

46/10

INDO-AUSTRALIAN *POMPILIDAE* (Hym.)

II. An annotated list of the oriental species of the genus *Hemipepsis* DAHLB. <sup>1)</sup>

by

J. VAN DER VECHT

(Faculty of Agriculture, Bogor, Indonesia)

The following list is mainly based on a study, made in September 1951, of the types of several oriental Pepsinae in the collections of the British Museum (Natural History), London, and the Hope Museum of Zoology, Oxford University. I am much indebted to the authorities and specialists at these institutions for the valuable cooperation and assistance received in the course of this work.

The taxonomy of the Pompilidae has proved to be a much more difficult subject than the earlier authors have ever suspected. The characters used for the separation of genera and species in recent studies of this group received little or no attention in the days of SMITH, BINGHAM and CAMERON, the authors who described most of the oriental species. Many species of Pepsinae, now considered as belonging to different genera, were described under the generic names *Mygnumia* and *Salix*; the latter name was even used by BINGHAM for all Pepsinae recorded in the "Fauna of British India" (Hymenoptera, I, 1897).

It is rarely possible to recognize with certainty the insects named by the authors mentioned above from the incomplete descriptions. Obviously, one of the most important steps towards the elimination of the burden of unrecognizable species is their allocation to the genera recognized in modern works (compare V.S.L. PATE, The Generic Names of the Spider Wasps and their Type Species, Trans. Am. Ent. Soc. 72, p. 65-137, 1946).

The present paper is an attempt to enumerate all described oriental species belonging to the well defined genus *Hemipepsis* DAHLB. (compare G. ARNOLD, The Psammocharidae (olim Pompilidae) of the Ethiopian Region, Ann. Transvaal Mus. 14, p. 318, 1932). Similar lists of the remaining oriental Pepsinae are being prepared for publication in the near future.

<sup>1)</sup> Part I was published in Treubia 20, p. 275-288, October 1949.

In the literature references the following papers are quoted by year and author only:

1855. SMITH, F. Catalogue of Hymenopterous Insects in the collection of the British Museum. Part III, Mutillidae and Pompilidae, London.
1867. SAUSSURE, H. DE. Hymenoptera, in: Reise Novara, Zoology, 2, part 1.
1890. BINGHAM, C. T. On New and little known Hymenoptera from India, Burma and Ceylon. Journal of the Bombay Natural History Society 5, p. 233-252, 9 figs.
1891. CAMERON, P. Hymenoptera Orientalis III. Memoirs and Proceedings of the Manchester Literary and Philosophical Society (4) 4, p. 431-481, 1 plate.<sup>1)</sup>
1893. BINGHAM, C. T. On New and little known Hymenoptera from India, Burma and Ceylon. Journal of the Bombay Natural History Society 8, p. 358-390, 2 pls.
1896. BINGHAM, C. T. New and little known species of Indo-Malayan Hymenoptera, with a key to the genera of Indian Pompilidae, and a note on *Sphex flava* of Fabricius and allied species. Journal of the Bombay Natural History Society 10, p. 195-216, 2 pls.
1897. BINGHAM, C.T. The Fauna of British India, including Ceylon and Burma. Hymenoptera I, London.
1897. DALLA TORRE, C. G. DE. Catalogus Hymenopterorum VIII (Fossores).<sup>1)</sup>
1934. BANKS, N. The Psammocharidae of the Philippines. Proceedings American Academy of Arts and Sciences 69, p. 1-117.

**Hemipepsis acer (BINGHAM).**

1897. *Salix acer* BINGHAM, l.c.: 137, ♂ (Ahmedabad).

The type, a male from Ahmedabad, BINGHAM, April 1888, is a small *Hemipepsis* (coll. B.M.).

**Hemipepsis aenea (CAM.).**

1904. *Salix aeneus* CAMERON, Zeitschr. f. Hym. u. Dipt. 4 : 10, ♀ (Sikkim).

The type is a female from Sikkim, labelled 1903-121 (coll. B.M.); hind tibiae with a longitudinal carina which is not dentate.

**Hemipepsis aeruginosa (SMITH).**

1855. *Mygnimia aeruginosa* SMITH, l.c.: 184, ♀ (Sumatra).
1902. *Salix khasianus* CAMERON, Ann. Mag. Nat. Hist. (7) 10: 78, ♀ (Khasia Hills, Assam).
1953. *Hemipepsis aeruginosa* v. D. VECHT & WILCKE, Treubia 21: 713, ♀ ♂ (Sumatra; Java; Assam).

