigone* × *rubicunda*; *canadensis* × *vipio*, sub *Grus*), *Balearica* 1 IS (*pavonina* × *regulorum*), *Grus* s. str. 6 IS (*carunculatus* × *paradisea*; *grus* × *japonensis*; *grus* × *monacha*; *grus* × *virgo*; *grus* × *paradisea*; *monacha* × *nigricollis*).

See also avianhybrids incl. comments (sub Gruiformes)

*Antigone* (“*Grus*”) *canadensis* × *Bugeranus*<sup>o</sup> (= *Grus*) *carunculatus* *Guinae* (capt. hyb.)  
McCarthy 2006, Dumont 2012

*Antigone canadensis* × *Grus americana*, *grus*, *japonica* McCarthy 2006 (sub *Grus*)

*Antigone vipio* × *Grus grus*, *japonensis*, *paradisea*, *virgo* McCarthy 2006

*Antigone canadensis*, *vipio* × *Leucogeranus leucogeranus* McCarthy 2006 (sub *Grus*)

*Antigone vipio* × *Leucogeranus leucogeranus* Maksudov & Panchenko 2002 (art. insemination, sub *Grus*), McCarthy 2006 (sub *Grus*)

*Balearica regulorum* × *Grus paradisea* (capt. hyb.) McCarthy 2006, Dumont 2012

*Bugeranus*<sup>o</sup> (= *Grus*) *carunculatus* × *Grus paradisea* IS (nat. hyb.) McCarthy 2006, Dumont 2012

*Grus grus* × *Leucogeranus leucogeranus* McCarthy 2006 (nat. hyb., sub *Grus*), Kashentseva & Postelnykh 2013 (art. insemination, cited after Tyler 2025, p. 302)



**Gruidae:** hybrids in a cladogram of Krajewski et al. (2010, Figs. 1–3), from en.wikipedia (2025, CC BY-SA 4.0). Not all connections are shown. See also: Nováková & Robovský (2021, Fig. 3); Krajewski & Fetzner (1994, Figs. 1–3).

## References:

- Fehrer J (1994) Schnelle Mikroevolution beim Grundtyp der Kraniche? *Studium Integrale* J. 1, 38–39.
- Johnsgard PA (1983) *Cranes of the world*. Indiana University Press, Bloomington. [lists all known hybrids within the family](#)
- Kashentseva T & Postelnykh K (2013) The morphology of hybrid of Eurasian and Siberian cranes. Proc. VIIth European Crane Conference. Stralsund, Germany. *Grus grus* × *Leucogeranus leucogeranus*
- Krajewski C & Fetzner JW (1994): Phylogeny of cranes (Gruiformes: Gruidae) based on cytochrome-b DNA sequences. *Auk* 1994, 111 (2), 351–365.
- Krajewski C et al. (2010) Complete mitochondrial genome sequences and the phylogeny of cranes (Gruiformes: Gruidae). *The Auk* 127, 440–452.  
<https://academic.oup.com/auk/article/127/2/440/5148392>
- Maksudov GY & Panchenko VG (2002) Obtaining an interspecific hybrid of cranes by artificial insemination with frozen-thawed semen. *Biology Bulletin* 29, 196–199. *Antigone vipio* × *Leucogeranus leucogeranus*
- Nováková N & Robovský J (2021) Behaviour of cranes (family Gruidae) mirrors their phylogenetic relationships. *Avian Res.* 12, 40. <https://doi.org/10.1186/s40657-021-00275-4>.

### **Gruiformes: Heliornithidae 3: 3 (suborder Ralli)**

**finfoots = Binsenrallen**

*Heliornis fulica*, *Heliopais personatus*, *Podica senegalensis*.

### **Gruiformes: Psophiidae 1: 3 (suborder Grui)**

**trumpeters = Trompetervögel**

*Psophia* 3.

Probably **basic type family Psophiidae (1: 3)** as an isolated monotypic family.

### **Gruiformes: Rallidae 38: 156 + many extinct genera. 1 IG**

**rails = Rallen**

3 extant subfamilies: Gallinulinae, Porphyrioinae, Rallinae.

McCarthy (2006): „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.“

**IS:** McCarthy (2006), p. 167: *Aramides* 1 IS, *Fulica* 3 IS, *Gallirallus* 1 IS, *Porphyrio* 2 IS, *Rallus* 2 IS.

See also avianhybrids (sub Gruiformes).

*Fulica* div. spec. × *Gallinula* div. spec. **Gallinulinae** **Gallinulini** (nat. hyb., capt. hyb.)

McCarthy 2006, Dumont 2012 (many reports)

*Fulica atra* × *Podiceps grisegena* ~~IF/O~~ **Gruiformes Rallidae Gallinulinae** ×

**Podicipediformes Podicipedidae** Dumont 2012 (no hybrids, only mixed nesting =

„Mischgelege“)

## **Gruiformes: Sarothruridae 3: 15**

**flufftails = Besenschwanzrallen**

*Mentocrex* 2, *Sarothrura* 9, *Rallicula* 4.

## **Leptosomiformes** 1 family

### **Leptosomiformes: Leptosomidae 1: 1**

**courols or cuckoo roller = Kurole, Kuckucksroller**

Formerly part of Coraciiformes

*Leptosomus discolor*.

Probably **basic type family Leptosomidae** (1: 1): isolated family with *Leptosomus discolor* as the sole species of the whole order.

McCarthy (2006), p. 117: hybrids between two subspecies (or species).

## **Mesitornithiformes** 1 family

### **Mesitornithiformes: Mesitornithidae 2: 3**

**mesites = Stelzenrallen**

Formerly part of Gruiformes, Columbiformes, Galliformes or Passeriformes.

Madagascar.

*Mesitornis* 2, *Monias* 1.

Probably **basic type Mesitornithidae** (2: 3) because of its isolated position with a unique set of anatomical characteristics.

## **Musophagiformes** 1 family, 23 species + extinct taxa

### **Musophagiformes: Musophagidae 5–7: 23. 2–3 IG**

**turacos = Turakos**

Africa. 3 subfamilies:

Corythaeolinae 1: 1 *Corythaeola* 1.

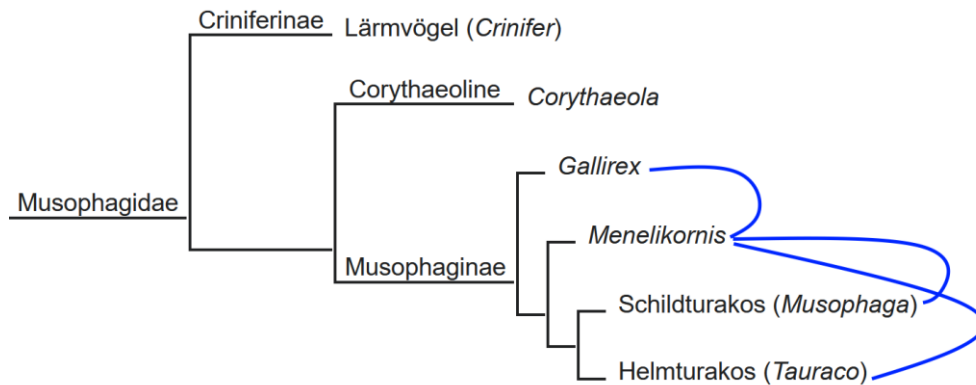
Criniferinae 1: 5 *Crinifer* 5.

Musophaginae 3: 17 *Gallirex* 2 *johnstoni*, *porphyreolophus*, *Menelikornis* 2 *leucotis*, *ruspolii*, *Tauraco* 13 (incl. *Musophaga*<sup>o</sup>, *Protacurus*<sup>o</sup>) – *Tauraco* has been split into 3 genera by Perktas et al. 2020 (see the figure below): *Musophaga*<sup>o</sup> *macrorhynchus*, *rossae*, *verreauxii*, *violacea*, *Proturacus*<sup>o</sup> *bannermani*, *erythrolophus*, *leucolophus*.

Probably **basic type family Musophagidae subfamily Musophaginae** (3: 17). All 3 (–6) genera are connected by hybridization, see the figure below. Possibly the basic type covers the whole family, but this is unresolved.

McCarthy (2006), p. 155: *Menelikornis* 1 IS (*leucotis* × *ruspolii*, sub *Tauraco*), *Tauraco* 4 IS (*corythaix* × *hartlaubi*; *corythaix* × *livingstonii*; *hartlaubi* × *persa*).

*Gallirex porphyreolophus* × *Tauraco* (= *Proturacus*<sup>o</sup>) *erythrolophus* Musophaginae (capt. hyb.) McCarthy 2006 (sub *Musophaga* × *Tauraco*)  
*Menelikornis leucotis* × *Tauraco persa, schalowi* Musophaginae McCarthy 2006 (sub *Tauraco*)  
*Menelikornis leucotis* × *Tauraco violaceus* (= *Musophaga*<sup>o</sup> *violacea*) Musophaginae McCarthy 2006 (sub *Musophaga* × *Tauraco*)



**Musophagidae:** hybridization in a cladogram of Perktas et al. 2020. <https://doi.org/10.1206%2F3949.1>, from de.wikipedia (2026, CC BY-SA 4.0).

## **Nyctibiiformes** 1 family, 7 species

### **Nyctibiiformes: Nyctibiidae 2: 7+ extinct taxa**

**potoos = Tagschläfer**

Neotropics

*Nyctibius* 6, *Phyllaemulor* 1.

Probably **basic type family Nyctibiidae (2: 7):** as an enigmatic isolated family with only two genera.

McCarthy (2006), p. 143: no hybrids mentioned.

## **Opisthocomiformes** 1 family, 1 species

### **Opisthocomidae 1: 1 + extinct genera**

**hoatzin = Hoatzin**

*Opisthocomus hoazin*.

**Basic type family Opisthocomidae (1: 1):** Junker 2012. The hoatzin as the sole species of the whole order is distinct from other birds by anatomy, behavior and molecular genetics.

### **References:**

Junker R (2012) Hoatzin: Schräger Vogel mit verzwickter Biographie. Studium Integrale J. 19 (1), 56–57.

## **Otidiformes** 1 family, 26 species + 4 extinct genera. **1 IG**

## Otidiformes: Otididae 12: 26

### bustards = Trappen

Isolated group of terrestrial birds, systematic position and subdivision are matter of discussion.

*Afrotis afra*, *afraoides*, *Ardeotis* 4, *Otis* 1, *Chlamydotis* 2, *Eupodotis* 2 *caerulescens*, *senegalensis*, *Neotis* 4, *Tetrax* 1, *Heterotheca rueppelii*, ...

Possibly **basic type family Otididae** (12: 26) because of its isolated position. But only one intergeneric hybrid is known so far.

McCarthy (2006), p. 165: *Afrotis* 1 IS (*afra* × *afraoides*, sub *Eupodotis*).  
avianhybrids (2026): *Otis tarda* hybrids between the 2 subspecies of *Otis*.

*Heterotetrax vigorsii* × *Heterotheca rueppelii* McCarthy 2006 (sub *Eupodotis*). The two genera are closely related.

