



Type specimens of birds of the genus *Batis* (Aves: Platysteiridae) at the Museum für Naturkunde Berlin

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Abstract

The ornithological collection of the Museum für Naturkunde Berlin houses an important collection of birds of the genus *Batis*, with many type specimens used in descriptions dating from the 19th and beginning of the 20th century. Some of these scientific names are still in use today, but others are synonyms. We herein provide an updated list of all this type material for 10 names (species and subspecies) with 34 types and 21 paratypes, and we designate a lectotype for *Batis puella* Reichenow, 1893.

Key words: Aves, nomenclature, taxonomy, type, *Batis*

Introduction

The ZMB (Zoologisches Museum Berlin, now Museum für Naturkunde Berlin) has an important collection of birds of the genus *Batis*, with many type specimens used in descriptions dating from the 19th and beginning of the 20th century. Some of these scientific names are still in use today, but others are synonyms (for a critical study of the number of species and subspecies admitted by some authorities, see Louette 2006). For several names, long lists of type material with sometimes questionable determination were given (e.g. Neumann 1907a). In order to verify these, the collection of the ZMB was critically re-examined in 2019. All the specimens were re-determined. The accompanying information and historical documents were studied in detail. The localities were georeferenced. An updated list of all this type material is given here.

The genus *Batis* contains 19 species (del Hoyo & Collar 2016), all of which are very similar in plumage. Sexual dimorphism in colour is pronounced in most species (males having a black breast band, females having a brownish one), but this fact was not well known to early ornithologists (see e.g. Hahn & Küster 1850 for *B. molitor* Küster, 1850). All the taxa discussed in this paper belong to this group of clearly sexually dimorphic species.

A further important point for study in the museum is the fact that immature birds of both sexes resemble the female in plumage. In all species of *Batis*, juveniles can be separated from adults by buff tips to the wing coverts; this is evident for birds in life and in well-prepared specimens (see also Hockey *et al.* 2005). Determination of this is however sometimes problematic in less well-prepared specimens in transitional plumage. Because of the small size of these birds and the fact that the specimens are delicate, it is often difficult to ascertain the moult, in order to age the specimen, without damaging it.

Species of the genus *Batis* occur virtually everywhere in sub-Saharan Africa, but are essentially allopatric or parapatric. For instance, the closely related *B. molitor* and *B. soror* Reichenow, 1903 are parapatric in the area close to the eastern African coast (see <http://tanzaniabirdatlas.net> consulted on 12/09/2020). In the montane regions of southern Africa there is generally a zone of overlap along an altitudinal gradient between members of the *B. capensis* Linnaeus, 1766 superspecies (which occur primarily in forest at higher altitudes), and several other *Batis* species of

more open habitat. However, altitude is not the only factor determining presence of the *capensis* superspecies, given that *B. reichenowi* Grote, 1911, a member of this superspecies, occurs also at low altitude (Fjeldså *et al.* 2006). In addition, altitude or habitat is seldom apparent from the typically rather general localities given by early collectors on their labels, and the localities given thus do not hint at the species identification of a museum specimen in these areas of ecological segregation.

For all historical localities we additionally give an actual equivalent [place, region, country, co-ordinates]. Spelling of toponyms follows Geonames (2021; geonames.org), if not otherwise mentioned. All localities are listed in Table 1. This table additionally lists the full name for all collectors if available. Nomenclature follows the International Code of Zoological Nomenclature (ICZN 1999). Current taxonomy follows del Hoyo & Collar (2016). Museum abbreviations are as follows: AMNH = American Museum of Natural History, New York, USA; SMNS = Staatliches Museum für Naturkunde Stuttgart, Germany; ZMB = Museum für Naturkunde, Berlin, Germany. All additional information from literature, handwritten resources, etc. are given as currently interpreted in brackets [].

The following authors described bird species and subspecies of the Genus *Batis* based on ZMB specimens as new for science, with the numbers of described (sub)species given in parentheses:

Grote, Hermann (Johannes) (1882–1951): German ornithologist (1 species);

Küster, Heinrich Carl (1807–1876): German zoologist (1 species);

Lichtenstein, Martin Hinrich Carl (1780–1857): German zoologist, Director of the ZMB (1 species);

Neumann, Oscar (Rudolph) (1867–1946): German ornithologist (1 species, 4 subspecies);

Reichenow, (Georg) Anton (Eugen) (1847–1941): German ornithologist (1 species, 1 subspecies).

Systematic list

Batis reichenowi Grote, 1911:162

Now: *Batis reichenowi* Grote, 1911. See Louette (2006), but also Mayr *et al.* (1986: 379), Fjeldså *et al.* (2006).

Syntype: ZMB 65.130 (Grote, no. 215), skin, female, collected by H. Grote at Mikindani, 29.09.1909.

Syntype: ZMB 65.131 (Grote, no. 214), skin, male, collected by H. Grote at Mikindani, 29.09.1909.

Syntype: ZMB 65.132 (Grote, no. 179), skin, female, collected by H. Grote at Mikindani, 29.08.1909.

Type locality: Mikindani [Mikindani, Mtwara Region, Tanzania].

Remarks: In the description of *Batis reichenowi* Grote, 1911, no type was chosen, but both male and female were described and measurements for more than one specimen were given. Grote wrote that he collected the specimens at Mikindani. In two other publications Grote (1912, 1913) gave an overview of his collection from Tanzania. He listed three specimens (Grote numbers 179, 214, 215) from Mikindani as *Batis reichenowi* (Grote 1913: 126). Therefore, these three specimens are regarded as syntypes of *Batis reichenowi*.