A female and a male of *Salix khasianus* CAM. from Khasia (coll. B.M., CAMERON no. 1902-289), both labelled as type, are undoubtedly conspecific with the type of *Hemipepsis aeruginosa* (SM.) from Sumatra, which is also in the British Museum.

<sup>1)</sup> Not included in the specific references unless containing important information.

**Hemipepsis analis** HAUPT.

1933. *Hemipepsis analis* HAUPT, Bull. Mus. roy. Hist. nat. Belg. 9, no. 47 : 1, ♀ (Manokwari, New Guinea).

**Hemipepsis anthracina** (SMITH).

1855. *Mygnumia anthracina* SMITH, l.c. : 183, ♂ (Java; Sumatra).  
 1891. *Salius (Hemipepsis) anthracina* CAMERON, l.c. (4) 4: 447.  
 1897. *Salius anthracinus* BINGHAM, l.c. : 126, ♀ ♂ (female probably incorrectly identified; most locality records doubtful).  
 1915. *Hemipepsis anthracina* TURNER, Ann. Mag. Nat. Hist. (8) 16 : 333.  
 1953. *Hemipepsis (Moropepsis) anthracina* v. D. VECHT & WILCKE, Treubia 21: 697, ♀ ♂ (Java).

The type of *M. anthracina* is a male *Hemipepsis*, labelled "Java", in the B.M. collection. *H. anthracina* (SM.) has often been confused with a species belonging in the genus described as *Parasalius* by BANKS in 1934. Thus a specimen in the SAUNDERS collection, labelled "Sar." (= Sarawak, Borneo) and recorded by SMITH (Jl. Proc. Linn. Soc. Zool. 2, 1858 : 97) as *M. anthracina*, is not a *Hemipepsis*, and neither is the specimen identified as such by BANKS (1934). BINGHAM (1897, l.c. : 126) also misidentified this species, at least the female.

**Hemipepsis approximata** HAUPT.

1941. *Hemipepsis approximata* HAUPT, Ann. Mag. Nat. Hist. (11) 7: 51, ♀ ♂ (Sarawak, Borneo).

The types are in the British Museum.

**Hemipepsis audax** (SMITH).

1855. *Mygnumia audax* SMITH, l.c. : 182, ♀ (Silhet, Sikkim).  
 1890. *Mygnumia audax* BINGHAM, l.c. : 239, ♀ (additions to description).  
 1893. *Salius audax* BINGHAM, l.c. : 372 (Kumaon and Tenasserim).  
 1896. *Salius fenestratus*, race *audax* BINGHAM, Jl. Proc. Linn. Soc. Zool. 25 : 434.  
 1897. *Salius fenestratus* BINGHAM, l.c. : 132, ♀ ♂.  
 1897. *Salius ichneumoneus* BINGHAM (nec *P. ichneumoneus* GUÉR.), l.c. : 130, ♂ (Sikkim record).  
 1906. *Cryptochilus audax* SCHULZ, Spolia Hym. : 166, no. 223. (*S. audax* has priority over *S. fenestratus*).

The type is a female from Sikkim in the British Museum.

**Hemipepsis aureomicans** HAUPT.

1953. *Hemipepsis aureomicans* HAUPT, in: v. D. VECHT & WILCKE, Treubia 21: 705, ♀ (Java).  
 1953. *Hemipepsis aureomicans* v. D. VECHT & WILCKE, Treubia 21: 706, ♀ ♂; fig. 5 (p. 690); (Java; Sumatra; Borneo).

**Hemipepsis aurosericea (GUÉR.).**

1838. *Pompilus aurosericeus* GUÉRIN, in DUPERREY : Voyage Coquille, Zool. II, 2 : 256, ♀ (Java).  
 1855. *Mygnumia aurosericea* SMITH, l.c. : 182 (Java).  
 ? 1896. *Salius aurosericeus* BINGHAM, Jl. Proc. Linn. Soc. Zool. 25 : 433.  
 ? 1897. *Salius aurosericeus* BINGHAM, l.c. : 127.

The original spelling of the name is *aurosericeus*. There is no doubt that BINGHAM's "*aurosericeus*" consists of two or more species. There were five or six different species under this name in the collection of the British Museum.