## **Pelecaniformes** 5 extant families, 120 species + extinct families

### pelicans, herons and allies = Pelikanartige

For families Anhingidae, Fregatidae, Phalacrocoracidae, and Sulidae see order Suliformes  
5 families:

Ardeidae, Balaenicipitidae, Pelecanidae, Scopidae, Threskornithidae.

## **Pelecaniformes: Ardeidae 18: 74 + extinct taxa**

### herons and egrets = Reiher

Formerly placed in Ciconiiformes or as a separate order Ardeiformes.

3–5 subfamilies:

Agamiinae 1: 1 *Agamia* 1.

Ardeinae 12: 50 see below.

Cochleariinae 1: 1 *Cochlearius* 1.

Botaurinae 3: 15 *Botaurus* 14, *Ixobrychus*, *Zebrilus* 1.

Tigrisomatinae 2: 4 *Tigriornis* 1, *Tigrisoma* 3

### **Ardeinae 13: 57. 6 IG**

*Ardea* 16 (incl. *Casmerodius*° *albus*, *Bubulcus*° *ibis*), *Ardeola* 6, *Butorides* 4, *Calherodius* 1, *Egretta* 12, *Gorsachius* 4, *Mesophoyx intermedia*, *Nycticorax* 6, *Nyctanassa* 2, *Oroanassa* 1, *magnifica*, *Pilherodius* 1, *Syrigma* 1, *Zonerodius* 1.

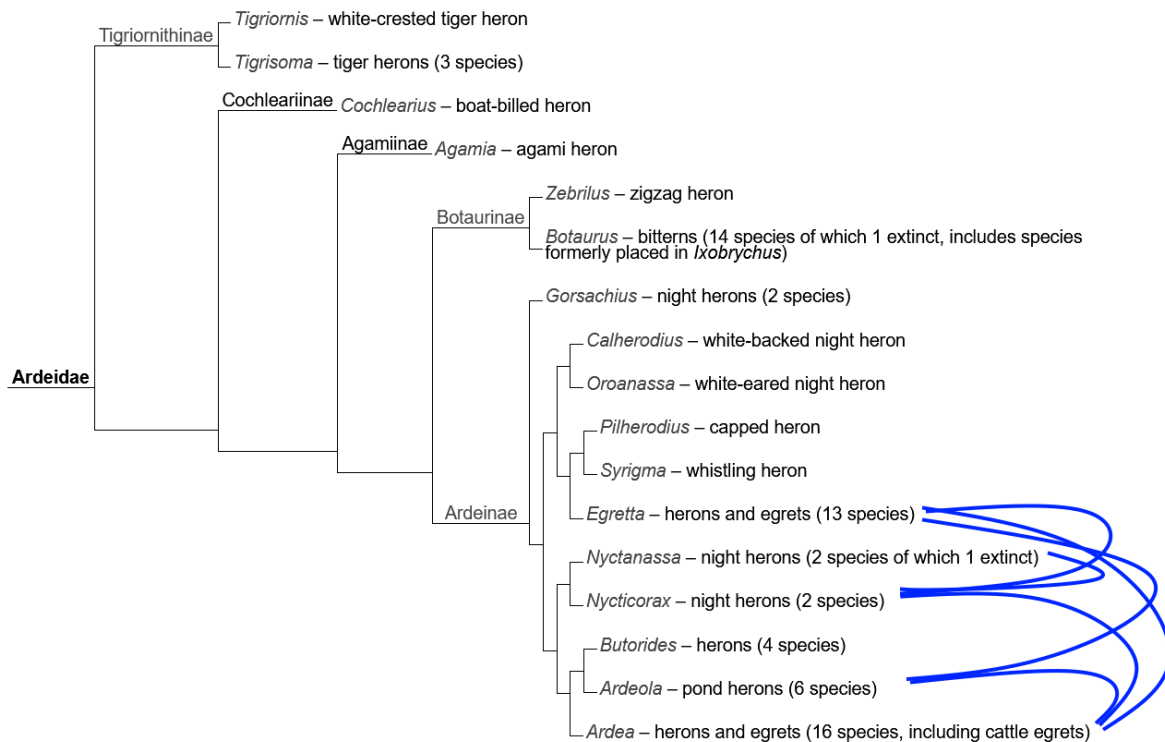
Probably **basic type Ardeidae subfamily Ardeinae** (13: 57): several hybrids connect the main clades, see the figure below. – See also the comments of Tyler (2025, p. 300 f.) in her “candidates for basic type status”.

McCarthy 2006, p. 189: *Ardea* 5 IS (incl. *Casmerodius*° *albus*, *Mesophoyx intermedia*), *Butorides* 2 IS, *Egretta* 8 IS, *Nycticorax* 1 IS.

*Ardea cinerea*, *herodias* × *Casmerodius*° *albus* (= *Ardea alba*) IS (nat. hyb.) McCarthy 2006, Dumont 2012

*Ardea cinerea*, *picata* × *Egretta garzetta* (nat. hyb.) McCarthy 2006, Dumont 2012

- Ardeola bacchus* × *Egretta garzetta* Mashiko et al. 2012 (Japan, cited after avianhybrids 2026)
- Ardeola grayii* × *Mesophoyx* (“*Ardea*”) *intermedia* (capt. hyb.) McCarthy 2006, Dumont 2012
- Bubulcus*<sup>o</sup> (= *Ardea*) *ibis* × *Egretta caerulea, thula* (nat. hyb.) McCarthy 2006, Dumont 2012
- Casmerodius*<sup>o</sup> *albus* (= *Ardea alba*) × *Nycticorax caledonicus* (capt. hyb.) McCarthy 2006, Dumont 2012
- Egretta div. spec.* × *Nycticorax nycticorax* (nat. hyb., capt. hyb.) McCarthy 2006, Dumont 2012
- Nyctanassa violacea* × *Nycticorax nycticorax* (capt. hyb.) McCarthy 2006, Dumont 2012



**Ardeidae:** hybrids in the phylogram from en.wikipedia (2025, CC BY-SA 4.0; cf. Hruska JP et al. 2023. doi: 10.1093/ornithology/ukad005). – Similar data has <http://john-boyd.com/Taxo/List8.html>

## Pelecaniformes: Balaenicipitidae 1: 1

shoebill = **Schuhschnabel**

Monotypic. *Balaeniceps rex*. Clearly distinct, but in the same clade as Pelecanidae and Scopidae.

**Basic type family Balaenicipitidae (1: 1) as a clearly distinct monospecific family.**

## Pelecaniformes: Pelecanidae 1: 8 + extinct taxa

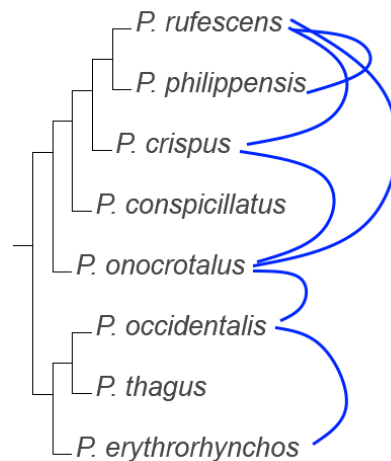
pelicans = **Pelikane**

*Pelecanus* 8. Clearly distinct, but in the same clade as Balaenicipitidae and Scopidae.

**Basic type family Pelecanidae (1: 8) as a distinct monogeneric family. All species are linked by hybridization, see the figure below. – See also the comments of Tyler (2025, p. 300 f.) in her “candidates for basic type.” She points out that fossil pelicans date back to the Oligocene,**

mostly placed within the same genus *Pelecanus*, and that evidently the pelican structure has changed little since then.

IS: McCarthy (2006), p. 193: *Pelecanus* 6 IS (*crispus* × *onocrotalus*; *crispus* × *rufescens*; *erythrorhynchos* × *occidentalis*; *occidentalis* × *onocrotalus*; *onocrotalus* × *rufescens*; *philippensis* × *rufescens*).



**Pelecanidae:** hybrids of *Pelecanus* in the phylogeny of Kennedy et al. M (2013). doi:10.1016/j.ympcv.2012.09.034ram, from en.wikipedia (2025, CC BY-SA 4.0).

## **Pelecaniformes: Scopidae 1: 1**

**hamerkop = Hammerkopf**

Monotypic: *Scopus umbretta*.

**Basic type family Scopidae (1: 1)** as a monotypic family with unique characteristics.

## **Pelecaniformes: Threskiornithidae = Plataleidae 13: 36 + extinct genera. 2 IG**

**ibises and spoonbills = Ibisse und Löffler**

Uniform. Monophyletic. Formerly 2 subfamilies. Not related with Ciconiiformes.

*Bostrychia* 5, *Cercibis oxycerca*, *Eudocimus* 2, *Geronticus* 2, *Lophotibis cristata*, *Mesembrinibis cayennensis*, *Nipponia nippon*, *Phimosus infuscatus*, *Platalea* 6 (incl. *Ajaja*<sup>o</sup> *ajaja*). *Plegadis* 3, *Pseudibis* 3, *Theristicus* 4, *Threskiornis* 6.

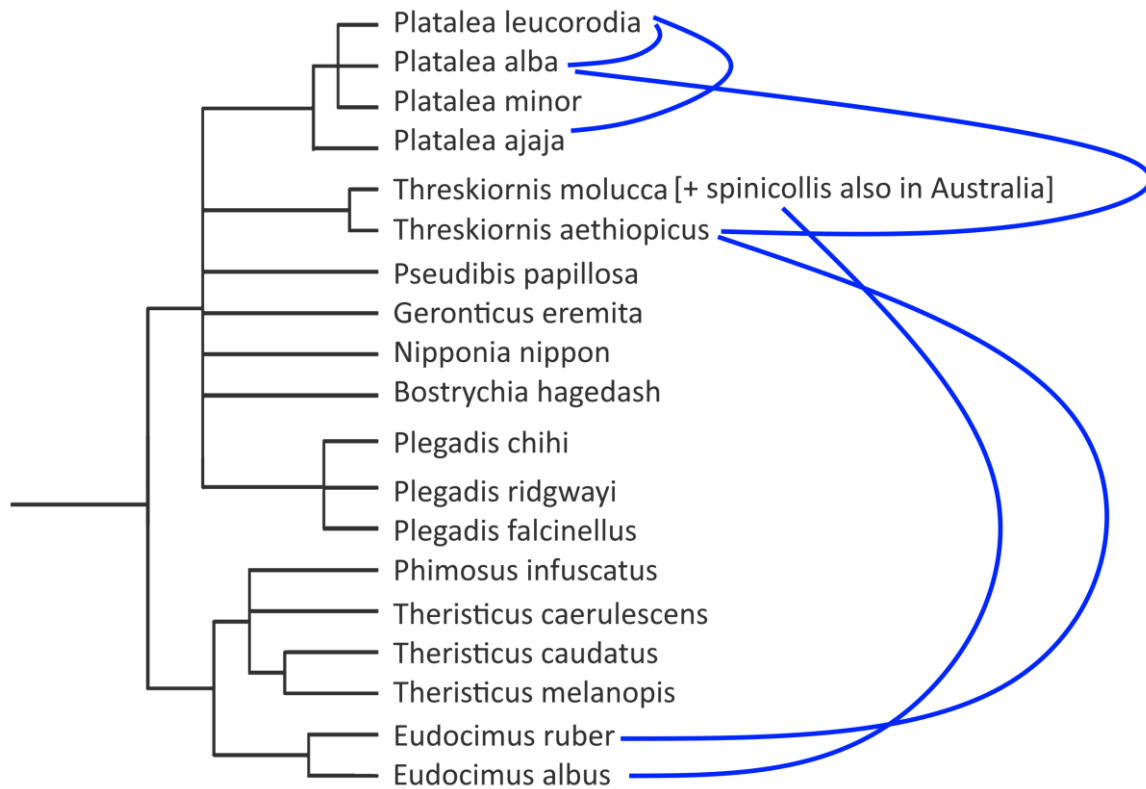
Probably **Basic type Threskiornithidae (13: 36)**: uniform family. The most distant genera (incl. ibises and spoonbills) are linked by hybridization, see the figure below. Further data are necessary to confirm the family as basic type, because the hybrid reports are not actually confirmed. – See also the comment of Tyler (2025, p. 312) in her “list of candidates for basic type status! She points out the interesting phenomenon that two morphologically different types as ibises and spoonbills belong to the same basic type.

