

SMITHSONIAN MISCELLANEOUS COLLECTIONS

VOLUME 89, NUMBER 13

A SYSTEMATIC CLASSIFICATION FOR THE BIRDS
OF THE WORLD, REVISED AND AMENDED

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(PUBLICATION 3242)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
APRIL 23, 1934

The Lord Baltimore Press
BALTIMORE, MD., U. S. A.

A SYSTEMATIC CLASSIFICATION FOR THE BIRDS OF THE WORLD, REVISED AND AMENDED

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The present classification is offered as the result of further study, since publication of a previous paper on the same subject in 1930,¹ of the intricate relationships of our forms of birds, including the fossil species, as far as at present known. As in the previous list, only such changes from the current order have been accepted as seem to be definitely settled and established, leaving various other proposals still in abeyance until they have been developed by further research.

The major changes from the previous list have been the segregation of the penguins in a distinct superorder, Impennes, in accordance with Lowe's investigations,² and a revision of the fossil families, following the appearance of Lambrecht's *Handbuch der Palaeornithologie* and as the result of certain studies by the writer. Lambrecht's proposal to place the Hesperornithidae near the grebes and loons, and the Ichthyornithidae near the Diatrymiformes and the pigeons, to me does not seem justified. The resemblances in form that Lambrecht cites as basis for his action, while pertaining to two different schemes of life (one natant and the other volant), include limiting factors that have confined the evolution of birds as a whole within narrow lines, compared, for example, to what has taken place in reptiles and mammals. In view of this, the possession of teeth and other peculiarities assume greater importance in weighing probable evolutionary origins and trends. It seems probable that teeth were a characteristic of Cretaceous birds that disappeared with advance into the Tertiary period.

Under the Galliformes the quails (formerly the family *Perdidae*) have been united with the Phasianidae, as there appear to be no trenchant characters to separate the two. Under the Charadriiformes

¹ A systematic classification for the birds of the world. Proc. U.S. Nat. Mus., vol. 76, art. 27, Jan. 8, 1930, pp. 1-8.

² See Proc. Zool. Soc. London, 1933, pt. 2, pp. 483-538.

the peculiar painted snipe are recognized as a distinct family, Rostratulidae, from anatomical peculiarities.³ The Psittaciformes and Cuculiformes have been transposed in order to allow the parrots to stand nearer the pigeons.

The number of families and their arrangement in the great order Passeriformes is far from satisfactory. The bower birds (formerly Ptilinorhynchidae) are united with the Paradiseidae, as here again alleged characters overlap. The curious parrot-bills and their allies merit recognition as a distinct family Paradoxornithidae to stand near the Paridae. Mayr has shown that *Paramythia* (formerly *Paramythiidae*) of New Guinea belongs in the Dicaeidae. The fork-tails (formerly *Enicuridae*) do not seem separable from the Turdidae, *Aërocharis* (formerly *Aërocharidae*), the curious helmet-bird of Madagascar, is placed in the Vangidae, and the glossy starlings (formerly *Graçulidae*) are united with the Sturnidae, as no definite lines of difference appear to separate them.

Arrangement of the various passeriform families in linear sequence, particularly in the suborder Passeres, or song birds, is a matter of difficulty, since the problem is one of three-dimensional relationship that must be represented in a single column. Obviously, the treatment in some instances must be arbitrary and subject therefore to individual opinion. Without going too deeply into the matter, it has been suggested that such specialized families of the fringilline series as the Coerebidae and Icteridae should come at the end of the list in place of the Fringillidae. In considering the evolution of this assemblage, it appears to me that the more specialized families have been derived by modification from the Fringillidae, while the latter family has retained and carried along more general characters from which further specialization may take place, if with civilized man's disturbance of natural conditions on our Earth continuation of evolution among birds is possible. The Coerebidae and Icteridae, to take these as examples, are specialized branches that are assumed now to be more or less static and fixed and therefore should stand at the side. The Fringillidae, representing the central group through which further progress may be expected, should be placed as the terminus of the central stem at the end.

One change in terminology incorporated in the present list has been the use of the suffix -oidea to designate superfamily names. In the preparation of the classification for the official Checklist of the

³ See Lowe, P. R., *Ibis*, 1931, pp. 503, 507-531.

American Ornithologists' Union the form -oidea was used in the original scheme but was disapproved by the committee in charge of that work as a whole. To be consistent, therefore, in the complete classification issued at that time, I used the Latin plurals, recommended then for the A.O.U. list, for the names in question. Subsequently, the committee reversed its decision, and the suffix -oidea was used in the fourth edition of the A.O.U. Checklist published in 1931. The same usage is here incorporated in the complete classification.