Saxicola thoracica Lichtenstein, 1823: 32

Now: *Batis capensis capensis* Linnaeus, 1766. See Sharpe (1879).

Syntype: ZMB 2828, skin, former mount, male, collected by Ludwig Krebs in South Africa between 1820 and 1822.

Type locality: “Cape” = (Cape of Good Hope, South Africa), here changed to South Africa (see remarks).

Remarks: The description is part of an auction catalogue (Lichtenstein 1823). In the description no type was chosen, but Lichtenstein based the description on males only (“*capitis ducta fasciaque pectoris lata atris*” = head and breast with broad black band). All specimens of males offered in the auction as well as the specimens remaining in the general collection (registered mounts) and in the collection of duplicates (unregistered skins) with that species name during that time are to be considered syntypes. For all these categories the number of specimens is unknown. Furthermore, it is unknown where the specimen(s) from the auction ended up. In his printed overview about the collection Lichtenstein (1854) listed two specimens of *Platystira thoracica* and four of *P. strepitans* Lichtenstein, 1854, which was later corrected to 6 specimens of *P. strepitans* (handwritten correction on the printed copy in the

TABLE 1. List of collecting localities and collectors of the specimens. The co-ordinates are given for exact localities. The collecting year(s) for the collector at that locality are given in brackets.

Original location name (label)	Updated location name	Feature type	Province, country	Latitude/Longitude	Source for georeferencing	Collector/collecting year for the locality
Bagamojo	Bagamojo	populated place	Pwani Region, Tanzania	6° 26' 32" S, 38° 54' 15" E	geonames.org	Emil Steudel (1893)
Bondei			Tanga Region, Tanzania			Gustav Adolf Fischer (1883)
Bussissi	Busisi	populated place	Mwanza Region, Tanzania	2° 44' 0" S, 32° 52' 0" E	geonames.org	Emin Pasha (1890) (Emin Pascha, Eduard Karl Oskar Theodor Schnitzer)
Dar es Salaam	Dar-es-Salaam	populated place	Dar-es-Salaam, Tanzania	6° 49' 24" S, 39° 16' 10" E	geonames.org	Franz Stuhlmann (1894)
Fajao	Fajao	populated place	Bunyoro District, Uganda	2° 16' 6" N, 31° 42" E	Polhill (1988)	William John Ansorge (1897)
Gambaga Hinterland	Gambaga	populated place	Northern Region, Ghana	10° 31' 55" N, 0° 26' 16" W	geonames.org	William J. Giffard (1898)
Gandu	Gando Namoni	populated place	Savanes, Togo	10° 19' 57" N, 0° 44' 41" E	geonames.org	Gaston Thierry (1898)
Groß Aruscha	Aruscha	populated place	Arusha Region, Tanzania	3° 22' 0" S, 36° 41' 0" E	geonames.org	Gustav Adolf Fischer (1883)
Kahe	Kahe	populated place	Kilimanjaro Region, Tanzania	3° 30' 0" S, 37° 26' 0" E	geonames.org	Oscar Neumann (1895)
Kakoma	Kakoma	populated place	Tabora Region, Tanzania	5° 47' 0" S, 32° 26' 0" E	geonames.org	Richard Böhm (1881)
Butumbi	Katanda (region near)	region	Kigezi District, Uganda	0° 55' 0" N, 29° 59' 0" E	Polhill (1988)	Emin Pasha (1891)
Kwa Raschuonjo in Kavirondo	Karachuonyo	populated place	Homa Bay County, Kenya	0° 26' 24" S, 34° 41' 20" E	Polhill (1988)	Oscar Neumann (1894)
Kete Krachi	Kete Krachi	populated place	Volta Region, Ghana	7° 47' 38" N, 0° 2' 59" W	geonames.org	(Johann Nepomuk Felix) Julius (Graf) von Zech (auf Neuhofen) (1899)
Kikumbuli	Kikumbuliyu	populated place	Makueni County, Kenya	2° 37' 0" S, 38° 02' 0" E	Polhill (1988)	Oscar (Rudolph) Neumann (1894)
Kimbugu in Toro	Kimbugu	populated place	Toro District, Uganda	0° 27' 0" N, 30° 12' 0" E	Robert J. Dowsett (pers. comm.)	William John Ansorge
Klonu (Agome)	Klonou	populated place	Plateaux, Togo	6° 50' 0" N, 0° 41' 0" E	geonames.org	Ernst Baumann (1894)
Kwa Mtessa	Kwa Mtessa	populated place	West Mengo District, Uganda	0° 40' 0" N, 32° 9' 0" E	Chapin (1954)	Oscar (Rudolph) Neumann (1894)
Makindu	Makindu	populated place	Makueni County, Kenya	2° 16' 41" S, 37° 49' 7" E	geonames.org	Oscar (Rudolph) Neumann (1894)
Malangali	Malangali	populated place	Iringa Region, Tanzania	8° 34' 0" S, 34° 51' 0" E	geonames.org	Wilhelm Ludwig Heinrich von der Marwitz (1899)
Marangu	Marangu	populated place	Kilimanjaro Region, Tanzania	3° 17' 0" S, 37° 31' 0" E	geonames.org	Wilhelm Ludwig Heinrich von der Marwitz (1899)

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TABLE 1. (Continued)