IS: McCarthy (2006): *Eudocimus* 1 IS (*albus* × *ruber*), *Platalea* 1 IS (*alba* × *leucorodia*), *Plegadis* 1 IS (*chihi* × *falcinellus*), *Threskiornis* 4 IS (*aethiopicus* × *melanocephala*; *aethiopicus* × *molucca*; *aethiopicus* × *spinicollis*; *melanocephalus* × *spinicollis*). avianhybrids (2026) adds *Platalea* (*leucorodia* × *minor*) and *Plegadis* (*chihi* × *ridgwayi*).

*Ajaja*<sup>o</sup> (= *Platalea*) *ajaja* × *Eudocimus ruber* McCarthy 2006 (p. 192: “?”), Dumont 2012  
*Ajaja*<sup>o</sup> (= *Platalea*) *ajaja* × *Platalea leucorodia* IS (capt. hyb.) McCarthy 2006, Dumont 2012, avianhybrids 2026

*Eudocimus* × *Threskiornis* (capt. hyb.) McCarthy 2006 (*E. albus* × *T. spinicollis*, *E. ruber* × *T. aethiopicus*), Dumont 2012. old reports, confirmation needed

*Platalea* × *Threskiornis* (capt. hyb.) McCarthy 2006 (*P. alba* × *T. aethiopicus*; *P. minor* × *T. melanocephalus*), Dumont 2006. Not actually confirmed.



**Threskiornithidae:** hybrids in the phylogram of Ramirez JL et al. 2013, Fig. 1. doi: 10.4238/2013.July.30.11

## **Phaethontiformes** **Phaethontidae 1: 3**

tropicbirds = Tropikvögel

No close relatives exist. Formerly part of Pelecaniformes.

Monotypic: *Phaeton* 3.

Probably **basic type family Phaethontidae (1: 3)** as a monogeneric isolated family.

## **Phoenicopteriformes** **1 family, 6 species**

### **Phoenicopteriformes: Phoenicopteridae 3: 6. 2 IG**

flamingoes = Flamingos

*Phoeniconaias* 1 *minor*, *Phoenicoparrus* 2 *andinus*, *jamesi*, *Phoenicopterus* 3 *chilensis*, *roseus*, *ruber*.

**Basic type family Phoenicopteridae (3: 6)** as an anatomically and molecularly distinct family. All 3 genera are linked by hybridization. Indeed, they are often lumped because of

their uniformity. – See also the comments of Tyler (2025, p. 300 f.) in her “candidates for basic type status”.

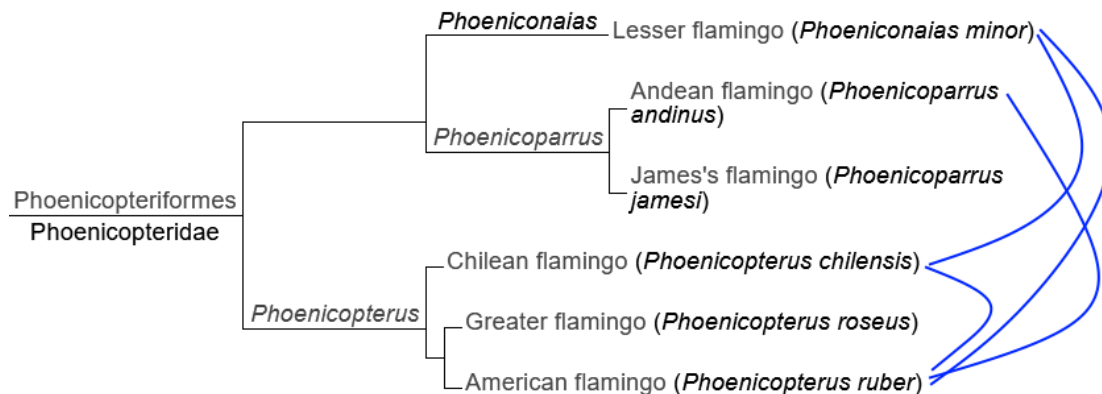
IS: McCarthy 2006, p. 192: *Phoenicopterus* s. str. 1 IS (*chilensis* × *ruber*).

*Phoeniconaias* (= *Phoenicopterus*) *minor* × *Phoenicopterus chilensis, ruber* (nat. hyb.)

McCarthy 2006 (sub *Phoenicopterus*), Dumont 2012

*Phoenicoparrus* (= *Phoenicopterus*) *andinus* × *Phoenicopterus ruber* (capt. hyb.) McCarthy

2006 (sub *Phoenicopterus*), Dumont 2012



**Phoenicopteridae:** hybrids in the phylogram of Frias-Soler et al. 2022. doi:10.1093/zoolinnean/zlac040. from en.wikipedia (2025, CC BY-SA 4.0)

## **Piciformes** 2 suborders, 9 families, 439 species + extinct taxa woodpeckers and allies = Spechtartige

Suborder Galbuli (or separate order Galbuliformes): 2 families Bucconidae 10: 37, Galbulidae 5: 18.

Suborder Pici: 7 families Capitonidae, Indicatoridae, Lybiidae, Megalaimidae, Picidae, Ramphastidae, Semnornithidae.

### **Piciformes: Bucconidae 10: 33–37 (suborder Galbuli)** puffbirds = Faulvögel

*Bucco* 4, *Hypnelus* 2, *Monasa* 4, *Notharchus* 6, *Nystalus* 5, ...

McCarthy (2006), p. 114: *Hypnelus* 1 IS (*bicinctus* × *ruficollis*), *Monasa* 1 IS (*fidelis* × *morphoeus*, now conspecific).

avianhybrids 2026: *Nystalus* 1 IS (*maculatus* × *striatipectus*).

### **Piciformes: Capitonidae 2: 15 (suborder Pici)**

**American barbets = Amerikanische Bartvögel**

excl. Lybiidae and Megalaimidae, and Semnornithidae.

*Capito* 11, *Eubucco* 4.

IS: McCarthy (2006), p. 110: *Capito* 1 IS (*auratus* × *niger*), *Eubucco* 1 IS (*bourcierii* × *richardsoni*).

#### **References:**

Ostrow EN et al. (2022) Phylogenomic analysis confirms the relationships among toucans, toucan-barbets, and New World barbets but reveals paraphyly of Selenidera toucanets and evidence for mitonuclear discordance. *Ornithology* 140, 3, ukad022.

<https://doi.org/10.1093/ornithology/ukad022>

## **Piciformes: Galbulidae 5: 18 (suborder Galbuli)**

**jacamars = Glanzvögel**

*Brachygalba* 3, *Galbula* 10, ...

McCarthy (2006), p. 114: *Galbula* 3 IS (*galbula* × *leucogastra*; now conspecific; *melanogenta* × *ruficauda*; *melanogenta* × *rufiviridis*).

avianhybrids 2026: *Galbula* 1 IS (*chalcothorax* × *leucogastra*).

## **Piciformes: Indicatoridae 4: 16 (suborder Pici)**

**honeyguides = Honiganzeiger**

*Indicator* 10, *Prodotiscus* 3, ...

McCarthy (2006), p. 102: *Indicator* 2 IS (*conirostris* × *minorn*, now conspecific; *exilis* × *wilcocksii*, *Prodotiscus* 1 IS (*insignis* × *zambesiae*).

## **Piciformes: Lybiidae 10: 43 (suborder Pici)**

**African barbets = Afrikanische Bartvögel**

*Gymnobucco* 4, *Lybius* 6, *Pogoniolus* 10, *Trachylaemus* 2, *Tricholaema* 5, ...

McCarthy (2006), p. 111: *Lybius* 4 IS (now intersubspecific), *Pogoniulus* 3 IS, *Tricholema* 2 IS.

## **Piciformes: Megalaimidae 2: 35 (suborder Pici)**

**Asian Barbets = Asiatische Bartvögel**

Some authors have lumped them with Ramphasidae

*Calorhamphus* 2 *fuliginosus*, *hayii*, *Psilopogon* 33 (incl. *Megalaima*<sup>o</sup> *australis*, *franklinii*).

**IS:** McCarthy 2006, p. 111: *Psilopogon* 2 IS (*australis* × *franklinii*; *cyanotis* × *duvaucelii*, sub *Megalaima*<sup>o</sup>)

## **Piciformes: Picidae 30: 236 + extinct taxa (suborder Pici)**

**woodpeckers, piculets, and wrynecks = Spechte und Wendehälse**

4 subfamilies:

Jynginae 1: 2, Picuminae 1: 27, Picinae 26: 200, Sasiinae 2: 3.

**Jynginae** 1: 2

**wrynecks = Wendehälse**

*Jynx* 2.

**Picinae** 26: 200. **2 IG + 2 IT**

**true woodpeckers = Eigentliche Spechte**

6 tribes (see the figure below):

Hemicircini 1: 2.

Nesocitini 1 *Nesocititis micromegas*.

Picini 14: 88.

Campephilini 3: 24.

Melanerpi 13: 95.

Probably **basic type Picidae subfamily Picinae** (25: 200) as a uniform subfamily with its well-known characteristics. On the one hand, Picinae have much in common, on the other hand they differ from the other subfamilies with their own special characteristics. The three large tribes Picini (14: 88), Campephilini (4: 24), and Melanerpi (13: 95) are linked by hybridization, see the figure below. Hybrid connections to the two small basal tribes Hemicircini (1: 2) and Nesocitini (1: 1) are unknown. – See also the results and discussion of Garner (2014) who proposes to give the “holobaramin status” to the whole family, and the comment of Tyler (2025, p. 322) in her list of “other potential candidates for basic type status”.

