THE TYPE SPECIMENS OF THE NEUROPTERA IN THE COLLECTION OF THE ENTOMOLOGICAL INSTITUTE, HOKKAIDO UNIVERSITY

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During nearly twenty-five years since 1905, the late Prof. Dr. Shonen Matsumura and the late Dr. Hanjiro Okamoto studied well on the Neuroptera of Japan. The type specimens described by them are largely deposited in the collection of the Entomological Institute, Hokkaido University.* By the kind suggestion of Prof. Dr. Chihisa Watanabe, I have had the good opportunity to examine these material and rearrange the specimens in proper position. In the course of this work I have found that some of the type specimens have been already lost and even the remainings lack mostly exact type labels. This paper is the outcome of work, giving the designation of lectotypes for some species.

Before going further, I would like to express my sincere thanks to Prof. Watanabe, Dr. S. Takagi and Dr. T. Kumata for their kind help and cooperation.

Family **Corydalidae**

Chauliodes nebulosus Okamoto

Chauliodes nebulosus Okamoto, Wien. Ent. Zeit., XXIX: 261 (1910).

The holotype specimen of this species has been lost.

Chauliodes kawarayamanus Okamoto

Chauliodes Kawarayamanus Okamoto, Wien. Ent. Zeit., XXIX: 262 (1910).

The same as in the preceding species.

Chauliodes formosanus Okamoto

Chauliodes formosanus Okamoto, Wien. Ent. Zeit., XXIX: 263 (1910).

The cotypes consist of four males and one female. But only two males are now in the collection, and the one labelled "Kanshirei, 13. IV. 1907" is selected as lectotype. This is identical with *Neochauliodes sinensis meridionalis* van der Weele.

Family **Sialidae**

Sialis frequens Okamoto

Sialis frequens Okamoto, Trans. Sapporo Nat. Hist. Soc., I: 112 (1906).

* Dr. Okamoto described *Raphidia formosana* and *Inocellia japonica* in 1917, *Chrysopa japana, C. parabola, C. suzukii,* and *C. kintoki* in 1919, *Spilosmylus saishuensis* in 1924, *Euroleon coreanus* in 1926, and *Myrmeleon nekkacus* in 1934. The type specimens of these species have not been preserved in the collection of the Institute of this University.

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Okamoto described this species from many specimens taken in Sapporo and its vicinity. There are now seven male and three female cotype specimens, of which one male labelled "Sapporo, 16. V. 1897" is chosen as lectotype. This species is synonymous with *S. sibirica* MacLachlan.

Sialis kumejimae Okamoto

Sialis Kumejimae Okamoto, Wien. Ent. Zeit., XXIX: 257 (1910).

The female holotype specimen is deposited in the collection.

Sialis mitsuhashii Okamoto

Sialis Mitsuhashii Okamoto, Wien. Ent. Zeit., XXIX: 257 (1910).

Of many cotypes, one male and one female specimens are deposited in the Institute and also some others in the Hokkaido National Agricultural Experiment Station. The broken female specimen labelled "Aomori, 20. V. 1908" is now fixed as lectotype.

Nipponosialis jezoensis (Okamoto)

Sialis jezoensis Okamoto, Wien. Ent. Zeit., XXIX: 258 (1910).

Though it is in broken condition, the female holotype specimen is preserved in the collection.

Family **Coniopterygidae**

Coniopteryx abdominalis Okamoto

Coniopterynx (!) *abdominalis* Okamoto, Trans. Sapporo Nat. Hist. Soc., I: 115 (1906).

Judging from the original description of *C. abdominalis* the cotypes seem to consist of several specimens. Though the abdomen is damaged, the specimen labelled "Hattari-betsu, 2. VII. 1905" is selected as lectotype.

Coniopteryx flavicornis Matsumura

Coniopteryx flavicornis Matsumura, Syst. Ent., I: 173 (1907).

There is a single female specimen labelled "Kagoshima, 10. VII", which undoubtedly was used for the original description by Matsumura. I would select this specimen as lectotype. This species is a synonym of *Spiloconis sexguttata* Enderlein.

Coniopteryx maculosa Matsumura

Coniopteryx maculosa Matsumura, Syst. Ent., I: 173 (1907).

One male specimen labelled "Gifu, 13. VII. 1903" now remains in the collection, and is designated as lectotype. This species is identical with *Coniocompsa japonica* Enderlein.

Family **Osmylidae**

Osmylus* (*Lysmus*) *japonicus Okamoto

Osmylus (*Lysmus*) *japonicus* Okamoto, Ent. Mitt., III: 23 (1914).