Class Aves, Birds.

Subclass Archaeornithes, Ancestral Birds.

Order Archaeopterygiformes, *Archaeopteryx*, *Archaeornis*.

Family Archaeopterygidae, *Archaeopteryx*, *Archaeornis* (fossil).

Subclass Neornithes, True Birds.

Superorder Odontognathae, New World Toothed Birds.

Order Hesperornithiformes, Hesperornithes.

Family Hesperornithidae, *Hesperornis*, *Hargeria* (fossil).

Enaliornithidae,⁴ *Enaliornis*, *Baptornis* (fossil).

Order Ichthyornithiformes, Ichthyornithes.

Family Ichthyornithidae,⁵ *Ichthyornis* (fossil).

Superorder Palaeognathae, Struthious Birds and Allies.

Order Struthioniformes, Ostriches.

Family Struthionidae, Ostriches.

Order Rheiformes, Rheas.

Family Rheidae, Rheas.

Order Casuariiformes, Cassowaries, Emus.

Family Casuariidae, Cassowaries.

Dromiceidae, Emus.

Dromornithidae, *Dromornis* (fossil).

Order Dinornithiformes, Moas.

Family Dinornithidae, Moas (fossil and extinct).

Anomalopterygidae, *Anomalopteryx*, *Emeus*, and Allies (fossil and extinct).

⁴ Position provisional. Lambrecht, Handbuch der Palaeornithologie, 1933, pp. 255-261, unites the formerly recognized *Baptornithidae* with this group, which he considers closely related to the loons and grebes.

⁵ Lambrecht, Handbuch der Palaeornithologie, 1933, p. 585, has separated *Apatornis* in the family *Apatornithidae*. This genus is here left in the *Ichthyornithidae* pending further consideration.

- Order Aepyornithiformes, Elephant-birds.
 Family Aepyornithidae, *Aepyornis* (fossil and extinct).
- Order Apterygiformes, Kiwis.
 Family Apterygidae, Kiwis.
- Order Tinamiformes, Tinamous.
 Family Tinamidae, Tinamous.
- Superorder Impennes, Penguins.
 Order Sphenisciformes, Penguins.
 Family Spheniscidae, Penguins.
 Cladornithidae, *Cladornis* (fossil).
- Superorder Neognathae, Typical Birds.
 Order Gaviiformes, Loons.
 Family Gaviidae, Loons.
- Order Colymbiformes, Grebes.
 Family Colymbidae, Grebes.
- Order Procellariiformes, Albatrosses, Shearwaters, Petrels,
 and Allies.
 Family Diomedeidae, Albatrosses.
 Procellariidae, Shearwaters, Fulmars.
 Hydrobatidae, Storm Petrels.
 Pelecanoididae, Diving Petrels.
- Order Pelecaniformes, Tropic-birds, Pelicans, Frigate-birds,
 and Allies.
 Suborder Phaëthontes, Tropic-birds.
 Family Phaëthontidae, Tropic-birds.
- Suborder Pelecani, Pelicans, Boobies, Cormorants, Snake-
 birds.
 Superfamily Pelecanoidea, Pelicans and Allies.
 Family Pelecanidae, Pelicans.
 Cyphornithidae, *Cyphornis*, *Palaeochenöides*
 (fossil).
- Superfamily Suloidea, Boobies, Cormorants, and Allies.
 Family Pelagornithidae, *Pelagornis* (fossil).
 Sulidae, Boobies, Gannets.
 Elopterygidae, *Elopteryx*, *Eostega*, *Actiornis*
 (fossil).
 Phalacrocoracidae, Cormorants.
 Anhingidae, Snake-birds.
- Suborder Fregatae, Frigate-birds.
 Family Fregatidae, Frigate-birds.

Suborder Odontopteryges, *Odontopteryx*, *Pseudodontornis*
(fossil).

Family Odontopterygidae, *Odontopteryx* (fossil).

Pseudodontornithidae,⁶ *Pseudodontornis* (fossil).

Order Ciconiiformes, Herons, Storks, and Allies.

Suborder Ardeae, Herons, Bitterns.

Family Ardeidae, Herons, Bitterns.

Cochleariidae, Boat-billed Herons.

Suborder Balaenicipites, Whale-headed Storks.

Family Balaenicipitidae, Whale-headed Storks.

Suborder Ciconiae, Storks, Ibises, Spoonbills.

Superfamily Scopoidea, Hammerheads.

Family Scopidae, Hammerheads.

Superfamily Ciconioidea, Storks.

Family Ciconiidae, Storks, Jabirus.