**Hemipepsis australasiae (SMITH).**

- ! 1873. *Mygnumia australasiae* SMITH, Ann. Mag. Nat. Hist. (4) 12 : 259, ♀ ♂ (Australia).  
 1953. *Hemipepsis australasiae* v. D. VECHT & WILCKE, Treubia 21 : 708, ♀ ♂ (Java; Madura; Bawean; Sumatra).

The type is a female from N.W. Australia (69-50), bearing a label "*Mygnumia australasiae* Smith" in SMITH's handwriting. The B.M. collection contains, besides a number of females, four males of this species, 3 from Queensland, Mackay, and one from "Australia, N.W. Coast". The antennae of all these males consist of only twelve segments!

**Hemipepsis avicula (SAUSS.).**

1867. *Mygnumia aviculus* SAUSSURE, l.c. : 64, ♀, pl. 2, fig. 28 (Java).  
 1885. *Mygnumia aviculus* PRYER, Trans. Ent. Soc. 1885 : 369, pl. X, figs. 11 and 12.  
 1911. *Cryptochilus (Mygnumia) aviculus* SCHULZ, Zool. Ann. 4 : 102 (Java and Borneo).  
 1935. *Mygnumia avicula* KALSHOVEN, Entom. Meded. Ned. Indië, 1 : 50-54, pl. 4, fig. 1, ♂.  
 1953. *Hemipepsis (Moropepsis) avicula* v. D. VECHT & WILCKE, Treubia 21 : 695, ♀ ♂, fig. 1 (p. 689); (Java; Borneo).

**Hemipepsis bakeri BANKS.**

1934. *Hemipepsis bakeri* BANKS, l.c. : 9, ♀ ♂ (Philippine Islands).

**Hemipepsis bellicosa (SMITH).**

1873. *Mygnumia bellicosa* SMITH, Ann. Mag. Nat. Hist. (4) 12 : 256, ♂ (Bengal).  
 1891. *Salius bellicosus* (sic!) CAMERON, l.c. : 443.  
 1891. *Salius hercules* CAMERON, l.c. : 444, 447, ♂ (Naga Hills, Birma).  
 1893. *Salius hercules* BINGHAM, l.c. : 372 (Tenasserim and Pegu Yoma).  
 1897. *Salius bellicosus* BINGHAM, l.c. : 127, ♀ ♂, pl. I, fig. 5, ♀.

The type is a ♂ from Bengal (coll. B.M.). Two females from Rangoon and one from Pegu, which are under this name in the B.M. collection,

differ in the shape of the first discoidal cell. It appears possible that the female, associated with *bellicosus*-♂ by BINGHAM, does not belong here.

There is a male from Naga Hills in the B.M. collection and this may be CAMERON's type, although it is not labelled as such.

#### *Hemipepsis ceylonica* (SAUSS.).

1867. *Mygnumia ceylonica* SAUSSURE, l.c. : 64, ♀ (Ceylon).  
 1891. *Salius ceylonicus* CAMERON, l.c. : 443.  
 1896. *Salius ceylonicus* BINGHAM, Proc. Zool. Soc. Lond. : 435.  
 1897. *Salius ceylonicus* BINGHAM, l.c. : 128, ♀♂.  
 1911. *Cryptochilus (Mygnumia) ceylonicus* SCHULZ, Zool. Ann. 4: 106 (p.p., Java and Borneo records doubtful).  
 ? 1938. *Hemipepsis ceylonicus* BANKS, Proc. Ent. Soc. Wash., 40: 237 (Singapore).

According to SCHULZ the type is a female from Trincomali, Ceylon, in the Museum at Geneva. BINGHAM and others have applied this name to specimens from India, Malaya and even from Java and Borneo (SCHULZ, 1911), but it seems better to keep these apart until the males have been studied.

#### *Hemipepsis coeruleopennis* (SAUSS.).

1893. *Mygnumia coeruleopennis* SAUSSURE, Mitt. schweiz. ent. Ges. 8, H. 7: 269, ♀ (India, Pondichery, coll. ROMAND).  
 1897. *Salius caeruleopennis* (sic!) BINGHAM, l.c. : 132, ♀ (orig. descr.).  
 1911. *Cryptochilus (Mygnumia) coeruleopennis* SCHULZ, Zool. Ann. 4: 105 (SCHULZ regards *coeruleopennis* as identical with *H. consanguineus*).

