

# The type material of Calopterygidae in the Museum für Naturkunde in Berlin (Odonata)

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**Abstract.** A catalogue is presented listing all species-group names associated with type specimens of the family Calopterygidae (Odonata) currently housed in the entomological collection of the Museum für Naturkunde – Leibniz Institute for Evolution and Biodiversity Science in Berlin (Germany). Information on the current status of the species-group names, transcriptions of data labels and references to the original descriptions are provided.

**Further key words.** Zygoptera, catalogue, collecting locality, collector, verbatim label, type.

## Introduction

In the scientific literature there are numerous references to the type material held in the odonatological collection of the Museum für Naturkunde – Leibniz Institute for Evolution and Biodiversity Science in Berlin, Germany (MNB), which collectively provide much information on the holdings, but to date there has been no specific catalogue of this material.

As the first steps in checking the status of the Zygoptera housed in the entomological collections in Berlin began in 2011, it became more and more evident that many mistakes in attaching labels had occurred. Some of the “type material” – meaning in this case all specimens bearing a type label – does not belong to the original or designated type series as required by the terms of the International Code of Zoological Nomenclature. Many specimens were clearly collected after the original description had been published, but nevertheless had received a type label. Such cases create chaotic ambiguity. Incorrect type labels discovered in Berlin have not yet been removed or marked as invalid, but have been privately documented by the author. The reverse problem is an absence of information: many specimens did not receive any type label although they belong to the original or designated type series by the terms of the International Code of Zoological Nomencla-

ture (ICZN 1999). Therefore, for the benefit of the international community of odonatologists, it appeared important to create a detailed catalogue of type material held in Berlin.

The first group, treated here, is the family Calopterygidae. According to HÄMÄLÄINEN (2016), there are 326 available species-group names in this family worldwide, of which he recognizes 180 as representing good species. Only six species-group names associated with type material housed in Berlin are available. These names were introduced by Hermann August Hagen (1817–1893), Ferdinand Karsch (1853–1936) and Philip Powell Calvert (1871–1961).

Altogether, there are 12 specimens, seven males (six syntypes, one paratype) and five females (one holotype, three syntypes, one paratype), respectively. Although this project was undertaken to provide curatorial information for taxonomists, it has no taxonomic aims as such. Therefore no lectotypes are designated. This is in accord with the Recommendation 74G of the International Code of Zoological Nomenclature, which states: »The designation of lectotypes should be done as part of a revisionary or other taxonomic work to enhance the stability of nomenclature, and not for mere curatorial convenience« (ICZN 1999).

The approval of the “EoS” project at the Museum für Naturkunde in Berlin enabled workers within about 3.5 years to digitize contents of 10 000 insect boxes and among them data relating to 10 000 single specimens, including type material. Only a small number of available pictures was selected to illustrate this study. The rest can be accessed on the internet (<http://www.digicoll.info/search>).

The following abbreviations are used: BMNH – Natural History Museum, London, UK; CM – Carnegie Museum, Pittsburgh, USA; EoS – Erschließung objektreicher Spezialsammlungen [indexing of special collections that are rich in objects]; IRSNB – Institut royal des Sciences naturelles de Belgique, Brussels, Belgium; MCZ – Museum of Comparative Zoology, Cambridge, UK; MNB – Museum für Naturkunde, Berlin, Germany; MNHN – Muséum national d’Histoire naturelle, Paris, France; NHMW – Naturhistorisches Museum Wien, Vienna, Austria.

### List of species-group names bearing type material

#### Original combination: *Echo incarnata* Karsch, 1892

Status: available species-group name; valid species

Current combination: *Archineura incarnata* (Karsch, 1892)

**Type material.** Two males; collecting locality: Mount Emei (Emei Shan), Sichuan province, China; collector: Franz Kricheldorf

Verbatim label data male 4a9573: (1) »Omi-shan / Westchina / Kricheldorf S.« [printed; "S" stands for the German word "Sammler", i.e., collector]; (2) »Typus« [printed]; (3) »Echo / incarnata \* Karsch« [handwritten]; (4) »6613« [printed]; (5) »<http://coll.mfn-berlin.de/u/4a9573>« [printed].