This species was originally described from six specimens, but at present there are three (2♀♀, Kyoto; 1♀, Kagoshima) in the collection, and one of the Kyoto-specimens is selected as lectotype. The cotypes remained are actually identified as *Spilosmylus tuberculatus* (Walker), hence *O. japonicus* should be suppressed as a synonym of it.

Spilosmylus nipponensis (Okamoto)

Osmylus (*Lysmus*) *nipponensis* Okamoto, Ent. Mitt., III: 24 (1914).

Five specimens were used for the original description by Okamoto, but there are only two at present; the one bearing the label "Moji, 16. VI. 1906" is designated as lectotype.

Family **Hemerobiidae**

Micromus multipunctatus Matsumura

Micromus multipunctatus Matsumura, Syst. Ent., I: 171 (1907).

There is a single male specimen labelled "Moji, 18. VI. 1906", on which apparently Matsumura's description has been made. I want to designate this specimen as lectotype.

Neuronema albostigma (Matsumura)

Hemorobius (!) *albostigma* Matsumura, Syst. Ent., I: 171 (1907).

The type specimen has already been lost up to present.

Oedobius punctatus (Okamoto)

Megalomus punctatus Okamoto, Trans. Sapporo Nat. Hist. Soc., I: 114 (1906).

The single male specimen taken at Tomakomai, Hokkaido, which represents the holotype, is deposited in the collection.

Family **Chrysopidae**

Chrysopa inornata Matsumura

Chrysopa inornata Matsumura, Jour. Coll. Agr., Tohoku Imp. Univ., IV: 14 (1911).

There is a single male specimen representing the holotype. This species is referable to *C. vittata* Wesmael.

Chrysopa formosana Matsumura

Chrysopa vittata var. *formosana* Matsumura, Schädl. u. Nützl. Ins. v. Zuckerrohr Formosas: 45 (1910).

The single male specimen bearing the label "Taihoku, 17. VIII. 1906" is the holotype of this species.

Chrysopa boninensis Okamoto

Chrysopa boninensis Okamoto, Jour. Coll. Agr., Tohoku Imp. Univ., VI: 62 (1914).

Okamoto described this species from many specimens taken in Taiwan and the Bonin Islands. At present only one from Taiwan and two from the Bonin Islands are found in the collection. The female specimen labelled "Ogasawara, 20. VIII. 1905" is selected as lectotype.

Chrysopa nipponensis Okamoto

Chrysopa nipponensis Okamoto, Jour. Coll. Agr., Tohoku Imp. Univ., VI: 65 (1914).

Originally described from six specimens, of which four remain now in the collection. The male labelled "Kumamoto, 4. IV. 1907" is selected as lectotype.

Chrysopa kurisakiana Okamoto

Chrysopa kurisakiana Okamoto, Jour. Coll. Agr., Tohoku Imp. Univ., VI: 71 (1914).

Eight specimens from various parts of Honshu and Kyushu were used as cotypes by Okamoto. The female specimen labelled "Mt. Fuji, 23. VI. 1911" is selected as lectotype. This species is a summer form of the former species, *C. nipponensis* Okamoto.

Chrysopa cognatella Okamoto

Chrysopa cognatella Okamoto, Jour. Coll. Agr., Tohoku Imp. Univ., VI: 70 (1914),

Many cotype specimens from various localities of Japan were used by Okamoto. Eight specimens of them now remain; the female specimen labelled "Sapporo, VIII, 1907" is chosen as lectotype.

Chrysopa sachalinensis Matsumura

Chrysopa sachalinensis Matsumura, Jour. Coll. Agr., Tohoku Imp. Univ., IV: 14 (1911).

There is a single male specimen representing the holotype. This species is a synonym of *C. prasina* Burmeister.

Chrysopa nikkoensis Okamoto

Chrysopa nikkoensis Okamoto, Jour. Coll. Agr., Tohoku Imp. Univ., VI: 69 (1914).

The holotype specimen has already been lost. This species is, however, clearly a synonym of *C. prasina* Burmeister.

Chrysopa matsumurae Okamoto

Chrysopa matsumurae Okamoto, Jour. Coll. Agr., Tohoku Imp. Univ., VI: 68 (1914).

Of the cotype specimens from Moji, Suma, and Shizuoka, only three specimens remain. The female specimen labelled "Moji, 18. VI. 1906" is selected as lectotype.

