

# The MNHN taxonomic referential: state and ongoing developments

R. Bruckert

Bruckert, R. The MNHN taxonomic referential: state and ongoing developments.  
Zool. Med. Leiden 79-3 (10), 30-ix-2005, 107-121.— ISSN 0024-0672.

Rémy Bruckert, Muséum National d'Histoire Naturelle, Département Systématique et Évolution,  
Unité 602 Taxonomie et Collections, BP 51, 55, rue Buffon, 75231 Paris cedex 05, France (e-mail:  
bruckert@mnhn.fr).

Keywords: ornithology; systematics; taxonomy; classifications; bird names; types; collections; relational database; Aves.

The relational database of taxonomic references developed in the Muséum National d'Histoire Naturelle (MNHN), in Paris, has been greatly improved. New names, principally synonyms, have been added to the database following four lines: (1) The referential has been improved taxonomically: type-species of genera have been defined; species names renamed by *nomina nova* have been searched and entered as well as the source(s) of conflict of the species homonym(s); also, *combinatio nova* or new combinations of species names given by authors of new genera have been databased. (2) The names which were found written on the labels of the specimens of the MNHN collection have been databased. The computerization of the MNHN collection has started with the Suboscines, thus, handbooks covering these have been checked for names, including new combinations of original species names. (3) Synonyms have been entered for as far they are listed in catalogues of types published by different museums. About 16,000 types specimens covering 9,500 species or subspecies are now listed in the MNHN database, including their catalogue number and the museum where they are preserved. (4) The computerization of all names created by Statius Müller (1776), Boddaert (1783), Gmelin (1788-89), and Latham (1790; 1801), is going on. These four authors based a lot of new scientific names on vernacular names used in earlier ornithological works, e.g. on Brisson (1760) or Buffon (1770-83). All these references to common names (about 10 000) have been entered and linked with the scientific names introduced, following the synonymies presented by these authors.

## Introduction

For the past three years, we have been developing a taxonomic referential database for the class Aves, in the form of an electronic catalogue of the names of birds of the world providing synonyms and multiple classifications (Bruckert, 2003).

The term "taxonomic referential" may be understood in two ways. First it includes a dictionary of scientific bird names with their bibliographic references. Secondly, it is a vademecum in which one can get a correct and full answer to any taxonomic question. To meet this second purpose, a true referential should contain any published name since the beginning of ornithology as a science, thus since 1758, the publishing date of the *Systema Naturae, editio decima* by Linné in Stockholm, the publication fixed as starting date by the International Code for Zoological Nomenclature.

To fulfill the requirements set by this ambitious and exhaustive project, we followed a systematic approach. The first step was to database all names used in the standard work initiated by James Lee Peters in 1931 and finished in 1986 by a team of experts under the direction of Ernst Mayr. About 26,000 valid names and 9,000 synonyms from this source were digitized. The second step was to computerize the names used in the

Classification of Birds (Sibley & Monroe, 1990, updated 1993). This work was the first to be partially based on biomolecular results and included many important novelties in ornithological systematics. About 11,000 names of species and a few well-marked subspecies are listed in this classification as well as about 100 synonyms and were all data-based. Finally, the names contained in the second edition of the Complete Check-list of Birds of the World (Howard & Moore, 1991) were added to the referential database. The latter publication was based mainly on the Peters' Check-list but included taxa described as new since the appearance of the various volumes of this check-list.

These three classifications together include about 36,000 species names and 5,500 genus names. However, the MNHN database includes at present about 47,000 species names and 8,000 genus names. Below we describe the four methods we followed to enrich our taxonomic referential database, principally with synonyms.

### 1. Taxonomic improvement

We improved the taxonomic quality of data already entered in the database by systematic search for the following items:

for each nomen novum: the name of the taxon preoccupied and the name of the senior name in conflict (cf. example 1),

for each genus name: the name of its type species (cf. example 2),

for each genus name: the list of new combinations proposed and cited by the author of the genus (cf. example 3).

This results in a number of extra names to be added to the database. In the three examples given below (possibly) extra names added to the database are written in bold.

#### Example 1: Nomen novum.

*Turdoides rubiginosus schnitzeri* Deignan, 1964  
Check-list of Birds of the World, vol. 10, p. 337

nomen novum pro *Argya rubiginosa emini* Reichenow, 1907  
nec *Crateropus plebeius* (sic) *emini* Neumann, 1904

[cf. Peters et al., vol. 10, p. 337 = idem]

[not in Sibley & Monroe]

[cf. Howard & Moore, p. 345, right col. = *Turdoides rubiginosus schnitzeri*]

#### Example 2: Type-species of a genus name.

*Aenigmatolimnas* J.L. Peters, 1932 (Dec. 19)  
"Two new genera and a new subspecies of Rails"  
Proc. New England Zool. Club, 13, p. 64

Type species by original designation and monotypy: *Porzana marginalis* Hartlaub, 1857

[cf. Peters et al., vol. 2, p. 197: valid genus]

[cf. Wolters, Lief. 1, p. 14: valid genus]  
[cf. Sibley & Monroe, 1990, p. 228: valid genus]  
[not in Howard & Moore]

**Example 3:** *Combinatio novum* or new combination.

*Oreothlypis* Stejneger, 1884 (Apr.)  
"Analecta ornithologica"  
Auk, 1 (2), p. 169 (in text)

Type species by original designation: *Compsothlypis gutturalis* Cabanis, 1860

[not in Peters et al.]  
[cf. Wolters, Lief. 5, p. 354: valid genus & subgenus]  
[not in Sibley & Monroe]  
[not in Howard & Moore]  
[cf. Sharpe, Cat. Birds Brit. Mus., vol. 10, p. 254, n° 5]

1. *Oreothlypis superciliosa* Stejneger, 1884 (Apr.)  
"Analecta ornithologica"  
Auk, 1 (2), p. 169 (in text)

combinatio novum pro *Conirostrum superciliosum* Hartlaub, 1844

[not in Peters et al.]  
[not in Sibley & Monroe]  
[not in Howard & Moore]  
[in Sharpe, Cat. Birds Brit. Mus., vol. 10, p. 255, n° 8]

2. *Oreothlypis gutturalis* Stejneger, 1884 (Apr.)  
"Analecta ornithologica"  
Auk, 1 (2), p. 169 (in text)

combinatio novum pro *Compsothlypis gutturalis* Cabanis, 1860

[not in Peters et al.]  
[not in Sibley & Monroe]  
[not in Howard & Moore]  
[in Sharpe, Cat. Birds Brit. Mus., vol. 10, p. 263, n° 4]

## 2. Computerisation of the MNHN bird collection

The second method for adding new names to the database is linked with one of the two main uses of the taxonomic referential: the identification of specimens in a collection.