Verbatim label data male 4a9574: (1) »Typus« [printed]; (2) »ad 6613« [handwritten]; (3) »Omi-shan / Westchina / Kricheldorf S.« [printed]; (4) »<http://coll.mfn-berlin.de/u/4a9574>« [printed].

**Notes.** KARSCH (1892) described two males: »[...] die Flügel sind glasig, glänzend, im Wurzel-Drittel jedoch undurchsichtig und prachtvoll matt roth, bei einem der beiden Exemplare tief carminroth, bei dem andern rosenroth, [...]«. Figure 1 shows the brighter one (»bei dem andern rosenroth«). He also gave further information concerning the collecting locality: »Omi-shan p. Kiating, China occidentalis«, and »Omi-shan ist nach Herrn Kricheldorf ein Berg von 11.000 Fuß Höhe«. According to HÄMÄLÄINEN (2015) the collector was Franz Kricheldorf (1854–1924), who assisted the explorer Antwerp Edgar Pratt (1850–1920) in Sichuan from March 1889 to October 1890. The two males found in Berlin collection should be considered syntypes.

#### Original combination: *Hetaerina infecta* Calvert, 1901

Status: available species-group name; valid species

Current combination: *Hetaerina infecta* Calvert, 1901

**Type material.** One male, one female; collecting locality: Atoyac, Veracruz, Mexico; collectors: Schumann and Herbert Huntingdon Smith

Verbatim label data male 4a9513: (1) »Atoyac, / Vera Cruz. / Schumann.« [printed]; (2) »Co-« [handwritten] / »Typus« [printed]; (3) »HETÆRINA« [printed] / »♂« [handwritten] / »INFECTA CALV.« [printed] / »cotype« [handwritten] / »P. P. Calvert det.« [printed], »1900« [handwritten]; (4) »B. C. A. Neur., p.« [printed], »39« [handwritten]; (5) »http://coll.mfn-berlin.de/u/4a9513« [printed].

Verbatim label data female 4a950b: (1) [a piece of abdomen adheres to the label]; (2) »Atoyac, / Vera Cruz. / May. H. H. S.« [printed]; (2) »Co-« [handwritten] / »Typus« [printed]; (3) »HETÆRINA« [printed] / »♀« [handwritten] / »INFECTA CALV.« [printed] / »cotype« [handwritten] / »P. P. Calvert



**Figure 1.** *Echo incarnata* Karsch 1892, synonym of *Archineura incarnata* (Karsch, 1892); male syntype in coll. MNB (♂ 4a9574), dorsal view.

det. « [printed], »1900« [handwritten]; (4) »B. C. A. Neur., p. « [printed], »39« [handwritten]; (5) »<http://coll.mfn-berlin.de/u/4a950b>« [printed].

**Notes.** CALVERT (1901–1908: 39) wrote: »Hab. Mexico, Presidio in Vera Cruz (Barrett, coll. P.P.C.: 1♀), Atoyac (H. H. Smith, Schumann: 24♂, 22♀); ?Guatemala, Panima in Vera Paz (Champion: 2♀ of large size, one having hind wing 36 mm. long, may belong here).« and described the two sexes in detail as well as their age related attributes (»young«, »old«). Because the primary type concept was not considered as important at that time as it is nowadays, Calvert, like many other authors, did not designate a particular specimen as the type. After completing this seminal work (CALVERT 1901–1908), in the concluding introduction that was written in November 1908, he designated several holotypes in the Biologia Centrali-Americana, including that of *Hetaerina infecta* Calvert, 1901 (CALVERT 1908). KIMMINS (1969: 305) accepted Calvert's designations and subsequent authors have stretched the rules to accept this. The male and the female preserved in the Berlin collection should consequently be considered paratypes. GARRISON (1990: 217) stated »Types.– Lectotype male in BMNH (examined). I also examined a paralectotype in the CM«. Since he examined the holotype, stated as lectotype in his Synopsis, he was unaware of the existence of "cotypes" housed in Berlin. After consulting Rosser Garrison, who revised his previous statement (pers. comm.), the two mentioned specimens should be considered paratypes and not paralectotypes. They have no name-bearing function in terms of the International Code of Zoological Nomenclature.