According to SCHULZ, who examined the type in the Museum at Geneva, *H. coeruleopennis* SAUSS. is slightly larger than *H. consanguineus* SAUSS., the propodeum is more strongly rugose, the wings are slightly different, and the clypeus is truncate, not emarginate as in *H. consanguineus*. SCHULZ ascribes these differences to individual variation, but his view requires confirmation.

#### *Hemipepsis consanguinea* (SAUSS.).

1867. *Priocnemis consanguineus* SAUSSURE, l.c.: 62, no. 2, ♀; T. 3, fig. 40 (Ceylon).  
 1884. *Hemipepsis consanguinea* GRIBODO, Ann. Mus. Civ. Genova (ser. 2a vol. 1) 21: 359, no. 21, ♀.  
 1897. *Salius consanguineus* BINGHAM, l.c.: 138, ♀ (*S. consanguineus* (SAUSS.) = *Mygnumia saevissima* SM. 1873).  
 1911. *Cryptochilus (Mygnumia) consanguineus* SCHULZ, Zool. Ann. 4: 105.

According to SCHULZ the type is a ♀ from Trincomali, Ceylon, in the collection of DE SAUSSURE (Mus. Geneva). Whether this species occurs also on the continent, requires confirmation.

**Hemipepsis convexa (BINGHAM).**

1890. *Priocnemis convexus* BINGHAM, l.c. : 237, ♀ (Pundaloya, Ceylon).  
 1893. *Salius convexus* BINGHAM, l.c. : 375 (occurrence in Tenasserim).  
 1896. *Salius convexus* BINGHAM, l.c., pl. II, fig. 4.  
 1896. *Salius convexus* BINGHAM, Proc. Zool. Soc. : 435 (occurs also in Birma).  
 1897. *Salius ceylonicus* (SAUSS.) BINGHAM, l.c. : 128.

The type of this species, a female from Pundaloya, is in the B.M. collection. It bears no date, but it is labelled "Bingham coll." The wings are pale yellow, paler towards apex and here with a narrow and ill defined greyish margin. Base of first discoidal cell with oval dark spot. Last rim of propodeal dorsum not coarser than the others.

**Hemipepsis crassinervis V. D. VECHT & WILCKE.**

1953. *Hemipepsis crassinervis* V. D. VECHT & WILCKE, Treubia 21: 703, ♀ ♂; figs. 3, 7, 8 and 9b (p. 690 and 693); (Java and Sumatra).

**Hemipepsis croesus BANKS.**

1934. *Hemipepsis croesus* BANKS, l.c. : 7, ♀ (Borneo; Philippine Islands).

*Hemipepsis croesus* is the type of the subgenus *Moropepsis* BANKS, 1934.

**Hemipepsis curvinervis (CAM.).**

1902. *Salius curvinervis* CAMERON, Ann. Mag. Nat. Hist. (7) 10 : 80, ♀ ♂ (Khasia Hills, Assam).

There is a male from Khasia, labelled "type", in the British Museum, but since the original description is based on a female and refers to the other sex only in the last lines, a female in the ROTHNEY collection (Oxf. Univ. Mus.) should be regarded as the true type.

**Hemipepsis deceptor (SMITH).**

1859. *Pompilus deceptor* SMITH, Jl. Proc. Linn. Soc. Zool. 3 : 12 (Makassar, Celebes).

The type is a male *Hemipepsis* in the SAUNDERS collection (Oxford University Museum).

**Hemipepsis dubitans BANKS.**

1934. *Hemipepsis dubitans* BANKS, l.c. : 15, ♀ ♂ (Philippine Islands).

**Hemipepsis elizabethae (BINGHAM).**

1893. *Salius elizabethae* BINGHAM, l.c.: 372, ♀ ♂, pl. I, fig. 9 (Tenasserim).  
 1897. *Salius aureosericeus* (sic!) BINGHAM, l.c. : 127, ♀ ♂ (recorded also from S. India and Java).  
 1911. *Cryptochilus (Mygnimia) aureosericeus* (GUÉR.) var. *elizabethae* SCHULZ, Zool. Ann. 4 : 107.