Original location name (label)	Updated location name	Feature type	Province, country	Latitude/Longitude	Source for georeferencing	Collector/collecting year for the locality
Mikindani	Mikindani	populated place	Mtwara Region, Tanzania	10° 16' 49" S, 40° 6' 52" E	geonames.org	Hermann (Johannes) Grote (1909)
Misahöhe	Missahohe	populated place	Plateaux, Togo	6° 57' 0" N, 0° 35' 0" E	geonames.org	Ernst Baumann (1894–1895)
Milalo	Milalo, Lushoto	populated place	Tanga Region, Tanzania	4° 35' 0" S, 38° 21' 0" E	geonames.org	Karl Röhl [1904–1906].
Mombasa	Mombasa	populated place	Coast Province, Kenya	4° 3' 16" S, 39° 39' 48" E	geonames.org	Gustav Adolf Fischer (1877)
Mpapwa	Mpapwa	populated place	Dodoma Region, Tanzania	6° 21' 0" S, 36° 29' 0" E	geonames.org	Emin Pasha (1890)
Humbluti	Nambutu	populated place	Lindi Region, Tanzania	10° 31' 0" S, 37° 56' 0" E	Donald A. Turner (pers. comm.), see Tanzania, Gazetteer No 92 (1965)	N. Stierling (1900)
Pangani	Pangani	river or region	Tanga Region, Tanzania			Gustav Adolf Fischer (1881), Franz Stuhlmann (1894)
Podji	Podji	populated place	Plateaux, Togo	6° 57' 0" N, 0° 38' 0" E	Dowsett-Lemaire & Dowsett (2019)	Ernst Baumann (1894)
Quilimane	Quelimane	populated place	Provincia de Zambezia, Mozambique	17° 52' 43" S, 36° 53' 18" E	geonames.org	Franz Stuhlmann (1889)
River Rovuma	Rovuma	river	Tanzania / Mozambique			Thomson, Joseph
Simbareni	Simbamweni	populated place	Morogoro Region, Tanzania	6° 40' 0" S, 37° 47' 0" E	geonames.org	Richard Böhm (1880)
Songea	Songea	populated place	Ruvuma Region, Tanzania	10° 41' 0" S, 35° 39' 0" E	geonames.org	Friedrich (Georg Hans Heinrich) Fülleborn [1898–1900], N. Stierling (1900)
Taita	Taita Hills	mountains	Taita-Taveta County, Kenya	3° 24' 15" S, 38° 19' 40" E	geonames.org	Johann Maria Hildebrandt (1877)
Tanafluß	Tana	river	Kenya			Gustav Adolf Fischer (1881)
Ugalla	Ugalla	river	Tabora Region, Tanzania			Richard Böhm (1881)
Undi	Undi	populated place	Ruvuma Region, Tanzania	11° 17' 0" S, 37° 20' 0" E	geonames.org	Friedrich (Georg Hans Heinrich) Fülleborn [1898–1900]
Usaramo	Usaramo Country	area	Pwani Region, Tanzania	6° 50' 0" S, 38° 30' 0" E	Polhill (1988)	Gustav Adolf Fischer (1882)
Wakkala	Wakkala	populated place	Eastern Equatoria, South Sudan	4° 43' 0" N, 32° 28' 0" E	Chapin (1954), Robert J. Dowsett (pers. comm.)	Emin Pasha (1881)
Sansibar	Zanzibar	island	Zanzibar, Tanzania			Gustav Adolf Fischer (1876–1878), Franz Stuhlmann (1888)

ZMB collection library). The General Collection Catalogue ZMB-AVES gives no specimens for *P. thoracica* but 6 specimens of *P. strepitans* [ZMB 2827–2829, ZMB 2831–2833, General Collection Catalogue ZMB-AVES around 1856: collected by L. Krebs (1792–1844), J. L. L. Mund (1791–1831) and L. Maire, one specimen from the collection of W. Bullock (1773–1849)], which means that the collection catalogue was produced later than Lichtenstein (1854) or independent of it. The corrections in Lichtenstein (1854) were done to bring the information of this printed work to the same standard as the collection catalogue. On the other hand, this indicates that Lichtenstein himself in fact regarded two of the six *P. strepitans* as *P. thoracica* around 1854 and that these are possible syntypes for *P. thoracica* (depending on their entry date to the museum).

As there were no inventory numbers given in the collection before 1856, the type(s) in the ZMB collection can only be identified by their historical documentation such as shipments and labels, and this was only partly possible. Four of the six specimens of *P. strepitans/thoracica* in the ZMB collection were sent by Krebs (ZMB 2828, ZMB 2831–2833). According to the shipment lists there were only three specimens of *P. strepitans* that came with Krebs' seventh shipment from "Vorgebirge der Guten Hoffnung" [South Africa] and arrived on 20 October 1823 in Berlin (Ffolliott & Liversidge 1971). They all (two males, one female) were included in the collection and are mentioned in the entry catalogue of the museum (Lichtenstein 1811–1857; 124, 69–71). As the introduction to the auction catalogue of Lichtenstein was written in September 1823, the entry of the shipment would have been theoretically too late for inclusion in the auction catalogue. However, Lichtenstein could potentially have added a further individual later. Another possibility is that specimens arrived with earlier shipments without determinations or with an erroneous one. As an unequivocal assignment of the specimens to a single shipment is not possible, the locality cannot be ascertained. Further, the locality "Cape" as given in the description cannot be confirmed.

