

# Insect Types in the ZFMK Collection, Bonn: Odonata

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running title:

MISOF, ARNDTS & LANKHORST: Odonate Types in the ZFMK

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## **Abstract**

The type specimens of Odonata are catalogued, currently inventarized at the Zoologisches Forschungsinstitut und Museum Alexander Koenig (ZFMK), Bonn. Specific and subspecific names are listed alphabetically, followed by the original genus name, bibliographic citation, original label information (in case of primary types), date and place collected, and finally accompanied by geographical coordinates wherever possible.

## INTRODUCTION

The Odonate collection at the ZFMK is a small collection carrying roughly 20 000 specimens. The collection is fully recorded in an electronic catalogue. We hope that an electronic version of the catalogue and type specimen information additionally to the one presented here, for example pictures of the type specimens, original labels etc., will soon be available via an internet portal.

The collection has its strength mostly in Anisopteran taxa. The major part of the collection was developed by Dr. Buchholz in the 50-60 of the last century. Buchholz's occupied the position of a curator of herpetology at the Museum until his death in the late 60'ties. However, dragonflies were among his primary interests and this is well documented in his publication records and species descriptions. After Buchholz's death the dragonfly collection at the ZFMK become somehow an orphan and was not further developed until now. Today the collection is again within the focus of systematic work at the ZFMK and is again expanding in holdings. New collection strategies are focused on alcohol preservation suitable for any phenotypic and genotypic work (see for example Misof et al. 2002, Misof & Fleck 2003, Fleck 2002a,b).

In this publication the specific and subspecific taxa are grouped by suborders and within suborders arranged alphabetically. They are listed by species epitheta, followed by the genus name (both in the original spelling), author and year. All primary types are listed with the original label information, supplemented by date- and place collected information. Secondary geo-referencing of collecting places and sites is based on the Alexandria Digital Library gazetteer (ADL). If the collection harbours only secondary types of a given taxon, the original label information is given for the first type specimen.

Table 1 *List of primary and secondary types.*

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### Zygoptera

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***buchholzi*, *Enallagma* Pinhey 1971** - Fernando Po, Isla de Bioko, near Moca, (Long: 8.7 Lat: 3.5), 1.12.1962, leg. W. Hartwig - **Holotype** (male), **Paratypes** (4 males) - *J. ent. Soc. sth. Afr.*, 34: 215-230, 4f, 1pl. (1971)

***cancellata insulana*, *Chlorocypha* Pinhey 1971** - 21.1.1963, no type locality, - **Holotype** (male), **Paratypes** (5 males) - *J. ent. Soc. sth. Afr.*, 34: 215-230, 4 f, 1 pl. (1971)

***deserti yezoense*, *Enallagma* Asahina 1949** - 11.8.1937, no type locality, - **Paratype** (male) - *Ins. Matsumur.* 17: 28-34, 1 pl, 3 f. (1949)

***eisentrauti*, *Chlorocnemis* Pinhey 1974** - Cameroon, Rumpi Hills, Dikume-Balue(Long: 9.1 Lat: 4.83), (1100 m), 5.3.1967, leg. W. Hartwig - **Holotype** (male) - *Bonn. zool. Beitr.* 25(1/3): 179-212, 5 f. (1974)

***forcipata*, *Agriocnemis* Le Roi 1915** - Mashra ar Reqq (Bahr al Ghazal) (Long: 29.27 Lat: 8.42) , 3.3.1913 - **Holotype** (male), **Paratype** (male) - *Ergeb. zweit. deutsch. Zentral.-Afr. Exped.* 1: 319-360, pl 19, f 1-19 (1915)

*georgfreyi* , **Ceriagrion Schmidt 1953** - Turkey, Spring near Sasisaki, 10 km north Iskenderun (Long: 36.17 Lat: 36.58 (Iskenderun)), 14.5.1952, leg. E. Schmidt, **Paratypes** (2 males) - *Mitt. Münchn. ent. Ges.* 43: 1-9, 4f. (1953)

*hylas freyi* , **Agrion Bilek 1954** - South-East Bavaria, Inzell, Zwingsee (Long: 12.75 Lat: 47.77), 2.7.1953, leg. A. Bilek - **Holotype** (male), **Paratype** (female) - *NachrBl. Bayer. Ent.* 3: 97-99, 4f. (1954)