Chrysopa furcifera Okamoto

Chrysopa furcifera Okamoto, Jour. Coll. Agr., Tohoku Imp. Univ., VI: 61 (1914).

Okamoto used many specimens from Honshu, Kyushu, Okinawa, and Taiwan for the description of this species. However, only three from Okinawa and one from Taiwan are now in the collection. The Taiwan-specimen, female, labelled "Shirin, 31. VII. 1907" is chosen as lectotype.

Chrysopa ogasawarensis Okamoto

Chrysoya ogasawarensis Okamoto, Jour. Coll. Agr., Tohoku Imp. Univ., VI: 64 (1914).

The cotypes are represented by four specimens from the Bonin Islands. At present there are two in the collection, and the male specimen bearing the label "Ogasawara, 20. VIII. 1905" is designated as lectotype. According to Adams this species is synonymous with *C. oceanica* Walker which widely spreads in Oceania.

Chrysopa sapporensis Okamoto

Chrysopa sapporensis Okamoto, Jour. Coll. Agr., Tohoku Imp. Univ., VI: 60 (1914).

There are six specimens from Sapporo, which undoubtedly represent the cotypes. One female specimen labelled "Sapporo, VIII. 1907" is selected as lectotype. This is the same as *C. phyllochroma* Wesmael.

Chrysopa nigra Okamoto

Chrysopa nigriceps Okamoto (nec MacLachlan), Jour. Coll. Agr., Tohoku Imp. Univ., VI: 58 (1914).

This species was originally described from five specimens taken in Prov. Shinano, but at present there are two in the collection, of which the male specimen labelled "Mt. Yatsugadake, 22. VII. 1911" is selected as lectotype. *C. nigriceps* Okamoto is a homonym of *C. nigriceps* MacLachlan.

Chrysocerca formosana (Okamoto)

Pseudochrysa formosana Okamoto, Jour. Coll. Agr., Tohoku Imp. Univ., VI: 55 (1914).

Okamoto described this species from seven cotype specimens taken at Ako, Taihoku, and Shôka in Taiwan. The male specimen bearing the label "Taihoku, 17. VIII. 1906" is designated as lectotype.

Family **Apochrysidae**

Nacaura matsumurae (Okamoto)

Apochrysa matsumurae Okamoto, Trans. Sapporo Nat. Hist. Soc., IV: 13 (1912).

The cotypes are represented by two male specimens; the one labelled "Kagoshima, 7. X. 1905" is selected as lectotype.

Family **Dilaridae**

Nepal formosanus (Okamoto et Kuwayama)

Lidar formosanus Okamoto and Kuwayama, Zool. Mag., XXXII: 341 (1920).

The holotype specimen is deposited in the collection.

Family **Mantispidae**

Mantispa japonica var. ***diminuta*** Matsumura

Mantispa diminuta Matsumura, Syst. Ent., I: 169 (1907).

The single male specimen labelled "Nakano, Tokyo, 28. VIII. 1905" seems to be the type material. It is deposited in the collection.

Mantispa formosana Okamoto

Mantispa (Mantispilla) formosana Okamoto, Zool. Mag., XXII: 537 (1910).

Five males and four females were used as cotypes by Okamoto; the male specimen labelled "Tainan, 14. VII. 1907" is selected as lectotype.

Eumantispa suzukii Okamoto

Eumantispa suzukii Okamoto, Zool. Mag., XXII: 538 (1910).

There are one male and one female cotype specimens; the female labelled "Kyoto, 4. VIII. 1907" is selected as lectotype. This is synonymous with *E. harmandi* (Navás).

Climaciella miyakei Okamoto

Climaciella miyakei Okamoto, Zool. Mag., XXII: 541 (1910).

There is the holotype specimen taken in Kyoto in the collection. This species is identical with *C. quadrituberculata* (Westwood).

Climaciella habutsuella Okamoto

Climaciella habutsuella Okamoto, Zool. Mag., XXII: 542 (1910).

There is a single male specimen taken in Yakushima representing the holotype. This species is also same as *C. quadrituberculata* (Westwood).

Euclimacia vespiformis Okamoto

Euclimacia vespiformis Okamoto, Zool. Mag., XXII: 543 (1910).

There are only the wings of the single type specimen from Horisha, Taiwan, representing the holotype.

Euclimacia badia Okamoto

Euclimacia badia Okamoto, Zool. Mag., XXII: 543 (1910).

The wings of the holotype specimen from Arikan, Taiwan, remain in the collection.

Family **Myrmeleontidae**

Dendroleon jezoensis Okamoto

Dendroleon jezoënsis Okamoto, Wien. Ent. Zeit., XXIX: 280 (1910).