When visiting the British Museum in September 1951 I noted that under the name "*H. aureosericea*" there is a series of *H. elizabethae* from the BINGHAM collection, consisting of seven females and one male from Haundraw Valley, and one female from Ataran Valley, both localities in Tenasserim. Two of these specimens are labelled "type", but later it struck me that neither of them could be the holotype, since the species was described in 1893 and the date of collecting of both "types" is September 1894.

Upon my request for further information on this matter, Mr I. H. H. YARROW kindly wrote me as follows (May 1952): "There are two females 10/91 and 5/93 same locality (Haundraw Valley), either of which might be the holotype. The illustration in Bingham's 1893 paper does not help, for as Bingham points out the artist has allowed himself the license of incorrectly showing both wings and antennae; neither female agrees with the illustration, one (5/93) having the wings directed somewhat backwards though this might have occurred after he had drawn it, while the other has very ragged wing margins. The 5/93 specimen has its locality label in (? Bingham's) handwriting but no collector's name, all the others from this locality have printed labels Middle Tenasserim, C. T. Bingham, with Haundraw Valley written in — even the 10/91 specimen.

If one is to select a type from these two, there seems little to choose between them. The remaining and ineligible specimens are Haundraw Valley, July 1894 (1 ♀), August 1894 (2 ♂ 1 ♀); Ataran Valley, March 1894 (1 ♀)".

If the specimen labelled 5/93 proves to agree in all respects with the description, it could in my opinion best be regarded as the lectotype.

BINGHAM (1897) regarded his *S. elizabethae* as identical with *H. aurosericea* (GUÉR.), a species described from Java. However, *H. elizabethae* does not agree with any of the species occurring in this island; it has the coloration of *H. australasiae* (SM.), but the wing venation is different, the first discoidal cell being distinctly longer in relation to its width; the base of this cell has a pale fenestra, but there is no dark spot or streak in it.

The existing confusion in the yellow-winged *Hemipepsis* is well demonstrated by the fact that "*H. aurosericea*" in the B.M. collection consists of a mixture of five or six species.

#### ***Hemipepsis exasperata* (SMITH).**

1863. *Mygymia exasperata* SMITH, Jl. Proc. Linn. Soc. Zool. 7 : 32, ♀ (Mysol).

1897. *Salius mysolicus* DALLA TORRE (new name for *M. exasperata* SMITH, nec *Pompilus exasperatus* SM. 1855), l.c. : 233.

Since *Pompilus exasperatus* SM. 1855 is not a *Hemipepsis* (see TURNER, Ann. Mag. Nat. Hist. (8) 16, 1915 : 333, and ARNOLD, Ann. Transvaal

Mus. 14, 1932 : 301), there is no reason to reject the name *exasperata* for the present species. The type is a female labelled "M" (= Misool) in the SAUNDERS collection (Oxford University Museum).

**Hemipepsis excelsa** (CAM.).

1875. *Mygnimia atropos* SMITH, Trans. Ent. Soc.: 38, ♂ (Barrackpore, Bengal) (nec *M. atropos* SMITH, 1855).  
 1891. *Salius excelsus* CAMERON, new name, l.c. : 443; *Salius (Mygnimia) excelsus* CAMERON, l.c. : 446.

The type of *Mygnimia atropos* SMITH is in the ROTHNEY collection in the Oxford University Museum.

**Hemipepsis excepta** BANKS.

1934. *Hemipepsis excepta* BANKS, l.c. : 13, ♀ ♂ (Luzon, Philippine Islands).

**Hemipepsis fenestrata** (SMITH).

1855. *Mygnimia fenestrata* SMITH, l.c. : 184, ♂ (Silhet, Sikkim).  
 1891. *Salius funestus* CAMERON, new name, l.c. : 444.  
 1897. *Salius fenestratus* BINGHAM, l.c. : 132, ♀ ♂ (var.).

CAMERON (1891) apparently proposed *funestus* as a new name for *fenestrata* which he thought to be preoccupied. He wrote: "*M. fenestrata* Smith, Cat. Hym. Ins. III, 184, 10 (non Smith, l.c. p. 147)"; however, the only other Pompilid to which the name *fenestrata* was applied in this catalogue is the Indian *Ferreola fenestrata*, described on p. 169.

According to BINGHAM, *Salius fenestratus* is the dark-winged variety of *S. audax*. If *fenestratus* ♂ and *audax* ♀ prove indeed to belong to one species, this should bear the name *audax*.

The type of *M. fenestrata* SM. is a ♂ in the B.M. collection.