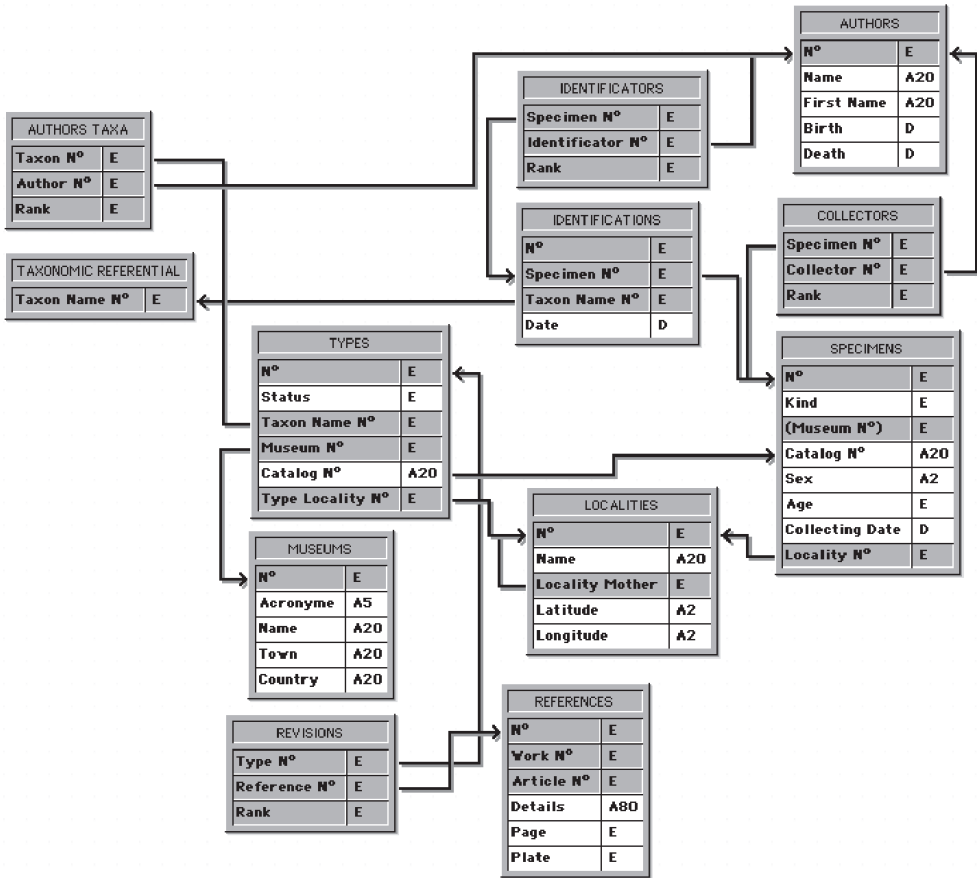


Fig. 1. Database structure for managing the MNHN collection & bird types specimens.

On top right of fig. 1, we show the six tables (cited further in brackets and little capitals) required for the computerisation of the MNHN collection. This collection is a set of specimens (SPECIMENS), each specimen being of a certain kind (skin, skeleton, mounted specimen,...), identified with a catalogue number, having a sex and an age possibly determined, collected at a given date and at a given place or locality. As several specimens may have been collected at a same place, localities are recorded in a different table (LOCALITIES). A specimen has been generally collected by one or several collectors (COLLECTORS) whose names are stored in another table (AUTHORS, so called because already used to store the authors' names of the taxa).

One or several labels are generally tied to a specimen, each label bearing one identification name (IDENTIFICATIONS) given at a possibly known date: genus name, species name and, possibly, subspecies name and authors' names. An identification may have been done by one or several identifiers (IDENTIFIATORS) whose name are stored in the same table used for collectors (AUTHORS).

A «good» taxonomic referential (on left of fig. 1) should include each name (or new combination of original name) found on a specimen label. However, when we started

in the summer 2002 the computerisation of the MNHN collection with the Suboscines, only about half of the computerised names on the labels corresponded with a name in the taxonomic referential, showing the lack of synonyms in the latter. Therefore, we began to computerise the names cited in the two volumes of the Sharpe's Catalogue of Birds in the British Museum dealing with Suboscines (Sclater, 1888 & 1890) and in the four Suboscines' volumes of the Catalogue of Birds of the Americas (Hellmayr, 1924, 1925, 1927 & 1929). When these were added, more than 90% of the label names could be found in the referential.

### 3. Checking of published type catalogues

The third method for adding new names to the database is linked with an important goal of use of the taxonomic referential: the managing of bird types.

On bottom left of fig. 1, we show the four additional tables required for the computerisation of bird types. A bird type (TYPES) has a certain status (syntype, holotype,...), concerns a particular specimen preserved generally in a museum (MUSEUMS) in which it is identified with a catalogue number, has generally been the object of one or several revisions (REVISIONS) published in types catalogues (REFERENCES), has been collected at a given place or type-locality. The type-localities are stored in the same table (LOCALITIES) as used for the specimens without type status. Each record of the TYPES table is linked - by type definition - with a name of a species or subspecies in the taxonomic referential.