Originally described from four specimens, but only the one male specimen labelled "Nikko, 3. IX. 1904" remains in the collection, and it should be designated as lectotype.

Glenuroides communis Okamoto

Glenuroides communis Okamoto, Wien. Ent. Zeit., XXIX: 295 (1910).

Many specimens from various localities of Hokkaido and Honshu were used as cotypes by Okamoto, and at present nine specimens from Nakano, Takasago, and Daisenji are in the collection. The male specimens labelled "Nakano, 14. VII" is now fixed as lectotype. The name of this species is now sunk as a synonym of *G. japonicus* (MacLachlan).

Glenuroides okinawensis Okamoto

Glenuroides okinawensis Okamoto, Wien. Ent. Zeit., XXIX: 296 (1910).

The holotype specimen, male from Okinawa, is in the collection.

Creagris matsuokae Okamoto

Creagris matsuokae Okamoto, Wien. Ent. Zeit., XXIX: 288 (1910).

The holotype specimen from Bingo has been lost. This species is now treated as synonymous with *Pseudoformicaleo jacobsoni* van der Weele.

Distoleon nigricans (Okamoto)

Formicaleo nigricans Okamoto, Wien. Ent. Zeit., XXIX: 288 (1910).

The single female specimen which lacks the label of locality and date is in the collection, and it represents the holotype.

Formicaleo acuminatus Okamoto

Formicaleo acuminatus Okamoto, Wien. Ent. Zeit., XXIX: 290 (1910).

This species was described from two cotype specimens, one from Yayeyama, the Ryukyus, the other from the Bonin Islands. Adams designated the Yayeyama-specimen, the only one now in the collection, as lectotype in 1959. This is identical with *Distoleon bistrigatus* (Rambur) which is widely distributed from India to Micronesia.

Formicaleo yayeyamensis Matsumura

Formicaleo yayeyamensis Matsumura, 6000 Illus. Ins. Jap.-Emp.: 1156 (1931).

There is a single female specimen representing the holotype. This species is referable to *Distoleon bistrigatus* (Rambur) as in the case of the preceding species.

Formicaleo formosanus Okamoto

Formicaleo formosanus Okamoto, Wien. Ent. Zeit., XXIX: 291 (1910).

This species was originally described from a single specimen taken at Horisha, Taiwan, and now deposited in the collection. This is referable to *Distoleon dirus* (Walker).

Distoleon parvulus (Okamoto)

Myrmecaelurus parvulus Okamoto, Wien. Ent. Zeit., XXIX: 293 (1910).

The single female specimen labelled "Okinawa, VII. 1905" seems to be the holotype.

Myrmeleon nigrivenosus Okamoto

Myrmeleon nigrivenosus Okamoto, Trans. Sapporo Nat. Hist. Soc., I: 116 (1906).

The type specimen of this species has been lost. This is presumably a synonym of *M. formicarius* (Linné).

Hagenomyia asakurae (Okamoto)

Myrmeleon Asakurae Okamoto, Wien. Ent. Zeit., XXIX: 297 (1910).

The cotypes are represented by two male and one female specimens, but now only one male which should be designated as lectotype remains.

Epacanthaclisis moiwana (Okamoto)

Acanthaclisis moiwanus Okamoto, Trans. Sapporo Nat. Hist. Soc., I: 115 (1906).

Of three cotypes only the female specimen bearing the label "Jyozankei, 10. IX. 1907" remains and it should be designated as lectotype.

Family **Ascalaphidae**

Suphalomitus okinavensis (Okamoto)

Ogcogaster okinavensis Okamoto, Zool. Mag., XXI: 505 (1909).

This species was described from two cotype females, but only the one labelled "Okinawa, VII. 1905" is now in the collection. I designate it as lectotype.

Suphalasca formosana Okamoto

Suphalasca formosana Okamoto, Zool. Mag., XXI: 508 (1909).

The single male type specimen taken in Taichu, Taiwan, has been lost.

Selected Literature

Matsumura, S., 1907. Konchû Bunruigaku (Systematic Entomology). I. Keiseisha Co., Tokyo. 336 pp.

————, 1910. Taiwan Kansho Gaichûhen, Ekichûhen (Die schädlichen und nützlichen Insekten vom Zuckerrohr Formosas). Keiseisha Co., Tokyo. 86+52 pp.

————, 1911. Erster Beitrag zur Insekten-Fauna von Sachalin. Jour. Coll. Agr., Tohoku Imp. Univ., IV (1): 1-145.