**Hemipepsis ferruginea** (SMITH).

1861. *Mygnimia ferruginea* SMITH, Jl. Proc. Linn. Soc. Zool. 5 : 121, ♀ (Dory = Manokwari, New Guinea).  
 1906. *Salius ferrugineus* CAMERON, Nova Guinea 5, Livr. I : 54.  
 1915. *Hemipepsis ferruginea* TURNER, Rept. Hym. Br. Orn. Union Exp. and Wollaston Exp. : 2, ♀ (New Guinea).

The type is a female labelled "Dor" in the SAUNDERS collection; another female in this collection bears a label "N" (= New Guinea, WALLACE) and belongs to the same species.

**Hemipepsis fervida fervida** (SMITH).

1861. *Mygnimia fervida* SMITH, Jl. Proc. Linn. Soc. Zool. 5 : 82, ♀ (Makassar, Celebes).  
 ? 1897. *Salius smithii* BINGHAM, new name, l.c. : 134 (recorded from Sikkim, Birma, Tenasserim etc., records partly incorrect?).



1897. *Salix fervidissimus* DALLA TORRE, new name, l.c. : 223.

1953. *Hemipepsis (Rhodopepsis) fervida* v. D. VECHT & WILCKE, Treubia 21: 719, ♀ ♂; fig. 10 b (p. 693).

In 1897, both BINGHAM and DALLA TORRE renamed SMITH's species on account of the existence of *Priocnemis fervidus* SM., described in 1859 from the Aru Islands. However, there is no reason to reject SMITH's name, because his *Priocnemis fervidus* is not a *Hemipepsis*. The type of *M. fervida* SMITH is in the Oxford University Museum.

#### **Hemipepsis fervida adelpha** v. D. VECHT & WILCKE.

1911. *Cryptochilus (Mygnimia) fervidissimus* SCHULZ, Zool. Ann. 4 : 106 (recorded from Java).

1953. *Hemipepsis (Rhodopepsis) fervida adelpha* v. D. VECHT & WILCKE, Treubia 21: 720, ♀ ♂ (Java).

#### **Hemipepsis fulvipennis** (FABR.).

1793. *Sphex fulvipennis* FABRICIUS, Entom. system. 2 : 218 (India).

1804. *Pompilus fulvipennis* FABRICIUS, Syst. Piez. : 198.

1843. *Hemipepsis fulvipennis* DAHLBOM, Hymen. Europ. I : 462.

? 1867. *Pompilus fulvipennis* SAUSSURE, l.c. : 58, ♀ ♂ (Ceylon) (compare SCHULZ, Zool. Ann. IV (1911) : 106).

? 1891. *Salix fulvipennis* CAMERON, l.c. : 444, T. 3 fig. 28.

? 1896. *Salix fulvipennis* BINGHAM, Proc. Zool. Soc. : 435 (Ceylon).

? 1897. *Salix fulvipennis* BINGHAM, l.c. : 129 ("Throughout India; Burma; Ceylon; the Andamans").

? 1934. *Hemipepsis fulvipennis* BANKS, l.c. : 12, ♀ ♂ (Philippine Islands).

? 1938. *Hemipepsis fulvipennis* BANKS, Proc. Ent. Soc. Wash. 40 : 237 (Singapore).

There are reasons to suspect that the later authors either have not correctly identified FABRICIUS's species or that they have applied the name *fulvipennis* to a mixture of two or more species. A revision of the yellow-winged *Hemipepsis* of India is urgently desired.

#### **Hemipepsis fumipennis** (SMITH).

1859. *Mygnimia fumipennis* SMITH, Jl. Proc. Linn. Soc. Zool. 3 : 13, ♀ (Makassar, Celebes).

The type is a female from Makassar in the SAUNDERS collection (Oxford University Museum). The carina on the hind tibiae is weakly sinuate. Propodeum with about ten transverse costae.

#### **Hemipepsis gigas** (TASCH.).

1869. *Priocnemis gigas* TASCHENBERG, Zeitschr. f. d. ges. Naturw. 34: 40, ♀ (Java).

1953. *Hemipepsis gigas* v. D. VECHT & WILCKE, Treubia 21: 704, ♀ ♂; figs. 4 and 9a (p. 690 and 693); (Java; Borneo; Bangka).

Perhaps identical with *Hemipepsis aurosericea* (GUÉR.).