ZMB 2831–2833 each bear the name *P. strepitans* on their historical label. ZMB 2833 is a female and cannot be a type specimen. For ZMB 2828 the name *Saxicola thoracica* was written on a historical label during in the process of producing a study skin from the mount, a process then done especially with types (possibly around 1890). Unfortunately, the label of the mount was not kept. On the remaining label the specimen is determined as a type specimen for *Saxicola thoracica*. As this is the only specimen with the historical name *S. thoracica* in the ZMB collection, ZMB 2828 is regarded as a syntype for this species.

Specimen ZMB 2827 of the Bullock Collection arrived in Berlin in 1819 but became lost after 1856. Thus, the historical label is no longer available, and it could have been a further syntype. ZMB 2829 was sent by Mund and Maire, and arrived in Berlin in December 1823, too late to be a type specimen. On the historical label of the former mount ZMB 2829 and in the shipment list, *P. strepitans* is written, meaning that Lichtenstein (1854) listed this specimen as *P. strepitans*.

In summary, ZMB 2828 is the only specimen which can be assigned to the type series of *Saxicola thoracica* Lichtenstein, 1823. In the description, "Cape" is given as the locality. The collection catalogue gives "Südafrika" [Southern Africa] for ZMB 2828. The shipment lists for the Krebs specimens before 1823 give "Vorgebirge der Guten Hoffnung". As this is a very rough locality, and the specimens were not unquestionably assigned to the single shipments, we give South Africa as the type locality. The whereabouts of other possible type specimens from the auction are unknown.

***Batis puella* Reichenow, 1893: 124–125**

Now: *Batis molitor puella* Reichenow, 1893. See Mayr *et al.* (1986: 381).

Lectotype (herein designated; see below for explanation): ZMB 30415 (Emin Pasha, no. 689), skin, female, collected by Emin Pasha at Bussissi, 16.10.1890.

Paralectotype: ZMB 30416 (Emin Pasha, no. 491), skin, male, collected by Emin Pasha at Bussissi, 30.09.1890.

Paralectotype: ZMB 2000.64612, skin, female, collected by J. M. Hildebrandt in Taita, 07.1877.

Paralectotype: ZMB 2000.64611 (Böhm, no. 632), skin, female, collected by R. Böhm at Kakoma, 29.08.[1881].

Paralectotype: ZMB 2000.64623 (Böhm, no. 700), mount, female, collected by R. Böhm in Ugalla, 28.10.[1881].

Paralectotype: ZMB 2000.64627 (Böhm, no. 649), skin, female, collected by R. Böhm at Kakoma, 01.09.[1881].

Paralectotype: ZMB 2000.64630 (Böhm, no. 631), skin, male, collected by R. Böhm at Kakoma, 29.08.[1881].

Paralectotype: ZMB 30279, skin, male, collected by Emin Pasha at Butumbi, 28.04.1891.

Paralectotype: ZMB 2000.64566 (Emin Pasha, no. 128), skin, male, collected by Emin Pasha at Mpapwa, 17.06.1890.

Paralectotype (missing): collected by R. Böhm at Kakoma, 07.04.[1881].

Excluded Paralectotype (*B. soror*): ZMB 24759 (B 15694, Fischer, no. 162), skin, former mount, female, collected by G.A. Fischer

on Sansibar, 29.03.[18]78.

Excluded Paralectotype (*B. soror*): ZMB 23536 (B 15041, Fischer, no. 83), mount, female, collected by G.A. Fischer at Mombassa, 26.06.[18]77.

Excluded Paralectotype (*B. soror*): ZMB 28018 (Stuhlmann, no. 607), skin, male, collected by F. Stuhlmann at Quilimane, 29.01.1889.

Excluded Paralectotype (*B. soror*): ZMB 28019 (Stuhlmann, no. 612), skin, female, collected by F. Stuhlmann at Quilimane, 29.01.1889.

Excluded Paralectotype (*B. soror*): ZMB 28020 (Stuhlmann, no. 608), skin, male, collected by F. Stuhlmann at Quilimane, 29.01.1889.

Excluded Paralectotype (*B. soror*): ZMB 2000.6501 (Stuhlmann, no. 612), skin, female, collected by F. Stuhlmann at Quilimane, 29.01.1889.

Excluded Paralectotype (*B. soror*): ZMB 2000.64515 (Stuhlmann, no. 272), skin, male, collected by F. Stuhlmann on Sansibar, 03.11.1888.

Excluded Paralectotype (possibly *B. pririt* Vieillot, 1818, missing): Fischer, no. 631, juvenile, collected by G.A. Fischer at Bondei, 06.01.[1883].

Excluded Paralectotype (possibly *B. pririt* Vieillot, 1818, missing): Fischer, no. 938, male, collected by G.A. Fischer at Gross-Aruscha, 16.07.[1883].

Excluded Paralectotype (possibly *B. pririt* Vieillot, 1818, missing): Fischer, no. 1014, female, collected by G.A. Fischer at Pangani, 23.08.[1883].

Excluded Paralectotype (possibly *B. soror*, missing): collected by G.A. Fischer on the River Tana [1878].

Excluded Paralectotype (possibly *B. soror*, missing): collected by R. Böhm at Simbareni, 10.08.[1880].

Excluded Paralectotype (possibly *B. soror*, missing): collected by Thomson (?) at River Rovuma.