**Original combination: *Matrona kricheldorffi* Karsch, 1892**

Status: available species-group name, junior synonym

Current combination: *Matrona basilaris* Selys, 1853

**Type material.** One male (Figs 2, 3), one female (Fig. 4); collecting locality: Mount Emei (Emei Shan), Sichuan province, China; collector: Franz Kricheldorff

Verbatim label data male 4a9514: (1) »6612« [printed]; (2) »Typus« [printed]; (3) »*Matrona / kricheldorffi* \* Karsch« [handwritten]; (4) »Omi-shan /

Westchina / Kricheldorff S.« [printed]; (5) »<http://coll.mfn-berlin.de/u/4a9514>« [printed] (Fig. 3).

Verbatim label data female 4a9567: (1) »ad 6612« [printed]; (2) »Omi-shan / Westchina / Kricheldorff S.« [printed]; (3) »<http://coll.mfn-berlin.de/u/4a9567>« [printed].

**Notes.** KARSCH (1892) described two specimens: »1♂, 1♀«, and specified the collecting locality similarly as in *Echo incarnata*: »Omi-shan p. Kiating, China occidentalis«. The male and female found in the Berlin collection should be considered syntypes, although the female bears no type label.



**Figure 2.** *Matrona kricheldorffi* Karsch 1892, junior synonym of *Matrona basilaris* Selys, 1853; male syntype in coll. MNB (♂ 4a9514), dorsal view.

**Original combination: *Laïs pruinosa* Hagen in Selys, 1853**

Status: available species-group name, valid species

Current combination: *Mnesarete pruinosa* (Hagen in Selys, 1853)

**Type material.** Two males, one female; collecting locality: Brazil; collector: Friedrich Sellow (var. Sello)

Verbatim label data male 4a9505: (1) »2274 / Pruinosa / Hagen / Brasil. Sellow« [handwritten]; (2) »2274« [printed]; (3) »Typus« [printed]; (4) »Zool. Mus. / Berlin« [printed]; (5) »Mnesarete / pruinosa (Hagen) 1853 / ♂,♀-Typen, Kat.-Nr. 2274« [handwritten]; (6) »Appendages / illustrated /



**Figure 3.** *Matrona kricheldorffi* Karsch 1892, junior synonym of *Matrona basilaris* Selys, 1853; labels of male syntype in coll. MNB (♂ 4a9514)

R. Garrison 1997« [handwritten]; (7) »Lais (=Mnesareta) pruinosa Hagen« [printed]; (8) »<http://coll.mfn-berlin.de/u/4a9505>« [printed].

Verbatim label data male 4a9506: (1) »ad 2274 / Brasilien / Sello.« [handwritten]; (2) »Typus« [printed]; (3) »Zool. Mus. / Berlin« [printed]; (4) »<http://coll.mfn-berlin.de/u/4a9506>« [printed].

Verbatim label data female 4a9507: (1) »ad 2274 / Brasilien / Sello.« [handwritten]; (2) »Typus« [printed]; (3) »Zool. Mus. / Berlin« [printed]; (4) »<http://coll.mfn-berlin.de/u/4a9507>« [printed].

**Notes.** In Hagen's original description of *Lais pruinosa*, published in SELYS (1853), the number of type specimens was not given, but later SELYS & HAGEN (1854: 93) stated: »M. Hagen a examiné cinq mâles et cinq femelles



**Figure 4.** *Matrona kricheldorfii* Karsch 1892, junior synonym of *Matrona basilaris* Selys, 1853; female syntype in coll. MNB (♀ 4a9567), dorsal view.



du Musée de Berlin pris au Brésil par Sellow«. The two males and the female found in the Berlin collection should therefore be considered syntypes. Rosser Garrison (pers. comm.) noted a further two syntype males in the Hagen collection at the MCZ and Jérôme Constant (pers. comm.) found two syntypes, one male and one female, in the collection of the IRSNB. André Nel (MNHN) checked the collection in Paris, but could not recognise any syntype. The whereabouts of the remaining three syntype females are still unknown.

**Original combination: *Lais pudica* Hagen in Selys, 1853**

Status: available species-group name; valid species

Current combination: *Mnesarete pudica* (Hagen in Selys, 1853)

**Type material.** One male, one female; collecting locality: Brazil; collector: Friedrich Sellow (Sello)

Verbatim label data male 4a9508: (1) »Pudica / Hagen / Brasil. Sellow« [handwritten]; (2) »Typus« [printed]; (3) »Zool. Mus. / Berlin« [printed]; (4) »2275« [printed]; (5) »Note: abdominal / segments 8-10 are / those of Hetaerina / probably H. hebe Sélys / R. Garrison 1997« [handwritten]; (6) »Lais (=Mnesarete) pudica Hagen« [printed]; (7) »<http://coll.mfn-berlin.de/u/4a9508>« [printed].