**IS:** McCarthy (2006), p. 102–110: *Campethera* 5 IS, *Celeus* 4 IS, *Colaptes* 4 IS, *Dendrocopos* 9 IS, *Dendropicos* 5 IS, *Dinopium* 1 IS, *Dryocopus* 3 IS, *Melanerpes* IS, *Picoides* 6 IS, *Piculus* 2 IS, *Picus* 5 IS, *Sphyrapicus* 3 IS, *Veniliornis* 1 IS.

Ottenburghs & Nicolai (2024): table 1 gives an overview of all reliable hybrids in woodpeckers.

Garner (2014) gives an overview of “established and putative interspecific hybrids within the Picidae” with 56 entries.

*Campephilus* × *Melanerpes* **IT** *Campephilini* × *Melanerpi* **HY** Fuchs et al. 2013 (ancient hybridization), avianhybrids 2026

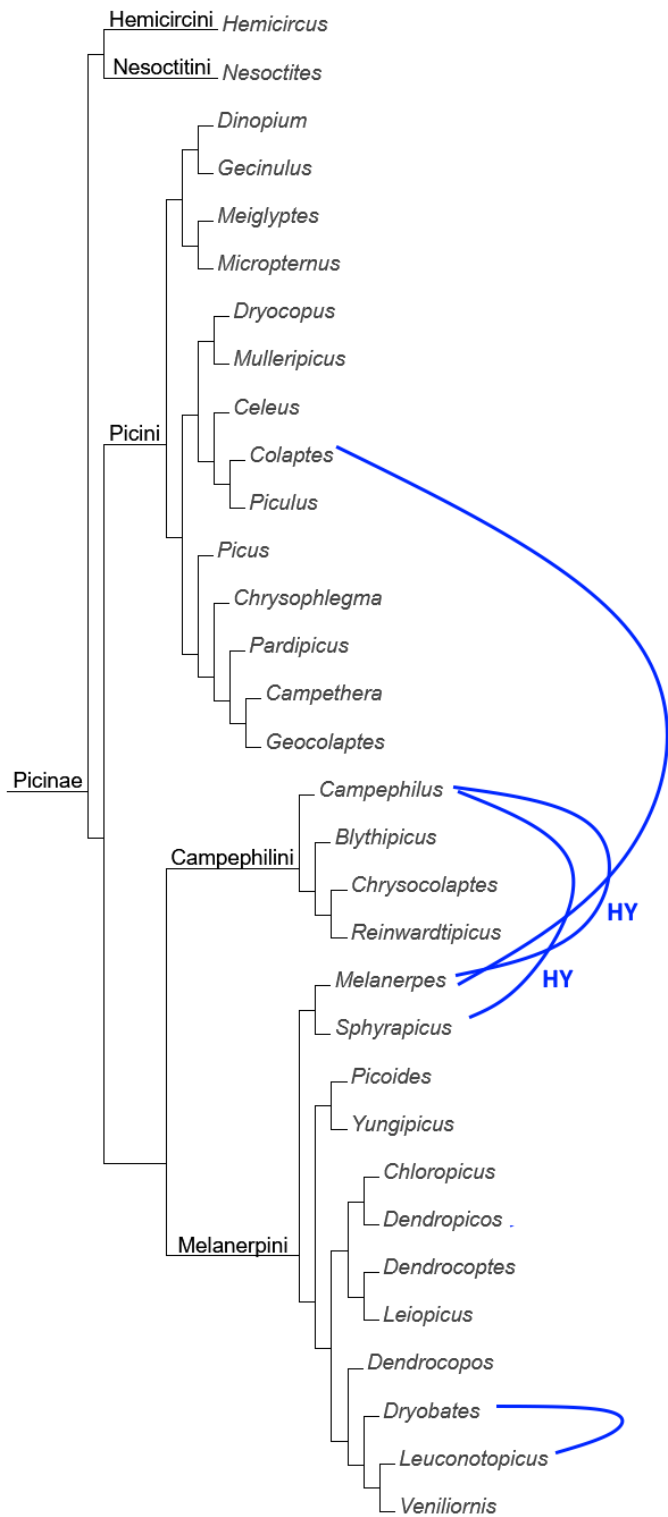
*Campephilus* × *Sphyrapicus* *Campephilini* **HY** Fuchs et al. 2013 (ancient hybridization), avianhybrids 2026

*Celeus castaneus* × *Piculus* (*Colaptes*) *rubiginosus* *Picini* (nat. hyb.) McCarthy 2006 (“???”), Dumont 2012, avianhybrids 2026 (“mistake”)

*Colaptes chrysoides* × *Melanerpes uropygialis* **IT** *Picini* × *Melanerpi* (capt. hyb.) McCarthy 2006, Dumont 2012, Ottenburghs & Nicolai 2024 (not mentioned as reliable)

*Dendropicos spodocephalus* × *Picus viridis* **IT** *Melanerpi* × *Picini* (nat. hyb.) Ivanchev 1995, Dumont 2012, avianhybrids 2026 (“This hybrid record is based on a faulty interpretation of a Russian reference.”)

*Dryobates* × *Leuconotopicus* *Melanerpi* Ottenburghs & Nicolai (2024 (*D. pubescens* × *L. villosus*; *D. scalaris* × *L. villosus*) The genera are closely related and members of a mimicry complex)



**Picidae subfamily Picinae:** hybrids in the phylogram of Shakya et al. 2017, from en.wikipedia (2025, CC BY-SA 4.0).

**Picuminae 1: 27**

**piculets = Zwergspechte**

*Picumnus* 27.

Possibly **basic type family Picidae subfamily Picumninae** (1: 27) as a monogeneric subfamily which is connected by several hybrids and differs from the other subfamilies by several unique characteristics.

IS: McCarthy (2006): *Picumnus* 12 IS,  
Ottenburghs & Nicolai (2024): 7 reliable IS in *Picumnus*.

## **Sasiinae 2: 3.**

**piculets p. p. = Mausspechte**

*Sasia* 2, *Verreauxia* 1 *africana*.

IS: McCarthy (2006) 1 IS.

### **References:**

- Fuchs J et al. (2013) A multi-locus phylogeny suggests an ancient hybridization event between *Campephilus* and melanerpine woodpeckers (Aves: Picidae). *Molecular Phylogenetics and Evolution* 67, 578–588. <https://doi.org/10.1016/j.ympev.2013.02.014>
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<https://www.coresci.org/jcts/index.php/jctsb/article/view/24>
- Ivanchev VP (1995) Additional data on the question about hybridization between Grey-headed and Green Woodpeckers. [Russian] *Proc. of Oka Biosphere Nature Reserve “Scientific bases of conservation and wise management of birds”*. Ryazan’: Russkoe slovo Publishers.
- Ottenburghs J & Nicolai MPJ (2024) Hybridization constrains the evolution of mimicry complexes in woodpeckers. *Journal of Avian Biology* 5–6 e03228.  
<https://doi.org/10.1111/jav.03228> **Table 1: Overview of reliable woodpecker hybrids**
- Shakya SB et al. (2017) Tapping the woodpecker tree for evolutionary insight. *Molecular Phylogenetics and Evolution* 116, 182–191. <http://dx.doi.org/10.1016/j.ympev.2017.09.005>

## **Piciformes: Ramphastidae 5: 37 (suborder Pici)**

**toucans = Tukane**

Some authors have included Megalaimidae.

*Andigena* 4, *Aulacothynchus* 8, *Pteroglossus* 12 (whole genus connected via hybridization; cf. doi:10.1016/j.ympev.2010.10.016), *Ramphastos* 7, *Selenidera* 6.

McCarthy (2006), p. 112: *Aulacorhynchus* 2 IS, *Pteroglossus* 12 IS (e.g. *azara* × *inscriptus*), *Ramphastos* 8 IS, *Selenidera* 1 IS.

## **Piciformes: Semnornithidae 1: 2 (suborder Pici)**

**toucan-barbets = Tukan-Bartvögel**

related to Ramphastidae and Capitonidae s. l.

*Semnornis* 2.

McCarthy (2006): no hybrids mentioned.

**Podargiformes** 1 family

## Podargiformes: Podargidae 3: 16

frogmouths = Eulenschwalme

*Podargus* 3, *Batrachostomus* 12, *Rigidipenna* 1.

McCarthy (2006), p. 158 (sub Caprimulgidae): three races of *Podargus* hybridize extensively.

Possibly basic type family Podargidae (3: 16) because of its isolated position and sole family of the order.

## Podicipediformes 1 family

### Podicipediformes: Podicipedidae 6: 22 + 5 extinct genera. 1 IG

grebes = Lappentaucher

The similarity with Gaviidae (loons = Seetaucher) is a result of similar lifestyle.

The subdivision of the family is matter of debate.

*Aechmophorus* 2, *Podiceps* 9, *Podilymbus* 2, *Poliiocephalus* 2, *Rollandia* 2, *Tachybaptus* 5.

Probably basic type family Podicipedidae (6: 22) as an isolated family with unique characteristics. Depending on the cladogram, the hybrid network between *Podilymbus* and *Tachybaptus* connects either two sister groups (Ksepka et al. 2013, fig. 11), see the figure below), or one half of the family (cf. Bochenski 1994, Fig. 85) or the entire family (Ksepka et al. 2013, figs. 9+10;). At least all 9 species of *Podiceps* are connected by IS in the phylogram of Ksepka et al. (2013, figs. 9–11).

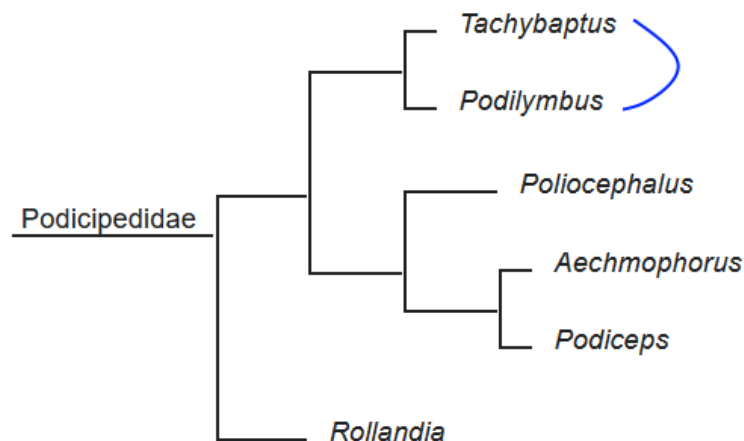
McCarthy (2006), p. 187: *Aechmophorus* 1 IS (*clarkii* × *occidentalis*), *Podiceps* 3 IS (*auritus* × *nigricollis*; *crispatus* × *griseogena* ?; *gallardoi* × *occipitalis*; *juninensis* × *occipitalis* ?), *Podilymbus* 1 IS († *gigas* × *podiceps*), *Tachybaptus* 2 IS.

avianhybrids (2026): *Aechmophorus* 1 IS (*clarkii* × *occidentalis*), *Podiceps* 1 IS (*gallardoi* × *occipitalis*), *Tachybaptus* 1 IS (*ruficollis* × † *rufolavatus*).