The screening of the type catalogues (cf. References part 3) led to a great number of additions to the referential. In the four examples given below extracted from the database, bird type data are written in bold.

#### Example 1: syntypes.

*Chlorostilbon osberti* Gould, 1860 (July)

"Descriptions of twenty-two New Species of Humming-Birds"

Proc. Zool. Soc. London, Part XXVIII, Meeting of June 12, 1860, p. 309

syntype BMNH 1888.7.25.93

syntype AMNH 38805

syntype USNM A20499

For type revision, see:

1. Greenway, Jr., 1978 (Aug. 29), Bull. Am. Mus. Nat. Hist., 161 (1): 1-305, see p. 170
2. Deignan, 1961, Bull. U. S. Natn. Mus., 221: 1-718, see p. 178-179

[cf. Peters et al., vol. 5, p. 38 = *Chlorostilbon canivetii osberti* Gould, 1860]

[not in Sibley & Monroe]

[cf. Howard & Moore, p. 149, right col. = *Chlorostilbon canivetii osberti*]

[cf. Sharpe, Cat. Birds Brit. Mus., vol. 16, p. 47, n° 4]

**Example 2:** holotype and paratypes.

*Megapodius cumingii talautensis* Roselaar, 1994

“Systematic notes on *Megapodiidae* (*Aves*, Galliformes), including the description of five new subspecies”

Bull. Zool. Mus. Univ. Amsterdam, 14 (2), p. 23

holotype SMTD C13098

paratype BMNH 97.5.12.22

paratype BMNH 97.5.12.33

paratype BMNH 98.4.29.24

paratype BMNH 1930.2.15.1

paratype MNHU 32283

paratype SMTD C13099

paratype SMTD C15419

paratype SMTD C15421

paratype SMTD C15422

For type revision, see:

Roselaar & Prins, 2000 (Nov. 23), *Beaufortia*, 50 (5): 95-126, see p. 100

[not in Peters et al.]

[not in Sibley & Monroe]

[not in Howard & Moore]

[cf. Sharpe, *Cat. Birds Brit. Mus.*, vol. 22, p. 449]

**Example 3:** lectotype and paralectotypes.

*Centropus celebensis* Quoy & Gaimard, 1830

*Voy. Astrolabe, Zool.*, 1, p. 230, *Atlas, Ois.*, pl. 20

lectotype MNHN 1997-1193

paralectotype RMNH 88168

paralectotype RMNH 88169

For type revision, see:

1. van den Hoek Ostende, Dekker & Keijl, 1997, *NNM Technical Bulletin*, 1: 1-248

2. C. Voisin & J.-F. Voisin, 1999, *Zoosystema*, 21 (2): 379-402, see p. 390

[cf. Peters et al., vol. 4, p. 76 = *Centropus celebensis celebensis* Quoy & Gaimard, 1830]

[cf. Sibley & Monroe, 1990, p. 104 = *Centropus (celebensis) celebensis* Quoy & Gaimard, 1830]

[cf. Howard & Moore, p. 121, right col. = *Centropus celebensis celebensis*]

[cf. Sharpe, *Cat. Birds Brit. Mus.*, vol. 19, p. 365, n° 6]

**Example 4:** neotype.

*Turdus viscivorus* Linné, 1758 (Jan. 1)

*Systema Naturae*, Editio Decima, Tomus I, p. 168, gen. 95, sp. 1

neotype NMSZ 1956.065.3770

For type revision, see:

Herman, McGowan & Swinney, 1990 Natn. Mus. Scotl. Inf. Ser., 4: 1-34, see p. 15

[cf. Peters et al., vol. 10, p. 206 = *Turdus viscivorus viscivorus* Linné, 1758]

[cf. Sibley & Monroe, 1990, p. 518 = *Turdus viscivorus* Linné, 1758]

[cf. Howard & Moore, p. 332, right col. = *Turdus viscivorus viscivorus*]

[cf. Sharpe, Cat. Birds Brit. Mus., vol. 5, p. 194, n<sup>o</sup> 1]

Table 1 gives the present amount of types databased for each museum.

Table 1: Number of databased types per museum.

Museum	Country	Acronym	Number
American Museum of Natural History	USA	AMNH	6741
United States National Museum	USA	USNM	4003
Museum of Comparative Zoology, Harvard University	USA	MCZ	1686
Nationaal Natuurhistorisch Museum Naturalis (ex Rijksmuseum van Natuurlijke Historie)	NL	RMNH	1235
Zool. Forschungsinstitut und Museum Alexander Koenig	D	ZFMK	1178
Muséum National d'Histoire Naturelle	F	MNHN	595
Zool. Museum of M.V.Lomonosov Moscow State University	Russia	ZMMU	346
Natural History Museum (ex British Museum of Natural History)	UK	NHM	298
Zoölogisch Museum, Universiteit van Amsterdam	NL	ZMA	153
National Museum of Scotland	UK	NMSZ	105
Australian National Wildlife Collection, CSIRO	AU	ANWC	66
Museum Zoologicum Bogoriense	Indonesia	MZB	38
Field Museum of Natural History	USA	FMNH	30
Museum of Victoria	AU	NMV	14
Western Australian Museum	AU	WAM	13
Queensland Museum	AU	QM	13
Zoologisk Museum Universitetet i København	DK	ZMUC	12
South Australian Museum	AU	SAMA	10
Staatliches Museum für Tierkunde, Dresden	D	SMTD	9
Naturhistorisches Museum in Wien	O	NMW	7
Zool. Institut Rossiiskoi Akademii Nauk Sankt Peterburg	Russia	ZISP	4
Carnegie Museum of Natural History	USA	CMNH	4
Australian Museum	AU	AM	4
Museum für Naturkunde der Humboldt-Universität	D	MNHU	3
Queen Victoria Museum and Art Gallery	AU	QVM	2
Forschungsinstitut und Naturmuseum Senckenberg	D	SMF	2
Museo Civico di Storia Naturale Giacomo Doria	I	MCSNG	2
Liverpool Museum, National Museums and Galleries on Merseydide	UK	NML	1
Zoologische Staatssammlung München	D	ZSM	1
Musée Royal de l'Afrique Centrale	B	MRAC	1
Colección Ornitológica Phelps	V	COP	1