*meridionale* , **Anisagrion Racenis 1953** - Venezuela, Carayaca D. F. (Long: -67.12 Lat: 10.53), 24.1.1953, leg. Racenis - **Paratypes** (male, female) - *Opuscula entomologica* 18: 180-189, 4f. (1953)

*nectans* , **Rhipidolestes Needham 1929** - West-Tien-Mu-Shan, 9.6.1935, leg. H. Höne -**Paratypes** (2 males) - *Bull. Peking Soc. nat. Hist.*, 2(4): xi-xii. (1929)

*sania* , **Agriocnemis Nielsen 1959** - Fezzan Ghat (Long: 10.18 Lat: 24.97), Fezzan Tiugenal, 25.9.-9.10.1936, leg. Scortecci (presumably) - **Paratypes** (3 males, 4 females) - *Riv. Biol. colon.*, 16: 33-40, 9 f. (1959)

*sudanicum* , **Pseudagrion Le Roi 1915** - Mashra ar Reqq (Bahr al Ghazal) (Long: 29.27 Lat: 8.42), 3.3.1913, - **Types** (2 males)<sup>1</sup> - *Ergeb. zweit. deutsch. Zentral.-Afr. Exped.* 1: 319-360, pl. 19, f. 1-19 (1915)

## Anisoptera

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*camerunica* , **Macromia Pinhey 1974** - Cameroon, Dikume-Balue, Rumpi Hills (1100 m) (Long: 9.1 Lat: 4.83), 18.2.1967, leg. W. Hartwig - **Holotype** (male), **Paratypes** (2 males, female) - *Bonn. zool. Beitr.* 25(1/3): 179-212, 5 f. (1974)

*formosanus* , **Sinogomphus Asahina 1951** - Taiwan, Pyanan, 17.8.1936 - **Paratype** (male) - *Kontyû* 19: 15-22, 3pl. (1951)

*hartwigi* , **Phyllogomphus Buchholz 1958** - Cameroon, Barombi Kotto, Lake (Long: 9.25 Lat: 4.47), 24.1.1958, leg. W. Hartwig - **Holotype** (male) - *Bonn. zool. Beitr.*, 9: 259-260, 1pl. (1958)

*indica* , **Hylaeothemis Fraser 1946** - Burliyar, Nilgiris, (2500 ft) (Long: 76.7 Lat: 11.4), 23.7.1922 - **Holotype** (male) - *Proc. R. ent. Soc. Lond.* (B)15: 97-100, 3 f. (1946)

*insignis helladica* , **Sonjagaster Lohmann 1993** - Greece, Taygetos Mountains (ca. 1100 m) (Long: 22.3 Lat: 37.1), 4.7.1960, leg. Dr. Buchholz - **Holotype** (male), **Paratypes** (6 males, female) - *Odonatologica*, 22(3): 273-294. (1993)

*kollmannspergeri* , **Orthetrum Buchholz 1959** - Adré, french side of Sudan border (Long: 22.47 Lat: 13.48 (Geneina)), 4.11.1957, leg. Dr. Kollmannsperger - **Holotype** (male), **Paratype** (male) - *Bonn. zool. Beitr.*, 10: 75-98, 25 f. (1959)

*lieftincki* , **Neallogaster Lohmann 1993** - China, Prov. Shanxi, Lüliang Shan (Nienshan Mountains) (1500 m) (Long: 37.10 Lat: 111.50), leg. H. Höne - **Holotype** (male) - *Odonatologica*, 22(3): 273-294. (1993)

*orestes* , **Gomphus Lieftinck 1939** - Fukien, Kuantun (2300 m) (Long: 117, 40 Lat: 27.40), 8.6.1938, leg. J. Klapperich - **Holotype** (male) - *Temminckia* 4: 277-297, 12 f. (1939)

*parthenope geyri* , **Anax Buchholz 1955** - Spain **Holotype** (male) - *Bonn. zool. Beitr.* 6: 118-131, 17 f. (1955)