Superfamily Threskiornithoidea, Ibises.

Family Threskiornithidae, Ibises, Spoonbills.

Suborder Phoenicopteriformes, Flamingos.

Family Agnopterygidae, *Agnopteryx* (fossil).

Scaniornithidae, *Scaniornis*, *Parascaniornis*
(fossil).

Phoenicopteridae, Flamingos.

Order Anseriformes, Screamers, Ducks, Geese, Swans.

Suborder Anhimae, Screamers.

Family Anhimidae, Screamers.

Suborder Anseres, Ducks, Geese, Swans.

Family Anatidae, Ducks, Geese, Swans.

Order Falconiformes, Vultures, Hawks, Falcons.

Suborder Cathartae, New World Vultures.

Family Cathartidae, New World Vultures.

Teratornithidae, *Teratornis* (fossil).

Suborder Falcones, Secretary-birds, Hawks, Falcons.

Superfamily Sagittarioidea, Secretary-birds.

Family Sagittariidae, Secretary-birds.

Superfamily Falconoidea, Hawks, Falcons, and Allies.

Family Accipitridae, Hawks, Old World Vultures,
Harriers, Ospreys.

Falconidae, Falcons, Caracaras.

⁶ Position not certain; see Lambrecht, *Handbuch der Palaeornithologie*, 1933, pp. 305-308.

- Order Galliformes, Megapodes, Curassows, Pheasants, Hoatzins.
- Suborder Galli, Megapodes, Curassows, Grouse, Pheasants.
- Superfamily Cracoidea, Megapodes, Curassows.
- Family Megapodiidae, Megapodes.
- Gallinuloididae, *Gallinuloides* (fossil).
- Cracidae, Curassows, Guans, Chachalacas.
- Superfamily Phasianoidea, Grouse, Pheasants, Turkeys.
- Family Tetraonidae, Grouse.
- Phasianidae,⁷ Quails, Pheasants, Peacocks.
- Numididae, Guinea-fowl.
- Meleagrididae, Turkeys.
- Suborder Opisthocomi, Hoatzins.
- Family Opisthocomidae, Hoatzins.
- Order Gruiformes, Cranes, Rails, and Allies.
- Suborder Mesoenatides, Roatelos, Monias.
- Family Mesoenatidae, Roatelos, Monias.
- Suborder Turnices, Bustard-quails, Hemipodes.
- Family Turnicidae, Bustard-quails.
- Pedionomidae, Collared Hemipodes.
- Suborder Grues, Cranes, Limpkins, Trumpeters, Rails.
- Superfamily Gruoidea, Cranes, Limpkins, Trumpeters.
- Family Geranoididae, *Geranoides* (fossil).
- Eogruidae, *Eogrurus* (fossil).
- Gruidae, Cranes.
- Aramidae, Limpkins.
- Psophiidae, Trumpeters.
- Superfamily Ralloidea, Rails.
- Family Orthocnemidae,⁸ *Orthocnemus*, *Elaphrocnemus* (fossil).
- Rallidae, Rails, Coots, Gallinules.
- Suborder Heliornithes, Sun-grebes.
- Family Heliornithidae, Sun-grebes.
- Suborder Rhynocheti, Kagus.
- Family Rhynochetidae, Kagus.
- Suborder Eurypygae, Sun-bitterns.
- Family Eurypygidae, Sun-bitterns.

⁷ Includes the quails, formerly recognized as the family Perdidae.

⁸ Position provisional. See Lambrecht, *Handbuch der Palaeornithologie*, 1933, pp. 490-493.

Suborder Phororhaci, *Phororhacos* and Allies.

Family Phororhacidae, *Phororhacos*, *Pelecyornis* and Allies (fossil).

Brontornithidae, *Brontornis*, *Liornis* and Allies (fossil).

Opisthodactylidae, *Opisthodactylus* (fossil).

Suborder Cariamae, *Cariamias* and Allies.

Family Bathornithidae, *Bathornis* (fossil).

Hermosiornithidae, *Hermosiornis*, *Procariama* (fossil).

Cariamidae, *Cariamias*.

Suborder Otides, Bustards.

Family Otididae, Bustards.

Order Diatrymiformes, *Diatryma*, *Omorhamphus* and Allies.

Family Diatrymidae, *Diatryma* (fossil).

Gastornithidae, *Gastornis*, *Remiornis* (fossil).

Order Charadriiformes, Shore-birds, Gulls, Auks.

Suborder Charadrii, Shore-birds.

Superfamily Jacanoidea, Jacanas.

Family Jacanidae, Jacanas.