The following list gives the number of types localized but not databased until confirmation:

Adelaide 1; Amsterdam 2; Ann Arbor 21; Bélem 16; Berkeley 89; Berlin 436; Bogor 27; Bogota 2; Bonn 27; Bordeaux 37; Bremen 26; Brisbane 2; Brünswick 5; Bruxelles 48; Budapest 5; Buenos Aires 7; Bulawayo 5; Cambridge, UK 88; Cambridge, US 23; Charleston 3; Chicago 161; Cleveland 14; Coll. A. de W. Bertoni 34; Copenhagen 26; Darmstadt 6; Denver 7; Dresden 19; Dublin 1; Durban 1; Edinburgh 5; Firenze 1; Frankfurt 113; Geneva 1; Genova 6; Glasgow 2; Habana 11; Halberstadt 47; Halle 26; Hamburg 5; Hanoi 5; Harrison Mus. 3; Ithaca 4; Kingston 1; Lawrence 2; Leipzig 1; Leningrad 51; Leverian Mus. 10; Leiden 240; Lima 15; Liverpool 244; Los Angeles 32; Lost ? 275; Madrid 1; Manchester 2; Melbourne 1; Mexico 11; Miami 2; Montreal 1; Moscow 6; München 222; Neuchâtel 61; New York 676; Ottawa 4; Paris 808; Palo Alto 9; Pasadena 51; Perth 1; Perugia 3; Philadelphia 405; Pittsburgh 237; Port Moresby 3; Princeton 5; Rio de Janeiro 20; Rochefort 9; Roma 1; San Diego 9; San Francisco 17; San José 2; Santiago 49; São Paulo 12; Stockholm 291; Strasbourg 1; Stuttgart 4; Sydney 230; Tervuren 8; Toronto 5; Tring 7929; Turin 27; Upsala 10; Varsaw 43; Victoria, BC 2; Washington 53; Wien 165; Wisconsin Nat. Hist. Assoc. 1; Yale 1; Zürich 1.

#### 4. Historical approach

Finally, the historical approach is the last method we follow to add new names to our referential. To achieve this, we went back to the start: the year 1758. The screening of early ornithological works results in a lot of synonyms to be added which are rarely mentioned in the literature. This bottom-up method (opposite to the top-down method provided by the systematic approach) allowed us also in databasing references of pre-Linnean works.

The five works of Linné published from 1758 contains the following numbers of genera and species names:

1. Linné, 1758. *Systema Naturae, Editio Decima, Reformata*  
Genera: 63 (+ 3 nom. emend.); Species: 554 (454 valid)
2. Linné, 1761. *Fauna Svecica, Editio Altera, Auctior*  
Genera: 0 new (+ 1 nom. emend.); Species: 221 (21 new; 3 valid)
3. Linné, 1764. *Museum Adolphi Friderici, Tomi secvndi Prodrmvsv*  
Genera: 3 new; Species: 31 (9 new; 2 valid)
4. Linné, 1766-1767. *Systema Naturae, Editio Duodecima*  
Genera: 75 (8 new; + 5 nom. emend.); Species: 936 (454 new; 273 valid)
5. Linné, 1771. *Mantissa Plantarum altera Gen. ed. VI. et Spec. ed. II*  
Genera: 0 new; Species: 20 (17 new; 9 valid)

For most of the species listed in these books, Linné also indicated the sources on which he based his descriptions. For example, his *Loxia caerulea* scientifically described in 1758 was entirely based on plate 39 published by Catesby in 1731 (cf. example 1).



Fig. 2. Carl von Linné (1707-1778).



To account for all information given by these pre-Linnean sources, we extended the structure of our database with the three additional tables shown on right of fig. 3.

A source (SOURCES) is a latin name and/or a vernacular name published in a book or an article of a journal (found in the tables WORKS & ARTICLES, not shown on fig. 3) at a given date with references details (page, plate,...). Moreover, if this source is listed in the Sharpe's *Catalogue of Birds in the British Museum* (CBBM), the volume and page of this catalogue where the source is mentioned, are also databased.

A scientific name of the referential (TAXONOMIC REFERENTIAL) may be based on one or several sources (SOURCES) as well as on one or several others names of the referential (TAXONOMIC REFERENTIAL), all listed in the table TAXON\_SOURCES. In the same way, a source (SOURCES) may be based itself on one or several sources (SOURCES) as well as on one or several names of the referential (TAXONOMIC REFERENTIAL), all listed in the table SOURCE\_SOURCES (cf. example 2).

**Example 1:** A scientific name and its source.

*Loxia caerulea* "Catesby" Linné, 1758 (Jan. 1)  
 Systema Naturae, Editio Decima, Tomus I, p. 175, gen. 96, sp. 29  
 Based on:  
*Coccothraustes caerulea*, "The Blue Gross-beak - Gros-Bec bleu"  
 Catesby, 1731 Nat. Hist. Carolina, Florida & Bahama Islands, vol. 1, p. 39, pl. 39

[cf. Peters et al., vol. 13, p. 241 = *Passerina caerulea caerulea* (Linné, 1758)]  
 [cf. Sibley & Monroe, 1990, p. 774 = *Guiraca caerulea* (Linné, 1758)]  
 [cf. Howard & Moore, p. 466, left col. = *Guiraca caerulea caerulea*]  
 [cf. Sharpe, Cat. Birds Brit. Mus., vol. 12, p. 66, n° 1]