Verbatim label data female 4a9509: (1) »ad 2275 / Brasilien / Sello.« [handwritten]; (2) »Typus« [printed]; (3) »Zool. Mus. / Berlin« [printed]; (4) »<http://coll.mfn-berlin.de/u/4a9509>« [printed].

**Notes.** In his more detailed description in HAGEN & SELYS (1854), H.A. Hagen described male and female characteristics, also age related differences (for example, »♂ jeune«), and mentioned: »Patrie. La province d'Ypanema au Brésil, d'où le Musée de Vienne l'a reçue par M. Natterer. – Le Brésil, d'après les exemplaires du Musée de Berlin pris par M. Sellow«. The male and the female specimens preserved in the Berlin collection should be considered syntypes. According to ST. QUENTIN (1970) two male syntypes from Brasil (Ypanema) are deposited in coll. NHMW.

**Original combination: *Sapho venusta* Karsch, 1889**

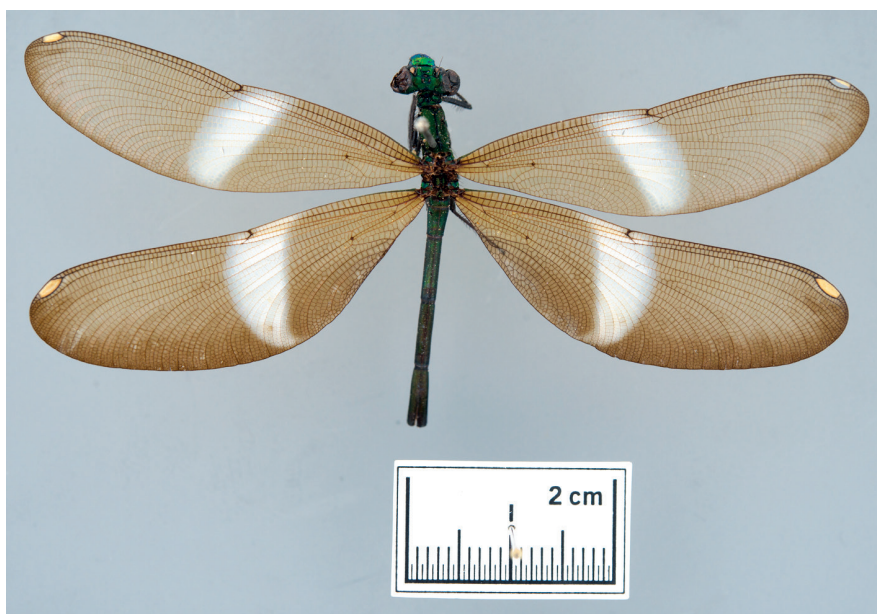
Status: available species-group name; junior synonym

Current combination: *Sapho orichalcea* McLachlan, 1869

**Type material.** One female (Fig. 5); collecting locality: Africa; collector: unknown

Verbatim label data female 4a9572: (1) [pieces of abdomen and one leg adhere to the label]; (2) »Typus« [printed]; (3) »*Sapho venusta* / Karsch \*« [handwritten]; (4) »<http://coll.mfn-berlin.de/u/4a9572>« [printed].

**Notes.** KARSCH (1889) wrote: »Das Königliche Museum für Naturkunde in Berlin besitzt vier *Sapho*-Arten, [...] und eine der *S. orichalcea* im weiblichen Geschlechte ähnliche, noch unbeschriebene Art aus Afrika, leider ohne nähere Angaben des Fundorts und in nur einem einzigen Exemplare:



**Figure 5.** *Sapho venusta* Karsch, 1889, junior synonym of *Sapho orichalcea* McLachlan, 1869; female holotype in coll. MNB (♀ 4a9572), dorsal view.

*Sapho venusta*, nov. spec., ♀, [...]«. This description is based on one single female, which was found in the Berlin collection and is consequently the holotype.

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