~~*Fulica atra* × *Podiceps griseogena*~~ IF/IO Gruiformes Rallidae × Podicipediformes

Podicipedidae Dumont 2012 [no hybrids, only mixed nesting = „Mischgelege“]

*Podilymbus podiceps* × *Tachybaptus ruficollis* (nat. hyb.) McCarthy 2006, Dumont 2012



Podicipedidae: hybrids in the phylogram of. Fjeldså (2004) ISBN 0-19-850064-5, from de.wikipedia (2025, CC BY-SA 4.0).

## References:

- Bochenski ZM (1994) The comparative osteology of grebes (Aves: Podicipediformes) and its systematic implications. *Acta Zoologica Cracoviensia* 37 (1), 191–346.  
<https://www.researchgate.net/publication/285839426>
- Fjeldså J (2004) *The Grebes*. Oxford University Press. ISBN 0-19-850064-5.
- Ksepka DT et al. (2013) Fossil grebes from the Truckee formation (Miocene) of Nevada and a new phylogenetic analysis of Podicipediformes (Aves). *Palaeontology* 56, 1149–1169.  
<https://doi.org/10.1111/pala.12040>

## **Procellariiformes** 4 families, 148 species

### tubenoses = Röhrennasen

4 families.

### **Procellariiformes: Diomedidae 4: 20**

#### albatrosses = Albatrosse

*Diomedea* 6, *Phoebastria* 4, *Phoebetria* 2, *Thalassarche* 8.

Probably **basic type family Diomedidae** (4: 20) because of its unique characteristics, though intergeneric hybrids are so far unknown..

McCarthy (2006), p. 198: *Diomedea* 5 IS.  
avianhybrids (2026): *Phoebastria* 1 IS (*immutabilis* × *nigripes*), *Thalassarche* 2 IS (*cauta* × *melanophris*; *melanophris impavida* × *melanophris melanophris*).

### **Procellariiformes: Hydrobatidae 1: 18**

#### Northern storm petrels = Wellenläufer

excl. family Oceanitidae (southern storm petrels), which was formerly considered as subfamily of Hydrobatidae.

Monophyletic: *Hydrobates* 18.

### **Procellariiformes: Oceanitidae 5: 10**

#### Southern storm petrels = Sturmschwalben

Monophyletic

*Fregetta* 4, *Garrodia* 1, *Nesofregetta* 1 *fuliginosa*, *Oceanites* 3, *Pelagodroma* 1.  
McCarthy 2006, Dumont 2012: *Fregetta* 1 IS (*grallaria* × *tropica* (nat. hyb.))

### **Procellariiformes: Procellariidae 16: 100. 1 IG**

#### shearwaters, petrels and prions = Sturmvögel

*Aphrodroma* 1, *Ardenna* 7, *Bulweria* 3, *Calonectris* 4, *Daption* 1, *Fulmarus* 2, *Halobaena* 1, *Macronectes* 2, *Pachyptila* 7, *Pagodroma* 1, *Pelecanoidea* 4 (sometimes own family), *Procellaria* 5, *Pseuobulweria* 4, *Pterodroma* 36, *Puffinus* 21, *Thallassoica* 1.

McCarthy (2006), p. 196 f.: *Calonectris* 1 IS (*borealis* × *diomedea*), *Macronectes* 1 IS (*giganteus* × *halli*), *Pachyptila* 5 IS (*belcheri* × *desolata*; *crassirostris* × *turtur*; *desolata* ×

*vittata*; *salvini* × *vittata*), *Pagodroma* 1 IS (*confusa* × *nivea*), *Pterodroma* 1 IS (*cahow* × *feae*, *Puffinus* 3 IS (*assimilis* × *lherminieri*; *bulleri* × *griseus*?; *carneipes* × *creatopus*).  
avianhybrids (2026): *Macronectes* (*giganteus* × *halli*, fertile), *Pachyptila* (*desolata* × *vittata*), *Pterodroma* (*arminjoniana* × *neglecta*; *arminjoniana* × *heraldica*; *lessonii* × *mollis*), *Puffinus maurezanicus* × *yelkouan*)

*Calonectris diomedea* × *Puffinus gravis* (nat. hyb.) McCarthy 2006, Pyle et al. 2008, Dumont 2012. The genera are closely related.  
*Pagodroma* × *Puffinus* McCarthy 2006 (“Internet: FOTO5”) very questionable

#### References:

Pyle P, Howell SNG & Ruck S (2008) Identification guide to North American Birds. Part II. Point Reyes Station, California. Slate Creek Press.  
Welch AJ et al. (2014). Phylogenetic relationships of the extinct St. Helena petrel, *Pterodroma rupinarum* Olson, 1975 (Procellariiformes: Procellariidae), based on ancient DNA. Zoological Journal of the Linnean Society, 170 (3), 494–505.  
<https://doi.org/10.1111/zoj.12078>

## **Psittaciformes** 4 families, 101: 410. 38 IG + 8 ISF + 2 IF

### parrots = Papageienartige

3 superfamilies, 4 families:

Strigopoidea 1 family Strigopidae incl. Nestoridae: 2: 4

Cacatuoidea 1 family Cacatuidae 7: 22.

Psittacoidea 2 families: Psittacidae 37: 177, Psittaculidae (incl. Psittichadidae) 53: 202.

**Basic type order Psittaciformes** (101: 410): Landgren, Gustafsson & Kutzelnigg (2011). Psittaciformes are as a whole uniform and have several unique characteristics in common. The large families Psittacidae and Psittaculidae are connected by hybridization (90: 379). An interfamilial mating between Cacatuidae and Psittacidae and resulting fertile eggs which were not incubated has been reported. Hybrids with the small basal group Nestoridae (2: 4) are unknown. –See also the comments of Tyler (2025, p. 305 f.) in her “candidates for basic type status”.

## **Psittaciformes: Cacatuidae** 7: 22. 3 IG + 1 ISF + 1 IF

### cockatoos = Kakadus

Cacatuinae 4: 15 *Cacatua* 13 (incl. *Lophochroa*<sup>o</sup> *leadbeateri*), *Callocephalon fimbriatum*, *Eolophus* (“*Cacatua*”) *roseicapilla*, *Probosciger aterrimus*.

Calyptorhynchinae 2: 5 *Calyptorhynchus* 2 *banksii*, *lathamii*, *Zanda* 3 (“*Calyptorhynchus*”) *funerea*, *latirostris*, *baudinii*.

Nymphicinae 1: 1 *Nymphicus hollandicus*.

Part of basic type Psittaciformes (see above).

**IS:** McCarthy (2006): *Cacatua* (incl. *Eolophus roseicapilla*) 15 IS, *Calyptorhynchus* 2 IS.

*Cacatua div. spec.* × *Cacatua* (= *Lophochroa*<sup>o</sup>) *leadbeateri* IS *Cacatuinae* (capt. hyb., nat. hyb.) McCarthy 2006, Dumont 2012

*Cacatua sanguinea* × *Callocephalon fimbriatum* *Cacatuinae* (nat. hyb., capt. hyb.) McCarthy 2006, Dumont 2012

*Cacatua* div. spec. (incl. *Lophochroa*<sup>o</sup>) × *Eolophus roseicapilla* **Cacatuinae** (nat. hyb., capt. hyb.) McCarthy 2006, Dumont 2012, avianhybrids 2026 (putative cross *C. sanguinea* × *E. roseicapillus*, Hingston 2022)

*Callocephalon fimbriatum* × *Eolophus* (“*Cacatua*”) *roseicapilla* **Cacatuinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Eolophus* (“*Cacatua*”) *roseicapilla* × *Nymphicus hollandicus* **ISF Cacatuinae** × **Nymphicinae** ISF Marshall 2005a = <http://www.talkingbirds.com.au/galatiel.php>

*Eolophus* (“*Cacatua*”) *roseicapilla* × *Platycercus eximius* **IF Cacatuidae** × **Psittacidae** (capt. hyb.) McCarthy 2006 (p 136: “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 fail to hatch. .... Brooksbank 1949.”), Dumont 2012

*Neophema chrysostoma* × *Nymphicus hollandicus* **IF Psittaculidae** × **Cacatuidae**, see Psittaculidae

*Nymphicus hollandicus* × *Psephotus haematonotus* **IF Cacatuidae** × **Psittaculidae** (capt. hyb.) McCarthy (p. 133, “??”), Dumont 2012

## **Psittaciformes: Psittacidae 37: 183 + extinct genera. 11 IG + 1 IF true parrots or New World and African parrots = Echte Papageien**

The circumscription of the genera has much changed since 2011. Many species were formerly placed in *Ara* s. l.

2 subfamilies:

Arinae 33: 162 *Amazona* 34, *Anodorhynchus* 3, *Ara* s. str. 8, *Aratinga* 6, *Bolborhynchus*, *Brotogeris* 8, *Cyanoliseus* 1, *Cyanopsitta* 1, *Diopsittaca nobilis*, *Eupsittula* 4, *Forpus* 9, *Myiopsitta*, *Pionites*, *Pionopsitta* 1 *pileata*, *Primolius* 3 (incl. *Propyrrhura*<sup>o</sup>), *Pionus* 7, *Psittacara*, *Pyrrhura* 7 (= *Pionopsitta* p. p.), *Touit* 8, ...

Psittacinae 2: 10 *Poicephalus* 9. *Psittacus* 1 *erithacus*.

### Part of basic type Psittaciformes.

**IS:** McCarthy (2006): *Amazona* 22 **IS**, *Ara* (incl. *Diopsittaca nobilis* und *Propyrrhura* = *Primolius auricollis*, *couloni*, *maracana*) 12 **IS**, *Brotogeris* 7 **IS**, *Forpus* 7 **IS**, *Pionites* 1 **IS**, *Primolius* 1 **IS**, *Pyrrhura* 6 **IS**, *Rhynchopsitta* 1 **IS**.