- parthenope geyri* , **Anax Buchholz 1955** - Algerian Sahara, Ideles (1400m) (Long: 5.92 Lat: 23.82), leg. H. Frhr. v. Geyr - **Paratype** (female) - *Bonn. zool. Beitr.* 6: 118-131, 17 f. (1955)
- parthenope geyri* , **Anax Buchholz 1955** - Mallorca, Alkudia (Long: 3.12 Lat: 39.87), February 1921 - **Paratype** (male) - *Bonn. zool. Beitr.* 6: 118-131, 17 f. (1955)
- parthenope jordansi* , **Anax Buchholz 1955** - Greece, Isle of Liouloudi at Euböa(Long: 24.0 Lat: 38.5(Euboea)), 1.7.1953, col. Dr. Buchholz - **Holotype** (female) - *Bonn. zool. Beitr.* 6: 118-131, 17 f. (1955)
- peleus* , **Gomphus Lieftinck 1939** - Fukien, Kuantun (2300 m) (Long: 117, 40 Lat: 27.40), 24.5. 1938, leg. J. Klapperich - **Holotype** (male) - *Temminckia* 4: 277-297, 12 f. (1939)
- plaumanni* , **Orthemis Buchholz 1950** - Brazil, Nova Teutonia, Santa Catarina (3500) (Long: -52.4 Lat: -27.05), 14.1.1950, leg. F. Plaumann - **Holotype** (male), **Paratype** (male) - *Bonn. zool. Beitr.* 1: 79-82, 2 f. (1950)
- prometheus* , **Gomphus Lieftinck 1939** - Fukien, Kuantun (2300 m) (Long: 117, 40 Lat: 27.40), 8.6 1938, leg. J. Klapperich - **Holotype** (male) - *Temminckia* 4: 277-297, 12 f. (1939)
- pruinosa* , **Rhodopygia Buchholz 1953** - Bolivia tropica, region Chapare (400 m) (Long: -65.5 Lat: -16.5), 5.5.1951, leg. R. Zischka - **Holotype** (male) - *Bull. Inst. r. Sci. nat. Belg.* 29(10): 1-8, 2 pl. (1953)
- pylades* , **Gomphus Lieftinck 1939** - Fukien, Kuantun (2300 m) (Long: 117, 40 Lat: 27.40), 24.5. 1938, leg. J. Klapperich - **Holotype** (male) - *Temminckia* 4: 277-297, 12 f. (1939)
- reginae* , **Macromia Le Roi 1915** - Mashra ar Reqq (Bahr al Ghazal) (Long: 29.27 Lat: 8.42), 3.3.1913, leg. Le Roi - **Holotype** (male) - *Ergeb. zweit. deutsch. Zentral.-Afr. Exped.* 1: 319-360, pl 19, f 1-19. (1915)
- rhodesiae* , **Orthetrum Pinhey 1961** - Rhodesia, Kapiri Mposhi (Long: 28.68 Lat: -13.97), 1.9.1958 - **Paratype** (male) - *Ent. mon. Mag.* 96: 256-271, 5 f. (1961)
- robustum* , **Orthetrum Balinsky 1965** - Ngamiland, Bechuanaland(Long: 22.5 Lat: -20.0), 30.12.1965, leg. Balinsky - **Paratype** (male) - *Novos Taxa ent.* 39: 3-7. (1965)
- schneideri helladicus* , **Gomphus Buchholz 1954** - Greece, Argos lowlands at Kephalaoni(Long: 20.58 Lat: 38.25), 29.4.1952, leg. Dr. Mannheims - **Holotype** (male), **Paratypes** (3 males) - *Bonn. zool. Beitr.* 1954: 51-71, 11 f. (1954)
- telamon* , **Gomphus Lieftinck 1939** - Fukien, Kuantun (2300 m) (Long: 117, 40 Lat: 27.40), 24.5. 1938, leg. J. Klapperich - **Holotype** (male) - *Temminckia* 4: 277-297, 12 f. (1939)
- zalorensis delineatus* , **Davidius Fraser 1926** – Gangtok (Long: 88.62 Lat: 27.33), 16.5.1925 - **Paratype** (male) - *J. Bombay nat. Hist. Soc.* 31: 158-171, 1pl, 3 f. (1926)

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<sup>1</sup> Both specimens are labeled as types, the correct designation of holotype and paratype remains open. However, one specimen has still intact appendages, which could indicate that the author was referring to the other specimen in which he studied the appendages.

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