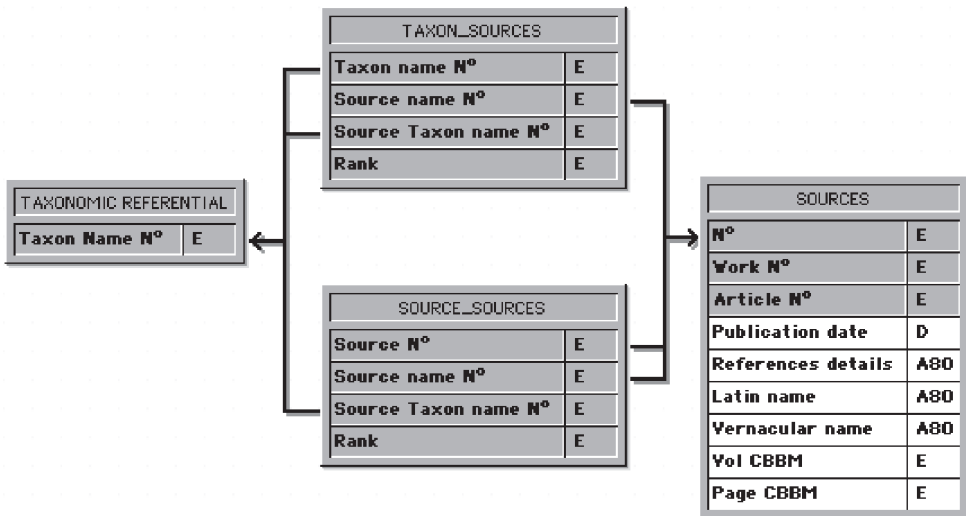


Fig. 3. Structure for databasing pre-Linnean and non binominal sources.

**Example 2:** A vernacular name and its sources.

“Common Stare”

Latham, 1783 Gen. Syn. Birds, vol. 2, pt. 1, gen. 30, sp. 1, p. 2-3

Based on:

“Storno” / *Sturnus*

Olina, 1622 Uccelliera, p. 18, pl. col.

“A Stare, or Starling” / *Sturnus* Aldrov. & aliorum

Ray, 1713 Syn. Meth. Avium Piscium, Sturni & congeneres, sp. 1, p. 67-68

“The Starling”

Albin, 1731 Nat. Hist. Birds, vol. 1, p. 38, pl. 40

*Sturnus vulgaris* Linné, 1758 (Jan. 1)

Systema Naturae, Editio Decima, Tomus I, p. 167, gen. 94, sp. 1

“L'Étourneau” / *Sturnus*

Brisson, 1760 Ornithologie, vol. 2, gen. 26, sp. 1, p. 439

“Le Sansonnet ou Etourneau de France”

Daubenton, 1770 Planches enluminées, vol. 3, p. 212, pl. [71] 75

“L'Étourneau”

Buffon, 1775 Hist. Nat. Générale, Hist. Nat. Ois., vol. 3, p. 176-187, pl. 15

} Pre-Linnean

} Post-Linnean

We generalized the concept of source for the books published after 1758 (post-Linnean) in which bird descriptions and plates are given without corresponding valid scientific Linnean binomina. These works provide actually all the keys to understand and establish synonymies as these first post-Linnean authors often described birds and gave scientific names with the same descriptions and plates as base as those published in the older works which do not accord the International Code of Nomenclature. For example, Daubenton's 923 «planches enluminées» and the 1,159 corresponding vernacular names largely formed the basis of the scientific names published in the books written by Statius Müller (1776), Boddaert (1783), Gmelin (1788-89), and Latham (1790, 1801) (cf. example 3). In part 4.1 of the References, we list the books of which the contents have been databased.

**Example 3:** Synonyms based on same sources.

1. *Turdus sordidus* Statius Müller, 1776

Linné Natursyst., Suppl., p. 143, sp. 51

Based on:

1. “Le Merle des Philippines”

Daubenton, 1770 Planches enluminées, vol. 4, p. 130, pl. [45] 89

2. “La Brève des Philippines”

Buffon, 1775 Hist. Nat. Générale, Hist. Nat. Ois., vol. 3, sp. 1, p. 412-413

[cf. Peters et al., vol. 8, p. 321 = *Pitta sordida sordida* (Statius Müller, 1776)]

[cf. Sibley & Monroe, 1990, p. 331 = *Pitta (sordida) sordida sordida* (Statius Müller, 1776)]

[cf. Howard & Moore, p. 265, left col. = *Pitta sordida sordida*]

[cf. Sharpe, Cat. Birds Brit. Mus., vol. 14, p. 438, n° 1]

2. *Turdus brevicauda* Boddaert, 1783  
Table Planches Enluminez, p. 6, sp. 89

Based on:

1. "Le Merle verd à teste noire des Moluques" / *Merula viridis atricapilla Moluccensis*  
Brisson, 1760 Ornithologie, vol. 2, gen. 22, sp. 57, p. 319, pl. 32, fig. 2
2. "Le Merle des Philippines"  
Daubenton, 1770 Planches enluminees, vol. 4, p. 130, pl. [45] 89
3. "La Brève des Philippines"  
Buffon, 1775 Hist. Nat. Générale, Hist. Nat. Ois., vol. 3, sp. 1, p. 412-413
4. "Short-tailed Crow, Var. A"  
Latham, 1781 Gen. Syn. Birds, vol. 1, pt. 1, gen. 12, sp. 37, p. 398

[cf. Peters et al., vol. 8, p. 321, synonym = *Turdus sordidus* Statius Müller, 1776 = *Pitta sordida sordida* (Statius Müller, 1776)]

[not in Sibley & Monroe]

[not in Howard & Moore]

[cf. Sharpe, Cat. Birds Brit. Mus., vol. 14, p. 438, n° 2]

3. *Corvus brachyurus* var. *philippensis* Gmelin, 1788  
Systema Naturae, Editio decima tertia, Tomus I, pt. I, p. 375, gen. 50, sp. 15, ssp. 1