Type locality: Due to the lectotypification herein, the type locality of *Batis puella* is ascertained as Bussissi [Busisi, Mwanza Region, Tanzania].

Remarks: In the description, no single type or series of types was chosen. In principle, all listed specimens (more than 18, see Reichenow 1893) should therefore be regarded as syntypes. Seventeen of them were traced in the collection in the ZMB, Berlin (characterized by collecting data published in the description). The whereabouts of the missing specimens collected by Böhm, Fischer and Thomson are unknown. The missing specimens of Fischer of the localities Bondei, Gross-Aruscha and Pangani are listed as *Platystira pririt* in Fischer (1884), whereas the listed locality Loeru, Nduatian is given as observation for *Batis pririt* in Reichenow (1887). Both specimens of F. Stuhlmann ZMB 28019 as well as 2000.6501 have the collector's number 612 on their labels, but only ZMB 2000.6501 has an original collector's label, so the collector's number of ZMB 28019 seems to be wrong. Neumann (1907a) determined that Reichenow (1893) included three different taxa in his description of *puella* and he assigned the species to the "form" which lives in "Ost-Afrika vom Norden des Nyassa Sees bis Uganda, im Westen bis an den Tanganyka und Kivu-See" (East Africa from north of Lake Nyassa to Uganda in the west, also to Lake Tanganyika and Lake Kivu). In a recent examination by ML, it was confirmed that the type series is indeed mixed, containing specimens belonging to *B. molitor puella* and to *B. soror*. To fix the name *Batis puella* on *B. molitor puella*, a lectotypification is necessary. The remainder of Reichenow's (1893) syntypes (those actually determined as *B. m. puella*) were taken at no less than 6 different localities. Because Vincent (1934) indicated "type from Bussisi" for *B. m. puella*, we formally designate ZMB 30415 (Emin Pasha, no. 689), female, as the lectotype of *Batis molitor puella*. This is the only female collected at the locality Busisi, and females are more diagnosable at species level than males in this taxon, as with many taxa in the genus *Batis*. The specimen is smaller than *B. molitor molitor*, according to measurements given by the collector (total length 113 mm, wing 57.5 mm, tail 38 mm) and has a narrower chestnut breastband than in *B. m. molitor*. Concerning the designation of a lectotype, the type locality is ascertained to be Bussissi [Busisi, Mwanza, Tanzania]. Of all the remaining former syntypes, only those that were determined as *B. m. puella* are regarded as paralectotypes; the specimens determined as *B. soror* are excluded from the syntype series.

***Batis mystica* Neumann, 1907b: 594**

Now: *Batis molitor puella* Reichenow, 1893. See Mayr *et al.* (1986: 381).

Holotype: ZMB 34027 skin, male, collected by O. Neumann at Kikumbuliu, 16.12.1894.

Paratype: male, collected by O. Neumann at Makindu, 15.01.1906.

Type locality: Kikumbuliu [Kikumbuliyu, Makueni County, Kenya].

Remarks: In the description ZMB 34027 was chosen as the type specimen and is therefore the holotype. Neumann mentioned another specimen from Kenya in his collection which is therefore a paratype, but its whereabouts are unknown. The holotype is given as *Pachyprora molitor puella* in Neumann (1900: 256).

***Muscicapa molitor* (Lichtenstein) Küster, 1850: 12**

Now: *Batis molitor molitor* (Küster, 1850). See Mayr *et al.* (1986: 381).

Syntype: ZMB 2838, skin, female, collected by L. Krebs in Kaffernland [South Africa].

Syntype: ZMB 2840, skin, female, collected by L. Krebs in Kaffernland [South Africa].

Type locality: “südliches Afrika” [Southern Africa], ascertained as South Africa.

Remarks: Lichtenstein used the name *Batis molitor* in the collection without describing the species. As Küster (in Hahn & Küster 1850) gave the first description for this species, he is regarded as the author of that species' name. In the description no type was chosen.

Theoretically, all the specimens in the Berlin collection of 1850 which are determined as *B. molitor* [4, General Collection Catalogue ZMB-AVES, Lichtenstein (1854)] should be regarded as syntypes [ZMB 2837–2840, *Muscicapa (Platystira) molitor*]. However, Küster (1850) only described the plumage of the female and gave only the female phenotype in the figure. Therefore, only females of this species can be regarded as belonging to the type series (contra Neumann 1907a: 356). This is of special significance because in the collection catalogue and on the labels, as well as in Lichtenstein (1854), both males and females of *Batis molitor* were identified as belonging to that species. Thus, Küster must have seen both males and females in the collection but did not describe the very obvious sexual dimorphism of the species.