————, 1931. Nippon Konchû Daizukan (6000 Illustrated Insects of Japan-Empire). Tôkoshoin Co., Tokyo. 1497+191 pp.

Okamoto, H., 1906. Hokkaido ni okeru Myakushimoku (Neuropterous Insects of Hokkaido). Trans. Sapporo Nat. Hist. Soc., I (1): 111-117.

————, 1909. Hompô-san Tsunotomboka ni tsuite (On the Japanese Ascalaphidae). Zool. Mag. (Dôbutsugaku Zasshi), XXI (254): 499-508.

————, 1910. Die Ascalaphiden Japans. Wien. Ent. Zeit., XXIX: 57-65.

————, 1910. Die Sialiden Japans. Wien. Ent. Zeit., XXIX: 255-263.

————, 1910. Die Myrmeleoniden Japans. Wien. Ent. Zeit., XXIX: 275-300.

————, 1910. Homposan Kamakirimodokika (The Mantispidae of Japan). Zool. Mag., XXII (266): 533-544.

————, 1911. Beitrag zur Mantispiden-Fauna Japans. Zool. Anz., XXXVII (16): 293-302.

————, 1912. Eine neue Chrysopiden-Art Japans. Trans. Sapporo Nat. Hist. Soc., IV

(1): 13-14.
————, 1914. Zwei neue Arten der japanischen Osmyliden (Megal.). Ent. Mitt., III (1): 23-25.
————, 1914, Ueber die Chrysopiden-Fauna Japans. Jour. Coll. Agr., Tohoku Imp. Univ., VI (3): 51-74.
———— and S. Kuwayama, 1920. Taiwan-san no Ichi Shin Kushihige-kagerô ni tsuite (*Lidar formosanus* sp. nov., the First Species to the Extreme Oriental Fauna of the Genus). Zool. Mag., XXXII (385): 341-345.

NEUROPTERA OF THE TOKARA ISLANDS LYING BETWEEN KYUSHU AND AMAMI-OSHIMA. Mr. Masataka Satô kindly forwarded to me a small lot of Neuroptera collected by him on the Tokara Islands in 1960 and 1962. Though these islands are interesting from zoogeographical point of view, apparently there is no record on the Neuropterous insects from there. The following list is compiled by the result of the research on the valuable material above mentioned.

Chrysopidae

1. ***Nothochrysa japonica*** MacLachlan

Nakanoshima (1♀, July 12, 1960; 2♀♀, May 28-30, 1962).

This species seems to be common in the islands as in the Ryukyus, Kyushu, and Shikoku.

2. ***Chrysopa astur*** Banks

Takarajima (1♀, July 2, 1960).

This species was first described from Iriomote Island, Ryukyus. Adams and Kuwayama recorded this species from Yap and Palau Islands and Okinawa Island respectively.

Hemerobiidae

3. ***Micromus timidus*** Hagen

Kuchinoshima (1♂, May 21, 1962); Nakanoshima (2♂♂, 2♀♀, May 28, 1962).

This intertropical species is common in the Tokara Islands. Nakahara described recently *M. confusus* from many islands of the Ryukyus and also from Amami-Oshima. However, I could not find any specimens to be identified with *M. confusus* at my disposal.

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(continued from p. 126)

Distribution: Japan (Honshu; Shikoku; Kyushu); Ryukyu Is. (Okinawa-honto; Miyako-jima; Ishigaki-jima; Iriomote-jima); Formosa; Philippine Is.; Java; Ceylon. This species is new to Japan, being found in the southern part of Japan but never found in Hokkaido.

The three Japanese species may be readily distinguishable by the following key:—

1. Clypeus narrow, with pointed apex; bristles of frons, mesonotum and scutellum stout and spine-like; median facial tubercles conspicuous and shining black at apex; tibial spur of fore leg slightly longer than the tibia itself which is as long as metatarsus. . . . . *O. circularis* Cresson
- Clypeus broad, with rounded apex; bristles of frons, mesonotum and scutellum somewhat hair-like. 2
2. Palpi and legs blackish-brown; abdomen black, with whitish lateromarginal stripes; mid legs without conspicuous hairs and bristles. . . . . *O. mantis* (De Geer)
- Palpi, frons and hind tarsi yellow; abdomen with whitish-gray pollen uniformly, without marginal stripes and spots; mid femora and hind basitarsi in male with a row of long hair-like bristles on posteroventral surface. . . . . *O. pilimana* Becker