Based on:

1. "Le Merle verd à teste noire des Moluques" / *Merula viridis atricapilla Moluccensis*  
Brisson, 1760 Ornithologie, vol. 2, gen. 22, sp. 57, p. 319, pl. 32, fig. 2
2. "Le Merle des Philippines"  
Daubenton, 1770 Planches enluminees, vol. 4, p. 130, pl. [45] 89
3. "La Brève des Philippines"  
Buffon, 1775 Hist. Nat. Générale, Hist. Nat. Ois., vol. 3, sp. 1, p. 412-413

[cf. Peters et al., vol. 8, p. 322, synonym = *Turdus sordidus* Statius Müller, 1776 = *Pitta sordida sordida* (Statius Müller, 1776) ]

[not in Sibley & Monroe]

[not in Howard & Moore]

[cf. Sharpe, Cat. Birds Brit. Mus., vol. 14, p. 438, n° 3]

We extended also the concept of bibliographic reference of a scientific name to its junior occurrences. We databased all the references of the names (or chresonyms) mentioned in the post-Linnean books listed in the bibliography part 4.2 (cf. example 4).

#### **Example 4:** Sources and chresonyms.

*Colymbus auritus* Linné, 1758 (Jan. 1)  
Systema Naturae, Editio Decima, Tomus I, p. 135-136, gen. 68, sp. 3

Based on:

1. "The Didapper or Dipper or Dobchick or Doucker or small Loon" / *Colymbus sive Podiceps minor*

- Ray, 1713 Syn. Meth. Avium Piscium, Palmipedes Tetradactylæ [...] Colymbi dictæ, sp. 3, p. 125
2. "The Di-dapper" / *Colymbus sive podiceps minor* Willughb. Angl. p. 340. Tab. 61  
Sloane, 1725 Nat. Hist. Jamaica, Chap. III. Of Water-Fowl, or such as are Web-footed and Swim, vol. 2, sp. 4, p. 322-323, pl. 271, fig. 1
  3. "The Dobchick" / *Colymbus minor*  
Albin, 1734 Nat. Hist. Birds [Albin], vol. 2, p. 70, pl. 76
  4. *Colymbus pedibus lobato-divisis; capite rufo*  
Linné, 1746 Fauna Svecica, sp. 123, p. 45
  5. "The Eared Dobchick" / *Podiceps, auritus*  
Edwards, 1747 Nat. Hist. Birds [Edwards], pt. 2, p. 96, pl. 96, fig. left
  6. "The Eared or Horned Dob-chick" / *Colymbus auritus & cornutus, minor, Canadensis*  
Edwards, 1750 Nat. Hist. Birds [Edwards], pt. 3, p. 145, pl. 145

Junior references:

2. Linné, 1761 Fauna Svecica, Editio Altera, Auctior, p. [xxiii & cf. p. 53-54], sp. 152
3. Brünnich, 1764 Orn. Borealis, p. 41-42, sp. 136
4. Linné, 1766 Systema Naturae, Editio Duodecima, Tomus I, p. 222-223, gen. 75, sp. 8
5. Scopoli, 1769 Annus I Hist.-Nat., p. 77, gen. 24, sp. 100
6. Boddaert, 1783 Table Planches Enlumineez, p. 24, sp. 404.2
7. Pallas, 1811 Zoographia Rosso-Asiatica, Tomus II, p. 356-357, sp. 410

[cf. Peters et al., vol. 1, p. 149 = *Podiceps auritus auritus* (Linné, 1758)]

[cf. Sibley & Monroe, 1990, p. 296 = *Podiceps auritus* (Linné, 1758)]

[cf. Howard & Moore, p. 6, right col. = *Podiceps auritus*]

[cf. Sharpe, Cat. Birds Brit. Mus., vol. 26, p. 527, n° 1]

### Conclusion

We described four working methods to increase the quantity of bird names and the taxonomic quality of the MNHN referential. We intend to continue in the future applying the same methods. The continuing computerisation of the MNHN collection is a good reason to search for names corresponding to those written on the specimens labels. We will continue also to check other published bird type catalogues. We found a number of these already and adding them could supplement our database with 4,500 names. Finally, with our historical approach as basis, we plan to include all the names published before 1808, the birth date of the American ornithology, a goal to be reached by 2005.

### Acknowledgements

I want to thank René Dekker for his support which allowed me to attend the symposium in Leiden in order to explain my work on the MNHN referential database. I also want to thank Kees Roselaar for his precious help in his precise reading and correcting the draft of this paper.

## References

### *General references*

Bruckert, R., 2003. A Relational Database as a Tool in Ornithological Taxonomy and Comparative Systematics.— Bonn. zool. Beitr. 51 (2002): 197-204.

### *References to revisions*

- Hellmayr, C.E., 1924-1929. Catalogue of Birds of the Americas and the adjacent islands in Field Museum of Natural History.— Publ. Field Mus. Nat. Hist., Zool. Ser. XIII,  
 - 1924. Part III. Pterotochidae-Conopophagidae – Formicariidae. 223: 1-369.  
 - 1925. Part IV. Furnariidae-Dendrocolaptidae. 234: 1-390.  
 - 1927. Part V. Tyrannidae. 242: 1-517.  
 - 1929. Part VI. Oxyruncidae, Pipridae, Cotingidae, Rupicolidae, Phytotomidae. 266: 1-258.
- Slater, P.L.— In: R.B. Sharpe (ed.), 1874-1898. Catalogue of Birds in the British Museum, 27 vols., London,  
 - 1888. Passeriformes or Perching birds. Oligomyodae or the families Tyrannidae, Oxyrhamphidae, Pipridae, Cotingidae, Phytotomidae, Philepittidae, Pittidae, Xenicidae, and Eurylaemidae, XIV: i-xix+1-494, 26 pls. col., text ill.  
 - 1890. Passeriformes or Perching birds. Tracheophonae, Dendrocolaptidae, Formicariidae, Conopophagidae, and Pterotochidae, XV: i-xvii+1-371, 20 pls. col, text ill.