The four specimens of *B. molitor* in the collection from around 1850 were all collected by Ludwig Krebs. Lichtenstein associated many birds from this collector to the locality “Kaffernland” without separating the different localities given by Krebs. In the shipment lists, *Muscicapa molitor* is given for the ninth and tenth shipment (two males and four females, which arrived on 22.6.1825 in Berlin) and for the twelfth shipment (four males and three females, which arrived on 21.6.1830 in Berlin) (Ffolliott & Liversidge 1971). Of these, only three specimens are listed in the entry catalogue (1811–1857) by Lichtenstein, 184/116–118 (one female, two unsexed) for 1825. No details for the shipment that arrived at the museum in 1830 are available in that catalogue. Another handwritten catalogue of 1825 (Anonymous 1825) provides the information that in 1825 four specimens of *Batis molitor* (two males and two females) of the ninth shipment of Krebs were mounted for the collection. Thus, it seems most probable that the four specimens (ZMB 2837–2840) in the collection belonged to that shipment. As the shipment arrived from “Vorgebirge der Guten Hoffnung” [South Africa], South Africa is regarded as the type locality. Stresemann (1954) and Ffolliott & Liversidge (1971) gave Baviaans River 1824 as collecting data without mentioning in detail where the information came from. A printed auction catalogue of 1835 lists two specimens of *Muscicapa molitor* from “Kaffernland” (nos. 637 and 638, Lichtenstein 1835). Possibly the specimens that arrived in 1830 were given directly in the collection of duplicates. It was intended that they would be given away through auctions or exchange, in which case they were not mounted and so were not available for scientific work in the collection. Specimens ZMB 2834–2836 do not belong to the type series as they are males and were listed as *Muscicapa (Platystira) melanoleuca* Lichtenstein, 1854 in the General Collection Catalogue ZMB-AVES. ZMB 2837 and ZMB 2839 are determined as *Muscicapa (Platysteira) molitor* in that catalogue, but they are also males and thus cannot be types. Only ZMB 2838 and ZMB 2840 are females and are regarded as the syntypes for *B. molitor*. Stresemann (1954) selected ZMB 2837 as the type specimen, according to a note on the label, evidently without realising that Küster (1850) had described the female only.

***Batis senegalensis togoensis* Neumann, 1907a: 350**

Now: *Batis senegalensis* (Linnaeus, 1766). See Mayr *et al.* (1986: 383).

Holotype: ZMB 2000.64642, skin, female, collected by E. Baumann at Misahöhe, 01.11.1894.

Paratype: ZMB 2000.64634 (Baumann, no. 92), skin, male, collected by E. Baumann at Klonu (Agome), 14.10.1894.

Paratype: ZMB 2000.64635, skin, male, collected by G. Thierry at Gandu, 28.06.1898.

Paratype: ZMB 2000.64641, skin, female, juvenile, collected by E. Baumann at Podji, Misahöhe, 28.05.1894.

Paratype: ZMB 2000.64644 (Zech, no. 70), skin, male, juvenile, collected by (J. von Zech at Kete Krachi, 28.01.1899.

Paratype: ZMB 2000.64647, skin, male, collected by E. Baumann at Misahöhe, 01.03.1895.

Paratype: AMNH Birds SKIN-649176, male, collected by Capt. W. Giffard in the Gambaga Hinterland, Goldküste, 04.06.1898.
<http://portal.vertnet.org/o/amnh/birds?id=skin-649176> (16.11.2020).

Type locality: Misahöhe [Missahoe, Plateaux, Togo].

Remarks: In the description of *B. senegalensis togoensis* Neumann, 1907a, it is clear from collection data that ZMB 2000.64642 was chosen as the type specimen and is therefore the holotype. At least seven specimens (characterized by their collecting data) from Ghana and Togo were listed as material studied. Therefore, these specimens (excluding the holotype) should be regarded as paratypes as listed above. The specimens that were in Rothschild's private collection in Tring, UK in 1907 were transferred to the AMNH as part of Rothschild's sale of his bird collection. The type locality was ascertained for the holotype as Misahöhe [Missahoe, Plateaux, Togo] (Mayr *et al.* 1986).

***Batis puella soror* Reichenow, 1903: 485**

Now: *Batis soror* Reichenow, 1903. See Mayr *et al.* (1986: 382).

Syntype: ZMB 24759 (B 15694, Fischer, no. 162), skin, former mount, female, collected by G.A. Fischer on Sansibar, 29.03.[18]78.

Syntype: ZMB 28018 (Stuhlmann, no. 607), skin, male, collected by F. Stuhlmann at Quilimane, 29.01.1889.

Syntype: ZMB 28019 (Stuhlmann, no. 612), skin, female, collected by F. Stuhlmann at Quilimane, 29.01.1889.

Syntype: ZMB 28020 (Stuhlmann, no. 608), skin, male, collected by F. Stuhlmann at Quilimane, 29.01.1889.

Syntype: ZMB 2000.6501 (Stuhlmann, no. 612), skin, female, collected by F. Stuhlmann at Quilimane, 29.01.1889.

Syntype: ZMB 2000.6502, skin, male, collected by F. Fülleborn at Undi, [1898–1900].

Syntype: ZMB 2000.64515 (Stuhlmann, no. 272), skin, male, collected by F. Stuhlmann on Sansibar, 03.11.1888.

Syntype: ZMB 2000.64541 (B 53, Stierling, no. 154), skin, male, collected by N. Stierling at Humbluti, 16.08.1900.

Syntype: ZMB 2000.64543 (B 53, Stierling, no. 83), skin, male, juvenile, collected by N. Stierling at Songea, 18.07.1900.

Syntype: ZMB 2000.64544 (B 53, Stierling, no. 143), skin, male, collected by N. Stierling at Songea, 06.08.1900.

Syntype: ZMB 2000.64545 (B 53, Stierling, no. 130), skin, female, collected by N. Stierling at Songea, 03.08.1900.

Syntype: ZMB 2000.64546, skin, male, collected by F. Fülleborn at Songea, 07. [1898–1900].

Syntype: ZMB 2000.64547 (Marwitz, no. 92), skin, female, collected by W.L.H. von der Marwitz at Malangali, 26.08. 1899.