Superfamily Charadrioidae, Plovers, Sandpipers, and Allies.

Family Rostratulidae, Painted Snipe.

Haematopodidae, Oyster-catchers.

Charadriidae, Plovers, Turnstones, Surf-birds.

Scolopacidae, Snipe, Woodcock, Sandpipers.

Recurvirostridae, Avocets, Stilts.

Presbyornithidae, *Presbyornis* (fossil).

Phalaropodidae, Phalaropes.

Superfamily Dromadoidea, Crab-plovers.

Family Dromadidae, Crab-plovers.

Superfamily Burhinoidea, Thick-knees.

Family Burhinidae,⁹ Thick-knees.

Superfamily Glareoloidea, Pratincoles, Coursers.

Family Glareolidae, Pratincoles, Coursers.

Superfamily Thinocoroidea, Seed-snipe.

Family Thinocoridae, Seed-snipe.

Superfamily Chionoidea, Sheath-bills.

Family Chionidae, Sheath-bills.

⁹ Replaces *Oedicnemidae* as a family name for this group.

- Suborder Lari, Gulls, Terns, Skimmers.
 - Family Stercorariidae, Skuas, Jaegers.
 - Laridae, Gulls, Terns.
 - Rynchopidae, Skimmers.
- Suborder Alcae, Auks.
 - Family Alcidae, Auks, Auklets, Murres.
- Order Columbiformes, Sand-grouse, Pigeons, Doves.
 - Suborder Pterocletes, Sand-grouse.
 - Family Pteroclididae, Sand-grouse.
 - Suborder Columbae, Pigeons and Doves.
 - Family Raphidae, Dodos, Solitaires.
 - Columbidae, Pigeons, Doves.
- Order Psittaciformes, Lories, Parrots, Macaws.
 - Family Loriidae, Lories.
 - Psittacidae, Parrots, Macaws.
- Order Cuculiformes, Plantain-eaters, Cuckoos.
 - Suborder Musophagi, Plantain-eaters.
 - Family Musophagidae, Plantain-eaters.
 - Suborder Cuculi, Cuckoos, Roadrunners, Anis.
 - Family Cuculidae, Cuckoos, Roadrunners, Anis.
- Order Strigiformes, Owls.
 - Family Protostrigidae, *Protostrix* (fossil).
 - Tytonidae, Barn-owls.
 - Strigidae, Owls.
- Order Caprimulgiformes, Oil-birds, Goatsuckers.
 - Suborder Steatornithes, Oil-birds.
 - Family Steatornithidae, Oil-birds.
 - Suborder Caprimulgi, Frogmouths, Goatsuckers.
 - Family Podargidae, Frogmouths.
 - Nyctibiidae, Potoos.
 - Aegothelidae, Owlet-frogmouths.
 - Caprimulgidae, Goatsuckers.
- Order Micropodiformes, Swifts, Hummingbirds.
 - Suborder Micropodi, Swifts.
 - Family Aegialornithidae,¹⁰ *Aegialornis* (fossil).
 - Micropodidae, Swifts.
 - Hemiprocnidae, Crested Swifts.
 - Suborder Trochili, Hummingbirds.
 - Family Trochilidae, Hummingbirds.

¹⁰ Placed here provisionally. See Lambrecht, *Handbuch der Palaeornithologie*, 1933, pp. 623-624.

- Order Coliiformes, Colies.
 - Family Coliidae, Colies.
- Order Trogoniformes, Trogons.
 - Family Trogonidae, Trogons.
- Order Coraciiformes, Kingfishers, Bee-eaters, Rollers, Hornbills.
 - Suborder Alcedines, Kingfishers, Todies, Motmots.
 - Superfamily Alcedinoidea, Kingfishers.
 - Family Alcedinidae, Kingfishers.
 - Superfamily Todoidea, Todies.
 - Family Todidae, Todies.
 - Superfamily Momotoidea, Motmots.
 - Family Momotidae, Motmots.
 - Suborder Meropes, Bee-eaters.
 - Family Meropidae, Bee-eaters.
 - Suborder Coracii, Rollers, Hoopoes.
 - Family Coraciidae, Rollers.
 - Leptosomatidae, Cuckoo-rollers and Ground-rollers.
 - Upupidae, Hoopoes.
 - Phoeniculidae, Wood-hoopoes.
 - Suborder Bucerotes, Hornbills.
 - Family Bucerotidae, Hornbills.
- Order Piciformes, Jacamars, Barbets, Toucans, Woodpeckers.
 - Suborder Galbulae, Jacamars, Barbets, Toucans.
 - Superfamily Galbuloidea, Jacamars, Puff-birds.
 - Family Galbulidae, Jacamars.
 - Bucconidae, Puff-birds.
 - Superfamily Capitonoidea, Barbets, Honey-guides.
 - Family Capitonidae, Barbets.
 - Indicatoridae, Honey-guides.
 - Superfamily Ramphastoidea, Toucans.
 - Family Ramphastidae, Toucans.
 - Suborder Pici, Woodpeckers.
 - Family Picidae, Woodpeckers, Piculets.
- Order Passeriformes, Perching Birds.
 - Suborder Eurylaimi, Broadbills.
 - Family Eurylaimidae, Broadbills.
 - Suborder Tyranni, Ovenbirds, Tyrant Flycatchers, and Allies.