*Amazona amazonica* × *Pionus maximiliani* **Arinae** Hernandez-Brito et al. 2021, Ottenburghs 2023

*Amazona aestiva* × *Psittacara* **Arinae** (capt. hyb. in a Belgian zoo) see comment of “BrianL” in Ottenburghs 2023

*Anodorhynchus hyacinthinus*, *leari* × *Ara* div. spec. **Arinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Ara severa* × *Primolius* (“*Ara*”) *auricollis* **Arinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Aratinga jandaya* × *Eupsittula* (“*Aratinga*”) *aurea* **Arinae** Leandro et al. 2023

<https://www.researchsquare.com/article/rs-3754352/v1>

*Aratinga jandaya*, *solstitialis* × *Aratinga* (= *Nandayus*<sup>o</sup>) *nenday* **IS Arinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Brotogeris pyrrhoptera* × *Psittacula krameri* **IF Arinae** × **Psittaculinae** McCarthy 2006 (p. 130: “mixed pair ... no hybrid”)

*Cyanoliseus patagonus* × *Primolius* (= *Ara*) *maracana* **Arinae** (capt. hyb.) McCarthy 2006, (p. 128: “?”), Dumont 2012

*Cyanopsitta spixii* × *Primolius* (“*Ara*”, *Propyrrhura*) *maracana* **Arinae** (nat. hyb.)  
 McCarthy 2006, Dumont 2012, avianhybrids 2026, Ottenburghs 2023

*Diopsittaca* (“*Ara*”) *nobilis* × *Primolius* (“*Ara*”) *auricollis* **Arinae** (capt. hyb.) McCarthy  
 2006, Dumont 2012

*Diopsittaca* (“*Ara*”) *nobilis* × *Psittacara* (“*Aratinga*”) *holochlorus, leucophthalmus, mitratus*  
**Arinae** Silva 1996

*Eupsittiula* (“*Aratinga*”) *aurea* × *Myiopsitta monachus* **Arinae** (capt. hyb.) Mc Carthy 2006  
 (“??”), Dumont 2012

*Pionites melanocephala* × *Pionus maximiliani* **Arinae** (capt. hyb.) McCarthy 2006, Dumont  
 2012

*Pionopsitta pileata* × *Platycercus elegans* **IF Psittacidae** × **Psittaculidae** (capt. hyb.)  
 McCarthy 2006, Dumont 2012

*Poicephalus senegalus* × *Psittacus erithacus* **Psittacinae** (capt. hyb.) McCarthy 2006, Dumont  
 2012

## **Psittaciformes: Psittaculidae 47: 201. 24 IG + 7 ISF + 1 IF**

incl. Psittichadidae

6 subfamilies:

Agapornithinae 3: 23, *Agapornis* 9, *Loriculus* 15, *Bolbopsittacus* 1 *lunulatus*.

Loriinae 12: 52: *Cyclopsitta* 4, *Lorius* 6, ...

Platycercinae 13: 69 *Barnardius* 1 (= *Platycercus*) *zonarius*, *Eunymphicus* 2, *Neophema* 6,  
*Platycercus* 6, *Psephotus* 1, *Purpureicephalus* 1, *Trichoglossus* 22,

Psittacellinae 1: 4 *Psittacella* 4.

Psittaculinae 10: 55 *Alisterus* 3, *Aprosmictus* 2, *Eclectus* 5, *Polytelis* 3, *Psittacula* 16, ...

Psittichadinae 2: 5 *Coracopsis* 4, *Psittichas fulgidus*.

### **Part of basic type Psittaciformes.**

**IS:** McCarthy (2006): *Agapornis* 14 IS, *Alisterus* 1 IS, *Chalcopsitta* 1 IS, *Charmosyna* 1 IS,  
*Eos* 5 IS, *Eunymphicus* 1 IS, *Glossopsitta* 2 IS, *Lorius* 3 IS, *Neophema* 4 IS, *Platycercus* 32 IS  
 (but consider that *Barnardius* is included and *P. elegans* ssp. *flaveolens*, so 12 IS remain),  
*Poicephalus* 6 IS, *Polytelis* 3 IS, *Prosopiea* 2 IS, *Psephotus* 7 IS, *Psittacula* 8 IS,  
*Trichoglossus* 6 IS.

*Agapornis* div. spec. × *Melopsittacus* **ISF Agapornithinae** × **Loriinae** (capt. hyb.) McCarthy  
 2006 (p. 121, 124: “?”), Dumont 2012

*Alisterus amboinensis, scapularis* × *Aprosmictus erythropterus* **Psittaculinae** (nat. hyb., capt.  
 hyb.) McCarthy 2006, Dumont 2012

*Alisterus scapularis* × *Platycercus elegans* **ISF Psittaculinae** × **Platycercinae** (nat. hyb.)  
 McCarthy 2006, Dumont 2012

*Alisterus amboinensis, scapularis* × *Polytelis alexandrae, anthopeplus, swainsonii*  
**Psittaculinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Alisterus scapularis* × *Psephotus haematonotus* **ISF Psittaculinae** × **Platycercinae** (capt. hyb.)  
 McCarthy 2006 (p. 125: “?”), Dumont 2012

*Aprosmictus erythropterus* × *Northiella haematogaster* **ISF Psittaculinae** × **Platycercinae**  
 (capt. hyb.) McCarthy 2006 (p. 127: “?”), Dumont 2012

*Aprosmictus erythropterus* × *Polytelis alexandrae, anthopeplus, swainsonii* **Psittaculinae**  
 (capt. hyb.) McCarthy 2006, Dumont 2012

*Barnardius* (= *Platycercus*) *zonarius* × *Platycercus* div. spec. **Platycercinae** (nat. hyb., capt.  
 hyb.) McCarthy 2006, Dumont 2012

*Cyanoramphus novaezelandiae* × *Eunymphicus comutus* **Platycercinae** (capt. hyb.) McCarthy 2006, Dumont 2012, Boon 2008 (genetic and behavioral suggest that *E. cornutus* is of hybridogeneous origin), avianhybrids 2026 (citing Boon 2008)

*Chalcopsitta cardinalis* × *Ecleetus roratus* **Loriinae** (capt. hyb.) Gray 1958, Dumont 2012

*Chalcopsitta sintillata* × *Trichoglossus haematodus* **Loriinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Charmosyna pulchella* × *Neopsittacus musschenbroekii* **Loriinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Eos bornea, histrio, reticulata* × *Lorius lory* **Loriinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Eos squamata* × *Pseudeos fuscata* **Loriinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Eos bornea, squamata* × *Trichoglossus haematodus, ornatus* **Loriinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Glossopsitta porphyrocephala* × *Psitteuteles versicolor* **Loriinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Glossopsitta concinna, porphyrocephala* × *Trichoglossus chlorolepidotus, haematodus* **Loriinae** (nat. hyb., capt. hyb.) McCarthy 2006, Dumont 2012, Hingston 2022, avian hybrids 2026

*Lorius garrulus* × *Pseudeos fuscata* **Loriinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Lorius domicella, garrulus* × *Trichoglossus haematodus, ornatus, rubritorquis* **Loriinae** (capt. hyb.) McCarthy 2006 (not in fig. 5), Dumont 2012

*Neophema chrysostoma* × *Nymphicus hollandicus* **IF Platycercinae × Cacatuidae** (nat. hyb.) Gray 1958, McCarthy 2006 (“??”), Dumont 2012

*Neophema splendida* × *Polytelis alexandrae* **ISF Platycercinae × Psittaculinae** Marshall 2005b <http://www.talkingbirds.com.au/scarlet.php>

*Neopsittacus musschenbroekii* × *Psitteuteles goldiei* **Loriinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Northiella haematogaster* × *Platycercus adscitus* **Platycercinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Northiella haematogaster* × *Psephotus div. spec.* **Platycercinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Nymphicus hollandicus* × *Psephotus haematonotus* **Cacatuidae × Psittaculidae IF**, see Cacatuidae

*Phigys solitarius* × *Pseudeos fuscata* **Loriinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Pionopsitta pileata* × *Platycercus caledonicus* **IF Psittacidae × Psittaculidae**, see Psittacidae

*Platycercus eximius* × *Polytelis swainsonii* **ISF Platycercinae × Psittaculinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Platycercus div. spec.* × *Psephotus div. spec.* **Platycercinae** (capt. hyb., nat. hyb.) McCarthy 2006, Dumont 2012

*Platycercus elegans* × *Psittacula krameri* **ISF Platycercinae × Psittaculinae** McCarthy 2006 (“?”), Dumont 2012

*Platycercus div. spec.* × *Purpureicephalus spurius* **Platycercinae** (capt. hyb.) McCarthy 2006, Dumont 2012

*Polytelis alexandrae* × *Psephotus haematonotus* **Psittaculinae × Platycercinae ISF** (capt. hyb.) McCarthy 2006, Dumont 2012

*Polytelis alexandrae* × *Psittacula krameri* **Psittaculinae** (capt. hyb.) McCarthy 2006 (“?”), Dumont 2012

*Pseudeos fuscata* × *Trichoglossus haematodus* **Loriinae** (capt. hyb.) McCarthy 2006, Dumont 2012

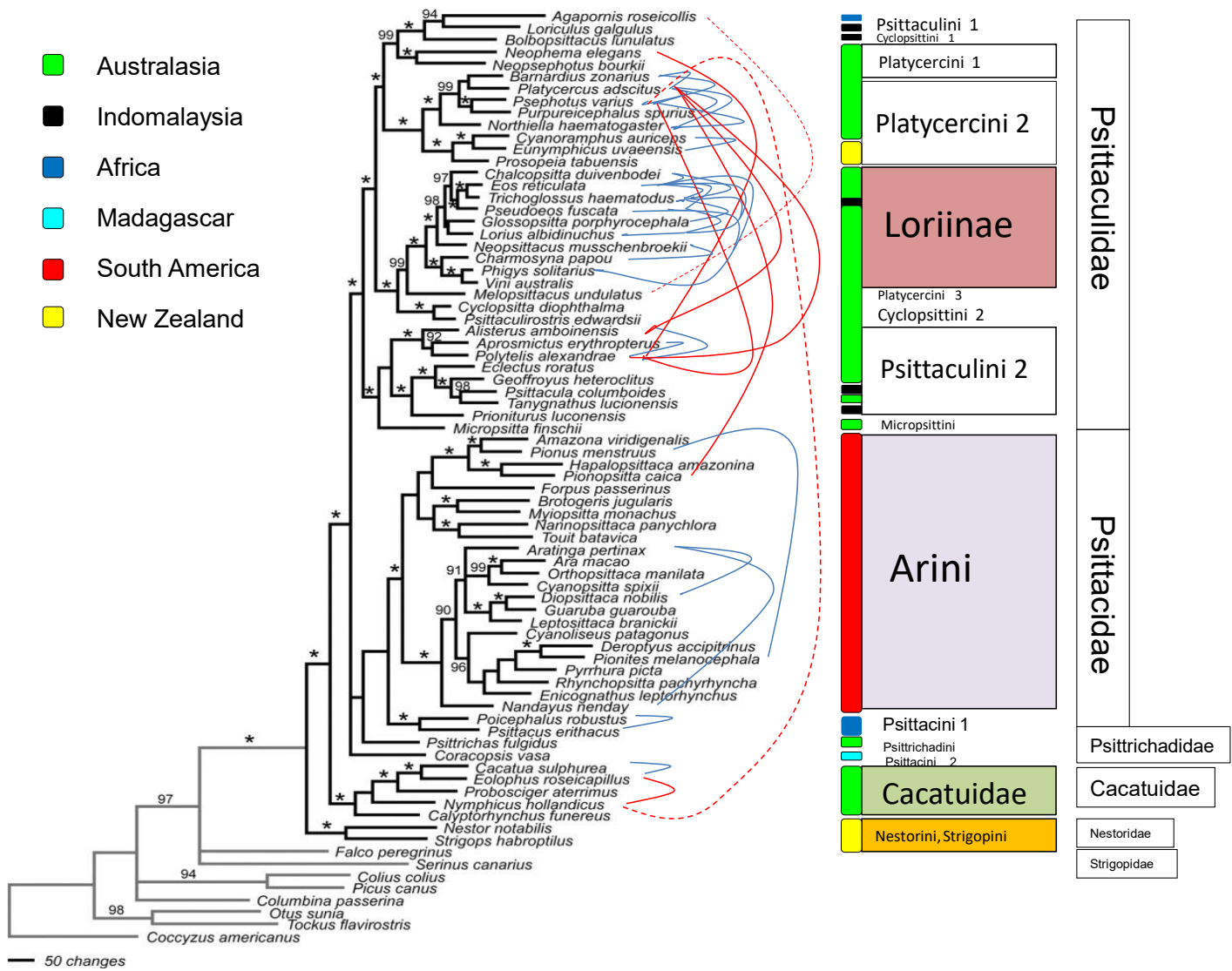
*Psitteuteles goldiei, versicolor* × *Trichoglossus euteles, rubritorquis* **Loriinae** (capt. hyb.) McCarthy 2006, Dumont 2012

**Psittaciformes: Strigopidae (= Nestoridae) 2: 4**

**Keas**

*Nestor 3, Strigops 1.*

Part of basic type Psittaciformes.