Syntype: ZMB 2000.64563 (B 53, Stierling, no. 82), skin, male, collected by N. Stierling at Songea, 18.07.1900.

Type locality: “Sansibar und Niassagebiet bis Quilimane” [Zanzibar and the Lake (Nyassa) Malawi region to Quelimane, Tanzania, Mozambique].

Remarks: In the description of *Batis puella soror* Reichenow, 1903, no type was chosen. All the listed specimens are mentioned as studied material (characterized by their collecting data) in the description and are regarded as syntypes. For all types, the locality and month, but no numbers are given, so there might be further syntypes outside the ZMB. Neumann (1907a) wrongly excluded specimen ZMB 2000.64547 of the type series and corrected the *locus typicus* to “Songea” when he excluded the subspecies *B. m. littoralis* Neumann, 1907a.

***Batis molitor littoralis* Neumann, 1907a: 356**

Now: *Batis soror* (Reichenow, 1903). See Mayr *et al.* (1986: 382).

Holotype: ZMB 24759 (B 15694, Fischer, no. 162), skin, former mount, female, collected by G.A. Fischer on Sansibar, 29.03.76 [1878, error on the museum label as Fischer arrived in Zanzibar in 1877 for the first time].

Paratype: ZMB 23536 (B 15041, Fischer, no. 83), mount, female, collected by G.A. Fischer at Mombassa, 26.06.[18]77.

Paratype: ZMB 2000.64515 (Stuhlmann, no. 272), skin, male, collected by F. Stuhlmann on Sansibar, 03.11.1888.

Possible Paratype (missing): SMNS 10965 female, collected by E. Steudel at Bagamojo, Central Ostafrika, 1893.

Excluded Paratype (*B. molitor puella*): ZMB 2000.64599 (B 345, Röhl, no. 822), skin, male, collected by K. Röhl at Mlalo, [1904–1906].

Excluded Paratype (*B. molitor puella*): ZMB 2000.64600 (B 345, Röhl, no. 551), skin, female, collected by K. Röhl at Mlalo, [1904–1906].

Excluded Paratype (*B. molitor puella*): ZMB 2000.64602 (B 345, Röhl, no. 551), skin, male, collected by K. Röhl at Mlalo, [1904–1906].

Type locality: “Sansibar und ... die gegenüberliegende Küste” [Zanzibar and the coast of Tanzania next to Zanzibar, Tanzania], The type locality is ascertained as Zanzibar [Zanzibar, Tanzania] regarding the locality of the holotype (see Mayr *et al.* 1986).

Remarks: In the description ZMB 24759 was chosen as the type specimen and is therefore the holotype. The specimen is characterized by its collecting data given in the description. In summary, there were at least six specimens (characterized by their collecting data) given as studied material. Therefore, these specimens (excluding the holotype) should be regarded as paratypes. Five of them could be traced in the collection in Berlin. The specimen that Neumann had seen at the museum in Stuttgart was inventoried in the SMNS as *Batis molitor* but is missing today and has been since at least the 1970s (according to the museum inventory). The three specimens (ZMB 2000.64599, ZMB 2000.64600, and ZMB 2000.64602) mentioned by Neumann (1907a) as having been collected by Karl Röhl in Wilhelmsthal (Usambara) [Mlalo/Lushoto, Tanga, Tanzania] arrived as part of a shipment of more than 500 specimens in Berlin in April 1906. They have now been determined as *Batis molitor puella* and are thus removed from the list of possible paratypes of *B. m. littoralis*. Neumann (1907a) gave: “Sansibar und ... die gegenüberliegende Küste” (Zanzibar and the coast of Tanzania next to Zanzibar [Tanzania]) as type locality. The type locality of the holotype of *Batis molitor littoralis* Neumann, 1907a was ascertained as Zanzibar (Tanzania) (see Mayr *et al.* 1986).

***Batis minor suahelicus* Neumann, 1907a: 353**

Now: *Batis minor suahelica* Neumann, 1907a. But see Mayr *et al.* (1986: 384).

Syntype: ZMB 2000.64511, skin, female, collected by G.A. Fischer at Pangani, 09.1881.

Syntype: ZMB 2000.64513, skin, male, collected by G.A. Fischer in Usaramo, 01.1882.

Syntype: ZMB 2000.64562, skin, male, collected by G.A. Fischer in Usaramo, 01.1882.

Syntype: ZMB 32010 (Stuhlmann, no. 32), skin, male, juvenile (female given by Neumann 1907a), collected by F. Stuhlmann at Pangani, 20.01.1894.

Syntype: ZMB 2000.64512 (Stuhlmann, no. 170), skin, male, collected by F. Stuhlmann at Dar-es-Salaam, 28.03.1894.

Syntype: ZMB 34024 skin, male, collected by O. Neumann at Kahe, 13.01.1895.

Syntype: ZMB 2000.64514, skin, male, collected by W.L.H. von der Marwitz at Marangu, 1895.

Syntype (missing): female, collected by R. Böhm, no locality given.

Type locality: “Deutsch Ost Afrika und südlicher Teil von Englisch Ost Afrika (Mombassa und Teita)” [Tanzania and south of Kenya], here referred to as eastern Tanzania and southeastern Kenya regarding the localities of the type specimens and the description (see also Louette 2006).