Superfamily Furnarioidea, Ovenbirds, Wood-hewers, and Allies.

- Family Dendrocolaptidae, Wood-hewers.
- Furnariidae, Ovenbirds.
- Formicariidae, Ant-thrushes.
- Conopophagidae, Ant-pipits.
- Rhinocryptidae, Tapaculos.

Superfamily Tyrannoidea, Tyrant Flycatchers, Pittas, and Allies.

- Family Cotingidae, Cotingas.
- Pipridae, Manakins.
- Tyrannidae, Tyrant Flycatchers.
- Oxyruncidae, Sharp-bills.
- Phytotomidae, Plant-cutters.
- Pittidae, Pittas.
- Xenicidae, New Zealand Wrens.
- Philepittidae, Asities.

Suborder Menurae, Lyre-birds.

- Family Menuridae, Lyre-birds.
- Atrichornithidae,¹¹ Scrub-birds.

Suborder Passeres, Song Birds.

- Family Alaudidae, Larks.
- Palaeospizidae, *Palaeospiza* (fossil).
- Hirundinidae, Swallows.
- Campephagidae, Cuckoo-shrikes.
- Dicruridae, Drongos.
- Oriolidae, Old World Orioles.
- Corvidae, Crows, Magpies, Jays.
- Paradiseidae,¹² Birds of Paradise.
- Paradoxornithidae, Parrot-bills, Suthoras.
- Paridae, Titmice.
- Sittidae, Nuthatches.
- Hyposittidae, Coral-billed Nuthatches.
- Certhiidae, Creepers.
- Chamaeidae, Wren-tits.
- Timeliidae, Babbling Thrushes.
- Pycnonotidae, Bulbuls.
- Cinclidae, Dippers.

¹¹ Position not fully established.

¹² Includes the bower-birds, sometimes recognized as the family Ptilinorhynchidae.

- Family Troglodytidae, Wrens.
 Mimidae, Thrashers, Mockingbirds.
 Turdidae,¹³ Thrushes.
 Zeledoniidae, Wren-thrushes.
 Sylviidae, Old World Warblers.
 Regulidae, Kinglets.
 Muscicapidae, Old World Flycatchers.
 Prunellidae, Accentors, Hedge Sparrows.
 Motacillidae, Wagtails, Pipits.
 Bombycillidae, Waxwings.
 Ptilonotidae, Silky Flycatchers.
 Dulidae, Palm-chats.
 Artamidae, Wood-swallows.
 Vangidae,¹⁴ Vanga Shrikes.
 Laniidae, Shrikes.
 Prionopidae, Wood-shrikes.
 Cyclarhidae, Pepper-shrikes.
 Vireolaniidae, Shrike-vireos.
 Sturnidae,¹⁵ Starlings.
 Melithreptidae, Honey-eaters.
 Nectariniidae, Sun-birds.
 Dicaeidae,¹⁶ Flower-peckers.
 Zosteropidae, White-eyes.
 Vireonidae, Vireos.
 Coerebidae, Honey-creepers.
 Drepanididae, Hawaiian Honey-creepers.
 Compothlypidae, Wood Warblers.
 Ploceidae, Weaver-finches.
 Icteridae, Blackbirds, Troupials.
 Procnatiidae, Swallow-tanagers.
 Thraupidae, Tanagers.
 Catamblyrhynchidae, Plush-capped Finches.
 Fringillidae, Grosbeaks, Finches, Buntings.

¹³ Includes the group of fork-tails placed by some in the family Enicuridae.

¹⁴ Includes the genus *Aërocharis* that has been separated by some as the family *Aërocharidae*.

¹⁵ Includes the glossy starlings or Graculidae of various authors.

¹⁶ According to E. Mayr, *Orn. Monatsb.*, vol. XLI, 1933, pp. 112-113, *Paramythia*, formerly separated in a distinct family, *Paramythiidae*, is an aberrant member of the Dicaeidae.