**Hemipepsis ichneumonea (GUÉR.).**

1831. *Pepsis ichneumoneus* GUÉRIN, in DUPERREY: Voyage Coquille, Atlas, Ins. pl. 8, fig. 13 (New Guinea).  
 1838. *Pompilus ichneumoneus* GUÉRIN, in DUPERREY: Voyage Coquille, II, 1<sup>re</sup> partie (1830), 1838 : 258, ♀.  
 1861. *Mygymia ichneumoniformis* SMITH, Jl. Proc. Linn. Soc. Zool. 5: 121 (recorded from New Guinea and Amboina).  
 1862. *Mygymia ichneumoniformis* SMITH, Jl. Proc. Linn. Soc. Zool. 6: 55 (recorded from Celebes).

SMITH (1855, l.c., p. 151) erroneously recorded this species from Brazil; BINGHAM (1897, l.c., p. 131) described the alleged male from Sikkim, but he had undoubtedly a different species before him, very probably *H. audax* (SM.).

**Hemipepsis indica (CAM.).**

1891. *Salus (Mygymia) indicus* CAMERON, l.c. : 444, 448, sex? ("Tavoz", Mus. Calcutta).  
 ? 1897. *Salus smithii* BINGHAM, new name, l.c. : 134, ♀♂ (Sikkim, Birma, Tenasserim, Borneo, Celebes).  
 ? 1915. *Hemipepsis indicus* TURNER, Rept. Hym. Br. Orn. Un. & Woll. Exp. Dutch New Guinea : 2 (New Guinea).  
 ? 1935. *Hemipepsis indicus* (CAM. nec BINGH.) HAUPT, Revue suisse Zool. 42 : 307 (Flores).

The species recorded by BINGHAM under this name (*Salus indicus*, Jl. Bombay Nat. Hist. Soc. 8, 1893 : 374, pl. I, fig. 10, and Fauna Br. India, Hym. I, 1897 : 134) appears to be different from CAMERON's species. According to BINGHAM the type locality of the latter is Tavoy, not Tavoz, in Tenasserim.

*Hemipepsis indica* (CAM.) may prove to be identical with *H. fervida* (SM.), but since both belong to a group which contains several closely allied species, it appears desirable to keep the two apart until it has been possible to study CAMERON's type.

**Hemipepsis intermedia (SMITH).**

1873. *Mygymia intermedia* SMITH, Ann. Mag. Nat. Hist. (4) 12: 257, ♀ ("N. India, Ceylon").  
 1893. *Salus intermedius* BINGHAM, l.c. : 372 (Tenasserim).  
 1896. *Salus intermedius* BINGHAM, l.c. : 211 (orig. descr.); pl. 11, fig. 3.

BINGHAM (1897, Fauna Br. India, Hym. I : 128) treated *intermedia* as a synonym of *Hemipepsis ceylonica* (SAUSS.), but if the N. Indian specimen should be regarded as the type, the two will probably found to be different.

The type of this species should be in the British Museum, but I was unable to find it there.

**Hemipepsis jacobsoni** V. D. VECHT & WILCKE.

1953. *Hemipepsis jacobsoni* V. D. VECHT & WILCKE, *Treubia* 21: 716, ♀ ♂ (Noordwachter Island north of West Java, and West Java).

**Hemipepsis kangeanensis** V. D. VECHT & WILCKE.

1953. *Hemipepsis (Rhodopepsis) kangeanensis* V. D. VECHT & WILCKE, *Treubia* 21: 723, ♀ ♂ (Kangean Island and East Java).

**Hemipepsis lacaena** (SMITH).

1861. *Mygymia lacaena* SMITH, *Jl. Proc. Linn. Soc. Zool.* 5: 121, ♀ (Amboina).

The type is a female *Hemipepsis* labelled "Amb." in the SAUNDERS collection. The species described under this name from Borneo by HAUPT (*Ann. Mag. Nat. Hist.* (11) 7, 1941: 53) is different from *H. lacaena* (SM.).

**Hemipepsis laeta** (SMITH).

1873. *Mygymia laeta* SMITH, *Ann. Mag. Nat. Hist.* (4) 12: 257, ♀ (Birmah).

? 1893. *Salius laeta* BINGHAM, *l.c.*: 374 (recorded from Tenasserim).