### *References to type catalogues*

- Bangs, O., 1930. Types of birds now in the Museum of Comparative Zoology.— Bull. Mus. Comp. Zool. 70(4): 147-426.
- Borissenko, A.V. et al., 2001. Studies on the fauna - Types of Vertebrates in the Zoological Museum of Moscow University.— Sb. Trud. Zool. Mus. MGU 41: 1-251.
- Deignan, H.G., 1961. Type Specimens of Birds in the United States National Museum.— Bull. U.S. Nat. Mus. 221: i-x+1-718.
- Dekker, R.W.R.J., 2003. Type specimens of birds in the National Museum of Natural History, Leiden. Part 2. Passerines: Eurylaimidae - Eopsaltriidae (Peters's sequence).— NNM Techn. Bull. 6: 1-142.
- Greenway, Jr., J.C., 1973-1987. Type Specimens of Birds in the American Museum of Natural History.  
 - 1973. Part 1.— Bull. Am. Mus. Nat. Hist. 150(3): 207-345.  
 - 1978. Part 2.— Bull. Am. Mus. Nat. Hist. 161(1): 1-305.  
 - 1987. Part 4.— Am. Mus. Novit. 2879: 1-63.
- Hennache, A. & E.C. Dickinson, 2000. Les types d'oiseaux rapportés du Vietnam, du Laos et du Cambodge par Jean Delacour entre 1923 et 1939.— Zoosystema 22(3): 601-629.
- Herman, J.S., R.Y. McGowan & G.N. Swinney, 1990. Catalogue of the Type Specimens of Recent Vertebrates in the National Museums of Scotland.— Nat. Mus. Scotl. Inf. Ser. 4: i-vi+1-34.
- Jouanin, C., 1951. Catalogue systématique des types de Trochilidés du Muséum National d'Histoire Naturelle de Paris.— Bull. Mus. Nat. Hist. Nat. Paris (2) 22(6), (Supplément II, 1950): 1-27.
- LeCroy, M., 2003. Type Specimens of Birds in the American Museum of Natural History. Part 5.— Bull. Am. Mus. Nat. Hist. 278: 1-156.
- LeCroy, M. & R. Sloss, 2000. Type Specimens of Birds in the American Museum of Natural History. Part 3.— Bull. Am. Mus. Nat. Hist. 257: 1-88.
- Peters, J.L., 1943. First supplement to the list of types of birds now in the Museum of Comparative Zoology.— Bull. Mus. Comp. Zool. 92(2): 53-104.
- Roselaar, C.S. & T.G. Prins, 2000. List of type specimens of birds in the Zoological Museum of the University of Amsterdam (ZMA), including taxa described by ZMA staff but without types in the ZMA.— Beaufortia 50(5): 95-126.

- Somadikarta, S., J.-F. Voisin & R.W.R.J. Dekker, 2002. Liste des types d'oiseaux des collections du Muséum national d'Histoire naturelle de Paris. 10. Mégapodes (Megapodiidae).— *Zoosystema* 24(1): 181-186.
- Van den Hoek Ostende, L.W., R.W.R.J. Dekker, & G.O. Keijl, 1997. Type specimens of birds in the National Museum of Natural History, Leiden. Part 1. Non-Passerines.— *NNM Techn. Bull.* 1: 1-248.
- Voisin, C., 1993. Liste des spécimens types d'ibis (Threskiornithinés) de la collection du Muséum National d'Histoire Naturelle de Paris.— *Ois. Rev. Franç. Orn.* 63(1): 45-53.
- Voisin, C. & J.-F. Voisin. Liste des types d'oiseaux des collections du Muséum national d'Histoire naturelle de Paris.
- 1996. 4. Hérons (Ardeidae).— *Bull. Mus. Natn. Hist. Nat. Paris* (4) 18A(3-4): 595-609.
  - 1999. 6. Coucous (Cuculidae).— *Zoosystema* 21(2): 379-402.
  - 2001. 8. Rapaces diurnes (Accipitridés), première partie.— *Zoosystema* 23(1): 173-190.
  - 2001. 9. Rapaces diurnes (Accipitridae), seconde partie.— *Zoosystema* 23(3): 619-633.
  - 2002. 12. Faucons et Caracaras (Falconidae).— *Zoosystema* 24(2): 471-482.
- Voisin, J.-F., 1992. Liste provisoire des types d'oiseaux des collections du Muséum national d'Histoire naturelle de Paris. 1. Pélécaniformes.— *Ois. Rev. Franç. Orn.* 62(2): 162-172.
- Voisin, J.-F., 1995. Liste des types d'oiseaux des collections du Muséum national d'Histoire naturelle (France). 3. Podicipédiformes.— *Bull. Mus. Natn. Hist. Nat. Paris* (4) 17A(3-4): 345-351.
- Voisin, J.-F. & J.-L. Mougou, 2002. Liste des types d'oiseaux des collections du Muséum national d'Histoire naturelle de Paris. 11. Manchots (Spheniscidae).— *Zoosystema* 24(1): 187-190.
- Voisin, J.-F., J.-L. Mougou & C. Jouanin, 1997. Liste des types d'oiseaux des collections du Muséum national d'Histoire naturelle (France). 5. Procellariiformes (avec une note sur les catalogues du Laboratoire des Mammifères et Oiseaux).— *Zoosystema* 19(4): 757-768.
- Voisin, J.-F., S. Somadikarta & P. Nguyễn Quang, 1999. Liste des types d'oiseaux des collections du Muséum national d'Histoire naturelle (France). 7. Martinets (Hemiprocidae et Apodidae).— *Zoosystema* 21(3): 573-580.