**Psittaciformes:** intergeneric hybrids in the phylogeny of Wright et al. (2008), from Landgren et al. (2011). From left to right: phylogram, distribution, taxonomy according to Del Hoyo et al. 1997, families according to en.wikipedia 2010, from Landgren et al. 2011. dashed lines = questionable. – In 2025 Nestoridae and Strigopidae have been lumped to Strigopidae. Psittrichadidae are now included in Psittaculidae.

## References:

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## **Pterocliiformes** 1 extant family, 16 species

### **Pterocliiformes: Pteroclididae 2: 16**

sand grouses = **Flughühner**

Formerly placed in so different orders as Charadriiformes, Galliformes and Columbiformes. *Syrhaptes* 2, *Pterocles* 14.

Probably **basic type family Pteroclididae (2: 16)**: uniform and isolated family with a unique set of characteristics. Sole family of the order.

IS: McCarthy (2006), p. 168: no confirmed hybrids are known.

## **Rheiformes** 1 family, 2 species (Palaeognathae)

### **Rheiformes: Rheidae 1: 2 + fossil taxa**

rheas = **Rheas**

Some authors prefer to split *Rhea* in two genera (cf. Mountjoy 2025). In this case the hybrid is intergeneric. The time of divergence is 20 million years!  
*Rhea* (= *Pterocnemia*<sup>o</sup>) *pennata*, *Rhea americana*.

Basic type family **Rheidae** (1: 2) as an isolated family. The 2 species (or genera) are connected by hybridization. – See also the comments of Tyler (2025, p. 306 f.) in her list of “candidates for basic type status”. She writes: “future data may shed light on whether or not this is a more inclusive group encompassing the ostrich and other members of the order [Struthioniformes s. l.]”.

IS: McCarthy (2006) p. 39: *Rhea* 1 IS.  
avian hybrids (2026): likewise (capt. hyb. genetically confirmed, Delsuc et al. 2007)

#### References:

- Delsuc F et al. (2007) Molecular evidence for hybridisation between the two living species of South American ratites: potential conservation implications. *Conserv Genet* 8, 503–507.  
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<https://www.museum.lsu.edu/~Remsen/SACCprop1046.htm>

## **Sphenisciformes** 1 family, 20 species

### **Sphenisciformes: Spheniscidae** 7: 20 + extinct taxa penguins = Pinguine

*Aptenodytes* 2, *Eudyptes* 8, *Eudyptula* 1 minor, *Megadyptes* 1 antipodes, *Pygoscelis* 3, *Spheniscus* 4.

Probably basic type family **Spheniscidae** (7: 20) as a uniform family with its well-known unique characteristics. Intergeneric hybrids have not been reported, but several interspecific hybrids are known (. – Interestingly, all known fossil taxa exhibit the typical penguin form (short and thick fused tarsus and metatarsus) and are phylogenetically not too distant from the extant taxa (see Ksepka et al. 2006). The species in the respective genera *Eudyptes*, *Pygoscelis* and *Spheniscus* each are connected via hybridization, see the phylogram of Ksepka et al. (2006, fig. 2+3). So, it seems possible that all penguins can be included in one basic type. – See also the comments of Tyler (2025, p. 311+332) in her list of candidates for basic types.

IS: Mc Carthy (2006), p 194 f.: *Eudyptes* 5 IS (*chrysocome* × *chrysolophus*; *chrysocome* × *schlegeli*; *chrysocome* × *sclateri*; *chrysolophus* × *schlegeli*; *pachyrhynchus* × *robustus*), *Eudyptula* 1 IS (minor ssp. *albosignata* × minor ssp. *minor*), *Pygoscelis* 2 IS (*adeliae* × *antarctica*; *adeliae* × *papua*), *Spheniscus* 3 IS (*demersus* × *humboldti*; *demersus* × *magellanicus*; *humboldti* × *magellanicus*).  
See also Ottenburghs (2025), table 1. <https://doi.org/10.1007/s00300-025-03405-6>: reliable hybrids are underlined by a wavy line in the text above

#### References:

- Ksepka DT et al. (2006) The phylogeny of the living and fossil Sphenisciformes (penguins). *Cladistics* 22, 412–441. <https://doi.org/10.1111/j.1096-0031.2006.00116.x>

## **Steatornithiformes** 1 family

### **Steatornithiformes: Steatornithidae 1: 1**

oilbirds = Fettschwalme

Monotypic: *Steatornis caripensis*.

Probably **basic type family Steatornithidae (1: 1)** as a monospecific, isolated family.

## **Strigiformes** 2 families, 248 species + 4 extinct families

owls = Eulen

2 extant families: Strigidae 25: 228, Tytonidae 2: 20.

McCarthy (2006, p. 156) writes: “Note: ... since these nocturnal, furtive birds are relatively poorly investigated .... any hybridization that might be occurring is less likely to be recognized than in other, better studied groups.”

Probably **basic type order Strigiformes (27: 248)**, as for the extant species: Scholl (2024). Extremely isolated order with many autapomorphies, see Scholl (2024). Probably many or rather all extinct taxa can be included here as well.

| Familie   | Unterfamilie | Tribus       | Gattungen   |
|-----------|--------------|--------------|---|
| Tytonidae | Tytoninae    |              | <b>Tyto*</b>  |
|           | Phodilinae   |              | <i>Phodilus</i>   |
| Strigidae | Striginae    | Bubonini     | <b>Bubo*</b> (inkl. <i>Nyctea</i> , <i>Ketupa</i> & <i>Scotopelia</i> ) |
|           |              | Strigini     | <b>Strix**</b> & <i>Jubula</i>  |
|           |              | Pulsatrigini | <i>Pulsatrix</i> & <i>Lophostrix</i>                                    |
|           |              | Megascopini  | <i>Megascops</i> & <i>Psilosops</i>                                     |
|           | (Asioninae)  | Asionini     | <b>Asio**</b> & <i>Ptilopsis</i>  |
|           |              | Otini        | <i>Otus</i> & <i>Mimuzuku</i>   |
|           | Surniinae    | Surniini     | <i>Surnia</i> , <i>Glaucidium</i> , <i>Taenioglaux</i> & <i>Athene</i>  |
|           |              | Aegolini     | <i>Aegolius</i>   |
|           | Ninoxinae    |              | <i>Ninox</i> , <i>Uroglaux</i> & <i>Sceloglaux</i>                      |

**Strigiformes**: systematics of the order after Wink 2016 (cf. Scherzinger 2017, Tab. 2), from Scholl 2024.

### **Strigiformes: Strigidae 25: 228. 1 IT + 1 ISF+ 1 IF**

true owls = Eigentliche Eulen

4 subfamilies.

*Asio* 9, *Athene* 9, *Bubo* 10, *Ketupa* 122, *Megascops* 22, *Ninox* 38, *Otus* 58, *Strix* 21, *Surnia* 1,

...

**Family Strigidae** is part of the basic type Strigiformes, see above.

**IS:** Mc Carthy 2006, p. 155–156: *Aegolius 1 IS, Asio 1 IS, Athene 1 IS, Bubo 5 IS, Ninox 1 IS, Otus 3 IS, Strix 4 IS*.

See also Mikkola (2005), Dumont (2017), Scherzinger (2017), avianhybrids (2026)

<https://avianhybrids.wordpress.com/strigiformes>, Scholl 2024.

*Asio clamator* (= *Rhinoptynx*<sup>o</sup>) × *Tyto alba* **IF** Strigidae × Tytonidae (capt. hyb.) Flieg 1971, McCarthy 2006 („two fertile eggs“), Dumont 2012

*Asio otus* × *Strix aluco* **ISF** Asioninae Asionini × Striginae Strigini Scherzinger 2017 (capt. hyb., p. 118, fig. 9), Scholl 2024

*Athene noctua* × *Speotyto*<sup>o</sup> (= *Athene*) *cunicularia* **IS** Surniinae Surniini (capt. hyb.) McCarthy 2006, Dumont 2012

*Bubo bubo, virgianus* × *Strix nebulosa* **IT** Striginae Bubini × Striginae Strigini (capt. hyb.) McCarthy 2006, Dumont 2012

## **Strigiformes: Tytonidae 2: 20**

**barn owls = Schleiereulen**

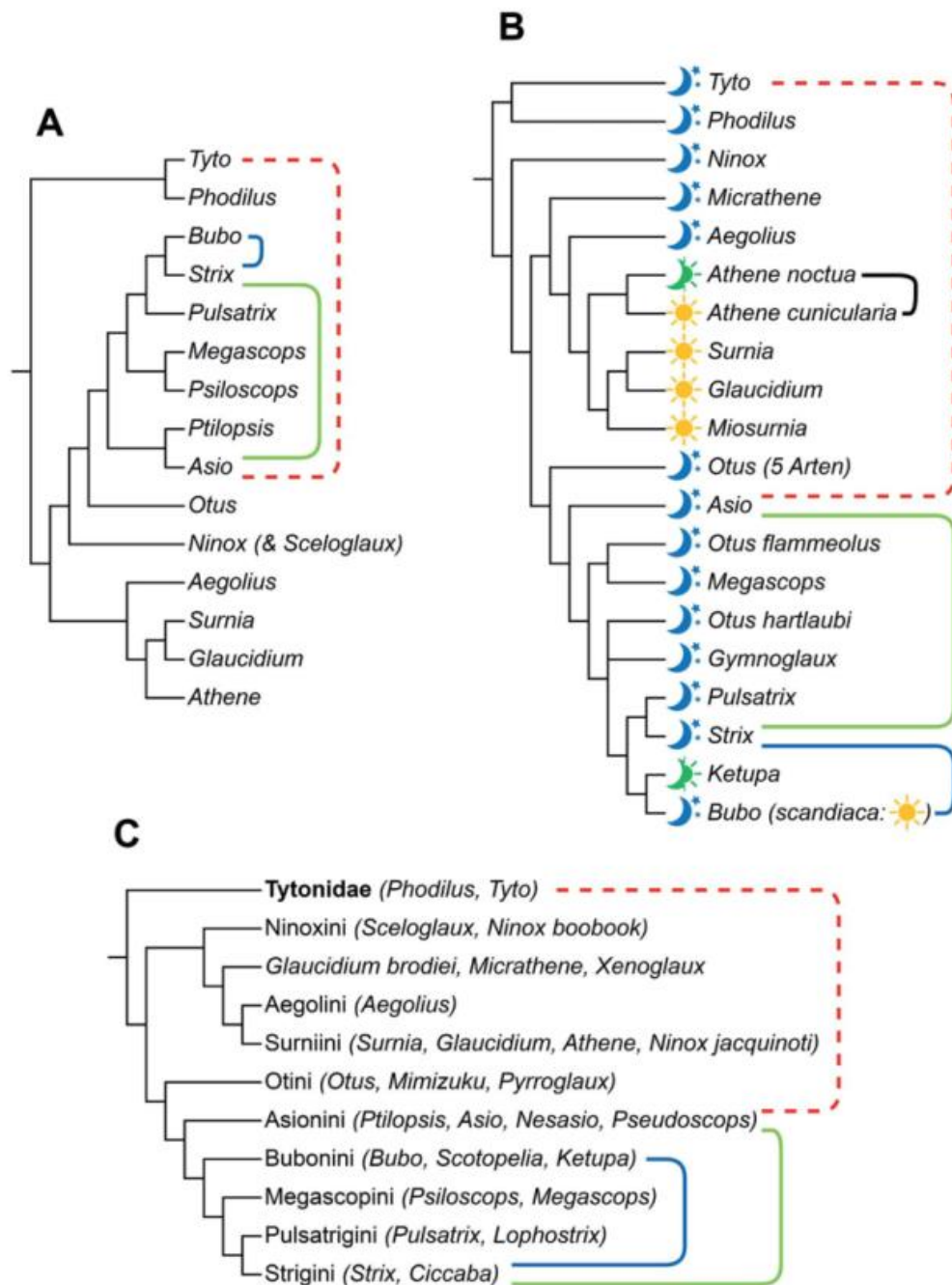
2 subfamilies:

Tytoninae 1: 18 *Tyto* 18.

Phodilinae 1: 2 *Phodilus* 2.

**IS:** Mc Carthy 2006, p. 155: *Tyto 2 IS* (hybrid zones).

Family Tytonidae is part of basic type Strigiformes, see above.



**Strigiformes:** hybrids in the phylogeny of **A:** Wood et al. (2016, Fig. 1); **B:** Li et al. (2022, Fig. 4); **C:** DNA-based systematics after Salter et al. (2020, Fig. 2a+b). The dotted red line indicates successful hybridization, resulting in embryos that have undergone at least half of their embryonic development in the egg, this is sufficient as indication of a basic type (cf. Scholl 2024 and Scherer 1993), from Scholl 2024.

## References:

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- Scherzinger W (2017) Eulen-Hybride (Strigiformes), unerwünscht im Artenschutz – doch aufschlussreich für taxonomische Vergleiche. *Ornithol. Anz* 55, 109–121. <https://www.researchgate.net/publication/321162570>
- Scholl B (2024) Herrscher der Nacht: Die Eulen. Ein einziger Grundtyp? *Studium Integrale J.* 32, 11–19. <https://www.si-journal.de/index2.php?artikel=jg32/heft1/sij321.html>

## **Struthioniformes** 1 family, 2 species (Palaeognathae)

### **Struthioniformes: Struthionidae 1: 2**

ostriches = Strauße

*Struthio* 2.

**Basic type family Struthionidae (1: 2):** isolated monogeneric family. The two species are connected by hybridization.

McCarthy (2006), p. 39 *Struthio 1 IS (camelus × molybdophanes)*

## **Suliformes** 4 families, 54 species

**gannets, cormorants and allies = Ruderfüßer**

Formerly part of Pelecaniformes.

Anhingidae 1: 4.

Fregatidae 1: 6.

Phalacrocoracidae 7: 34.

Sulidae 3: 11.

### **Suliformes: Anhingidae 1: 4**

darters = Schlagenhalsvögel

*Anhinga* 4.

Possibly **basic type family Anhingidae (1:4)**. Isolated family with unique characteristics. Sister clade of Phalacrocoracidae.

### **Suliformes: Fregatidae 1: 5**

frigatebirds = Fregattvögel

*Fregata* 5.

Probably **basic type family Fregatidae (1:5)** as an isolated distinct monogeneric family.

### **Suliformes: Phalacrocoracidae 7: 34. 2 IG**

**cormorants and shags = Kormorane und Scharben**

Formerly lumped in one genus *Phalacrocorax*.

Sometimes considered as a separate order.

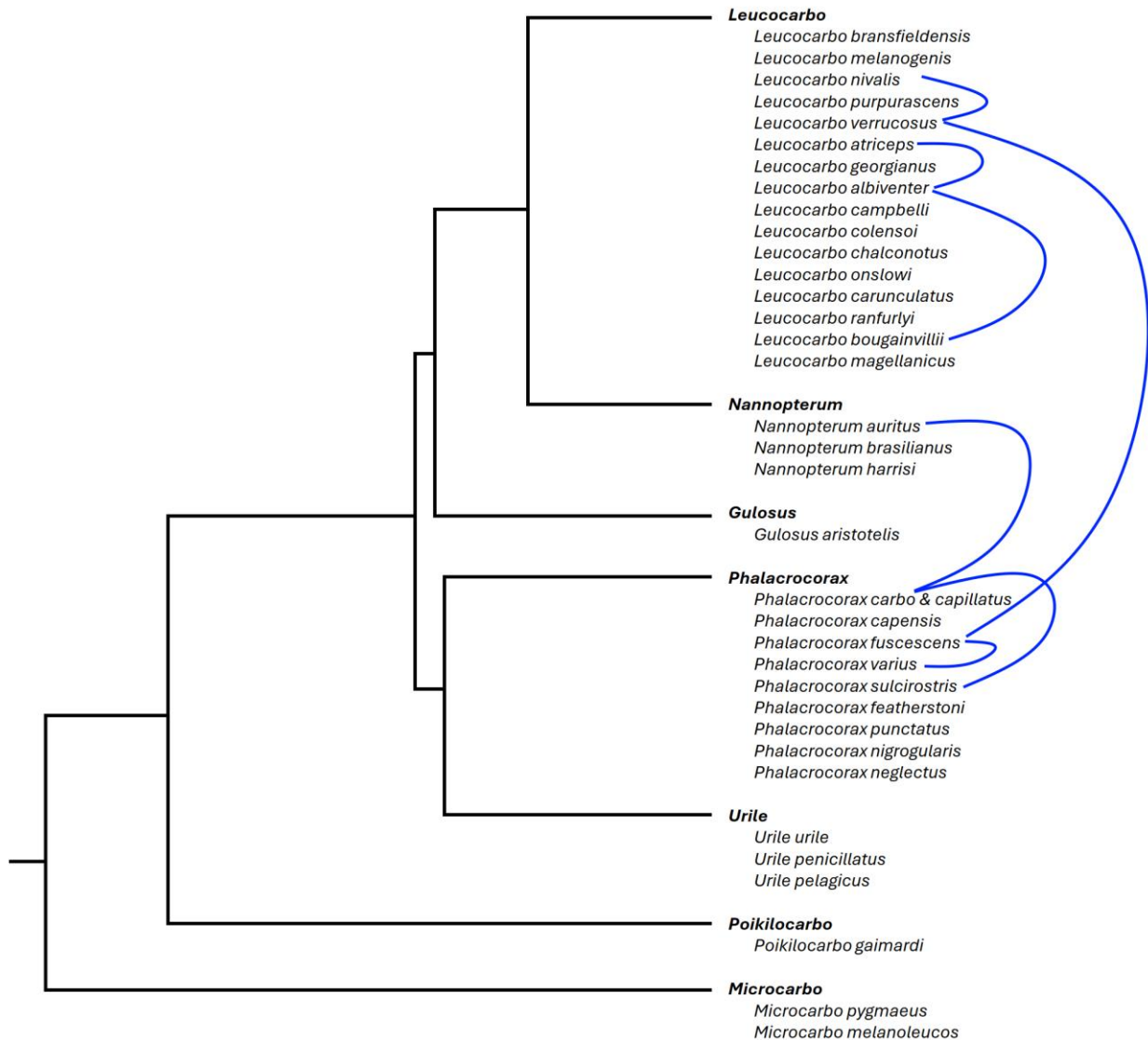
*Gulosus* 1, *Leucocarbo* 9, *Microcorba* 5, *Nannopterum* 3, *Phalacrocorax* 11, *Poikilicarbo* 1, *Urile* 4.

Probably **basic type family Phalacrocoracidae (7: 34)**: isolated family, 5 of the 7 genera are connected by hybridization, see the figure below. Sister clade of Anhingidae.

**IS:** McCarthy 2006, p. 188f., all hybrids sub *Phalacrocorax*: *Leucocarbo* 3 IS (*albiventer* × *atriceps*, now often lumped; *carbo* × *sulcirostris*; *nivalis* × *verrucosus*), *Microcarbo* 1 IS (*africanus* × *pygmaeus* “??”), *Phalacrocorax* 1 IS (*fuscescens* × *varius*).  
Further IS in Dumont 2012, sub *Phalacrocorax*: *Leucocarbo* (*campbelli* × *colensii*).

*Nannopterum* (“*Phalacrocorax*”) *auritum* × *Phalacrocorax carbo* McCarthy 2006, Dumont 2012

*Leucocarbo* (“*Phalacrocorax*”) *verrucosus* × *Phalacrocorax fuscescens* McCarthy 2006



**Phalacrocoracidae:** hybrids in phylogeny (B. Scholl, cf. Kennedy M & Spencer HG 2014, fig. 1. <http://dx.doi.org/10.1016/j.ympcv.2014.06.020> ).

## Suliformes: Sulidae 3: 11 + extinct genera

boobies and gannets = Tölpel

*Morus* 3 *bassanus*, *capensis*, *serrator*, *Papasula* 1 *abbottii*, *Sula* 6 *dactylarthra*, *grantii*, *leucogaster*, *nebouxia*, *sula*, *variegata*.

Probably basic **type family Sulidae** (3: 11) as an isolated family. In the largest genus *Sula* 4 interspecific hybrids connect 5 of 6 species, see the figure below.

**IS:** McCarthy (2006), p. 188: *Morus* 1 IS, *Sula* 1 IS.

Dumont (2012): *Morus* 1 IS (*capensis* × *serrator*), *Sula* 4 IS (*dactylarthra* × *grantii*; *dactylarthra* × *leucogaster*; *nebouxia* × *leucogaster*; *nebouxii* × *variegata*).



## **Trogoniformes** 1 family

### **Trogonidae** 7: 47

**trogons = Trogone**

*Apalherpactes* 2, *Apaloderma* 3, *Euptilotis* 1, *Harpactes* 10, *Pharomachrus* 5, *Priolus* 2, *Trogon* 24.

Probably **basic type family Trogonidae** (7: 47): isolated position, uniform, with unique characteristics. Sole family of the order. Intergeneric hybrids are so far unknown.

McCarthy (2006), p. 116 f: *Apaloderma* 1 IS, *Pharomachrus* 1 IS, *Trogon* 5 IS.