Remarks: In the description of *Batis minor suahelicus* Neumann, 1907a, no type was chosen. All the listed specimens are mentioned as studied material in the description, and by their collecting data are regarded as syntypes. The specimen collected by Böhm was not found in the collection. Neumann (1907a) mentioned further specimens of this species from the regions of Mombasa, Taita Hills and Malindi (including ZMB 23535, G.A. Fischer, Malindi and ZMB 2000.64673, J.M. Hildebrandt, Mombasa) which were not regarded as type specimens in the description as they are slightly smaller and seem transitional to *B. minor minor*. Although the description of *B. m. suahelicus* does not mention that a new subspecies is being described, but no other description of this subspecies is known and so Neumann (1907a) is generally accepted as the description (e.g. Mayr *et al.* 1986: 384). Specimen ZMB 34024 is given as *Pachyprora senegalensis* in Neumann (1900: 256). Sclater (1930: 422) wrongly restricted the locus typicus of *Batis minor suahelicus* as “Kaha, in the neighborhood of Kilimanjaro” because he interpreted ZMB 34024 as the holotype (ICZN 1999), although there is no hint that there is a holotype for this subspecies. This restriction has been taken by some authorities as a valid restriction of type locality (e.g. Mayr *et al.* 1986: 384).

***Batis minor nyansae* Neumann, 1907a: 354**

Now: *Batis erlangeri erlangeri* Neumann, 1907a. See Mayr *et al.* (1986: 384).

Holotype: ZMB 34025, skin, female, collected by O. Neumann at “Kwa Mtessa in Uganda”, 14.09.1894.

Paratype: ZMB 34026, skin, male, collected by O. Neumann at “Kwa Raschunjo in Kavirondo”, 06.03.1894.

Paratype (missing or AMNH Birds SKIN-649259): male, collected by W.J. Ansorge at Kimbugu in Toro.

Paratype: AMNH Birds SKIN-649266, male, collected by W.J. Ansorge at Fadjao in Unjoro, 14.07.1897. <http://portal.vertnet.org/o/amnh/birds?id=skin-649266> (10.06.2020).

Paratype: AMNH Birds SKIN-649285, female, collected by Emin Pasha (collector not given in VERTNET) at Wakkala, 25.04.[1881 (Robert J. Dowsett, pers. comm.)], <http://portal.vertnet.org/o/amnh/birds?id=skin-649285> (10.06.2020).

Type locality: “Nord- und Ost-Küste des Victoria Nyansa, Albert Nyansa und oberer Weißer Nil” [north and east coast of the Lake Victoria, Lake Albert and the upper White Nile], ascertained as “Kwa Mtessa in Uganda” [Kwa Mtessa, West Mengo District, Uganda] (see Mayr *et al.* 1986).

Remarks: In the description of *Batis minor nyansae* Neumann, 1907a, the holotype (“Typus”) chosen was specimen ZMB 34025, collected by Oscar Neumann at “Kwa Mtessa in Uganda”. The collecting date is given as 14.09. on the museum label. The date 14.11. in the description seems to be wrong (*Pachyprora senegalensis*, Neumann 1900: 256). Neumann (1907a) listed 5 further specimens in the collection in Berlin and Tring (Rothschilds private collection) as additional material he studied. All these specimens (characterized by their collecting data) are regarded as paratypes. The specimens that were in Tring in 1907 were moved to the AMNH as part of the sale of Rothschild’s bird collection. AMNH Birds SKIN-649266 and AMNH Birds SKIN-649285 have the exact same collecting information as given in Neumann (1907a). However, AMNH Birds SKIN-649266 is given as male (see above), whereas in the description (Neumann, 1907a) this specimen is mentioned as female. AMNH Birds SKIN-649259 (male, collected at Mahaji, (Mahagi Port), western shore of Lake Albert by Ansorge, on 16.08.1897) could not be identified with certainty as the paratype mentioned by Neumann (1907a). Neumann (1900: 256) gives a wrong inventory number for ZMB 35026 (35025). In the same publication Neumann mentions a third specimen for *Pachyprora senegalensis* (ZMB 35024) that was not mentioned in the type series (Neumann 1907a).

The habitat was given in the description as “Nord- und Ost-Küste des Victoria Nyansa, Albert Nyansa und oberer Weißer Nil” (northern and eastern shores of Lake Victoria, Lake Albert and the upper White Nile). It was ascertained as “Kwa Mtessa in Uganda” [Kwa Mtessa, west Mengo District, central Uganda], indicating the locality of the holotype (see Mayr *et al.* 1986).

Additional remarks

Lichtenstein published three further names based on specimens of the genus *Batis* in the Nomenclator (Lichtenstein 1854). As he gave no descriptions the names *Platystira strepitans* Lichtenstein, 1854, *Platystira succincta* Lichtenstein, 1854 and *Platystira melanoleuca* Lichtenstein, 1854 are *nomina nuda*.

The holotype and paratype of *Batis minor congoensis* Neumann, 1907a (now *B. erlangeri congoensis*), were said to be specimens collected by Friedrich Bohndorff (1848–1921) in the SMNS. Neumann (1907a) also mentioned two specimens of the collection in Berlin (ZMB 2000.64659, ZMB 31817, characterized by their collecting data) as further material he had seen, but these do not belong to the new described subspecies (Neumann (1907a) said: the form from Cameroon differs and should be named later if more material becomes available). Both specimens have now been determined as *B. erlangeri erlangeri* (see Louette 2005a). Additionally they were collected in Cameroon outside the distribution area of *B. m. congoensis* (see fig 2 in Louette 2005b). They do not belong to the type list, as Neumann (1907a) excluded them.

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