*References to pre-Linnean and post-Linnean non-binominal sources*

- Albin, E., 1731-1738. *A Natural History of Birds*.— London. [191 sources]
- Albin, E., 1740. *A Supplement to the Natural History of Birds*.— London. [97 sources]
- Azara, F., 1802-1805. *Apuntamientos para la historia natural de los Pájaros del Paraguay y Rio de La Plata*.— Madrid. [448 sources]
- Brisson, M.J., 1760. *Ornithologia*.— Paris. [1512 sources]
- Brown, P., 1776. *New illustrations of zoology*.— London. [53 sources]
- Browne, P., 1756. *The civil and natural History of Jamaica*. In three parts.— London. [100 sources]
- Buffon, G.L. Leclerc, Comte de, 1770-1783. *Histoire Naturelle des Oiseaux*, vols. 16-24, in *Histoire Naturelle, générale et particulière, avec la description du Cabinet du Roi, 1749-99*.— Paris. [1644 sources]
- Catesby, M., 1731-1743. *The Natural History of Carolina, Florida and the Bahama Islands*.— London. [110 sources]
- Daubenton, E.L., 1765[1770-]1783. *Histoire naturelle des oiseaux: "planches enluminées"*.— Paris. [1,159 sources]
- Edwards, G., 1743-1751. *A Natural History of Uncommon Birds*. In Four Parts.— London. [199 sources]
- Edwards, G., 1758-1764. *Gleanings of Natural History*.— London. [165 sources]
- Hernandez, F., 1651. *Rerum medicarum Novae Hispaniae thesaurus seu Plantarum animalium mineralium mexicanorum historia*.— Romae. [229 sources]
- Latham, J., 1781-1785. *A General Synopsis of Birds*.— London. [2873 sources]
- Latham, J., 1787. *Supplement to the General Synopsis of Birds*.— London. [130 sources]
- Latham, J., 1802 *Supplement II to the General Synopsis of Birds*.— London. [178 sources]
- Levaillant, F., 1796-1808. *Histoire naturelle des Oiseaux d'Afrique*.— Paris. [282 sources]
- Linné, C. von, 1746. *Fauna Svecica*.— Lugduni Batavorum. [205 sources]

- Marcgraf, G., 1648. *Historiæ Rerum Naturalium Brasiliæ, Libri octo.*— Lugdun. Batavorum. [120 sources]
- Möhrling, P.H.G., 1752. *Avium Genera.*— Bremæ. [114 sources]
- Olina, G.P., 1622. *Uccelliera.*— Roma. [61 sources]
- Pennant, T., 1784-1787. *Arctic Zoology.*— London. [591 sources]
- Ray, J., 1713. *Synopsis methodica Avium & Piscium.*— Londini. [885 sources]
- Sloane, H., 1707-1725. *Voyage to the Islands Madera, Barbadoes, Nieves, St Christophers, and Jamaica.*— London. [87 sources]
- Sonnerat, P., 1776. *Voyage à la Nouvelle Guinée.*— Paris. [85 sources]
- Sonnerat, P., 1782. *Voyages aux Indes orientales et à la Chine.*— Paris. [87 sources]

*References of first post-Linnean and binominal sources*

- Boddaert, P., 1783. *Table des planches enluminées d'Histoire Naturelle de M. D'Aubenton.*— Utrecht.
- Brünnich, M.T., 1764. *Ornithologia Borealis.*— Hafniæ.
- Forster, J.R., 1781. *Indische Zoologie [= Zoologia Indica].*— Halle.
- Gmelin, J.F., 1788-1789. *Caroli a Linné, Systema Naturae per Regna tria Naturae. Editio decima tertia, aucta, reformata. Aves.*— Lipsiæ.
- Hermann, J., 1783. *Tabula affinitatum animalium.*— Argentorati.
- Jacquini, J.F.E. von, 1784. *Beyträge zur Geschichte der Vögel.*— Wien.
- Lacepède, B.G.E. de, 1799 (An VII). *Tableaux des sous-classes, divisions, sous-divisions, ordres et genres des Oiseaux.*— Paris.
- Latham, J., 1790. *Index Ornithologicus, sive Systema Ornithologiæ.*— London.
- Latham, J., 1801. *Supplementum Indicis Ornithologici, sive Systematis Ornithologiæ.*— London.
- Linné, C. von, 1758-1759. *Systema Naturae, Per Regna Tria Naturae, Editio Decima, Reformata.*— Holmiæ.
- Linné, C. von, 1761. *Fauna Svecica. Editio Altera, Auctior.*— Holmiæ.
- Linné, C. von, 1764. *Museum S:ae R:ae M:tis Adolphi Friderici. Tomi secvndi Prodromvs.*— Holmiæ.
- Linné, C. von, 1766-1767-1768. *Systema Naturae, Per Regna Tria Naturae, Editio Duodecima, Reformata.*— Holmiæ.
- Linné, C. von, 1771. *Mantissa Plantarum altera Generum editionis VI. et Speciarum editionis II.*— Holmiæ.
- Molina, G. I., 1782. *Saggio sulla Storia Naturale del Chili.*— Bologna.
- Pennant, T., 1769. *Indian Zoology.*— London.
- Scopoli, G.A., 1769-1772. *Annus I Historico-Naturalis.*— Lipsiæ.
- Scopoli, G.A., 1777. *Introductio ad Historianum naturalem.*— Pragae.
- Scopoli, G.A., 1786-1788. *Deliciae Florae et Faunae Insubricae.*— Ticini.
- Statius Müller, P.L., 1776. *Des Ritters C. von Linné vollständiges Natursystem nach der zwölfften Lateinischen Ausgabe und nach Anleitung des Holländischen Houttuynischen Werks. Supplemente und Register-Band.*— Nürnberg.

Received: 15.ii.2005

Accepted: 27.vii.2005

Edited: C.S. Roselaar, R.W.R.J. Dekker & C. van Achterberg