1897. *Salius sinensis* (SMITH), BINGHAM, *l.c.*: 133.

Both BINGHAM (1897, *l.c.*) and HAUPT (*Arkiv f. zool.* 27 A, 1934: 3) regard *laetus* as a synonym of *sinensis*, but after having compared the types in the B.M. collection I prefer to keep the two separated. *H. laeta* (SM.) has the thorax narrower, the wings wider and the propodeum more finely transversely striate than *H. sinensis* (SM.).

**Hemipepsis luzonica** BANKS.

1934. *Hemipepsis luzonica* BANKS, *l.c.*: 14, ♀ ♂ (Philippine Islands).

**Hemipepsis martinii** (BINGHAM).

1896. *Salius martinii* BINGHAM, *l.c.*: 204, ♀ ♂ (Sumatra).

The male described by BINGHAM probably belongs to a different species. The type (♀) is in the B.M. collection; the Leiden Museum possesses a female collected in May 1915 at Tanangtalu in Sumatra by E. JACOBSON.

In coloration this species agrees very closely with the Javan *Parasalius alboplagiatus* (SMITH), but in the latter the antennae are darker.

**Hemipepsis matangensis** (CAM.).

1905. *Salius matangensis* CAMERON, *Jl. Straits Br. Roy. As. Soc.* 44: 161, ♂ (Sarawak, Borneo).

The type is a male, labelled "June 1900" and "CAMERON coll. 1914-110". It is allied to *Hemipepsis fervida* (SM.), but distinguished by the propodeum which is produced into a blunt tubercle on each side at apex.

**Hemipepsis mellerborgi mellerborgi (DAHLB.).**

1845. *Priocnemis mellerborgi* DAHLB. Hym. Eur. I : 457, ♀ (Java).

1953. *Hemipepsis mellerborgi mellerborgi* v. D. VECHT & WILCKE, Treubia 21: 710, ♀ ♂ (West Java).

The type of this species is in the Museum at Stockholm, where I examined it in 1948. SCHULZ (1911) suspected that *H. mellerborgi* would prove to be identical with *H. coeruleipennis* (SAUSS.), but it is undoubtedly different.

**Hemipepsis mellerborgi betremi v. D. VECHT & WILCKE.**

1953. *Hemipepsis mellerborgi betremi* v. D. VECHT & WILCKE, Treubia 21: 712, ♀ ♂ (East Java).

**Hemipepsis minora BANKS.**

1934. *Hemipepsis minora* BANKS, l.c.: 10 ♀ (Philippine Islands).

**Hemipepsis misera (CAM.).**

1901. *Salius miserus* CAMERON, Proc. Zool. Soc. Lond. 1901, 2 : 22, ♂ (Singapore).

The type is a male from Singapore, labelled "1931-156" (coll. B.M.). Compare the notes on *H. robertiana* (CAM.).

**Hemipepsis momentosa (SMITH).**

1873. *Mygnimia momentosa* SMITH, Ann. Mag. Nat. Hist. (4) 12 : 258, ♂ (Borneo).

1909. *Salnis (Myngynia) hirticandis* (sic!) CAMERON, Entomologist 42: 182, ♂ (Kuching, Sarawak, Borneo).

? 1911. *Cryptochilus (Mygnimia) momentosa* SCHULZ, Zool. Ann. 4 : 103.

1915. *Hemipepsis momentosa* TURNER, Ann. Mag. Hist. (8) 16 : 332 (*H. momentosa* = *Salius hirticaudis*).

The types of both *M. momentosa* SM. and *S. hirticaudis* CAM. are in the B.M. collection. It seems to me that the species from Palawan, described by SCHULZ as *momentosa*, is different from SMITH's species.

**Hemipepsis negritos BANKS.**

1934. *Hemipepsis negritos* BANKS, l.c. : 10, ♀ ♂ (Philippine Islands).

**Hemipepsis nigricornis v. D. VECHT & WILCKE.**

1953. *Hemipepsis (Rhodopepsis) nigricornis* v. D. VECHT & WILCKE, Treubia 21: 721, ♀ ♂; fig. 10a (p. 693); (West and Central Java).

**Hemipepsis obsoleta (SAUSS.).**

1867. *Agenia obsoleta* SAUSSURE, l.c.: 56, "♀", T. 3, fig. 37, ♂ (!) (Ceylon).

1891. *Pseudagenia obsolita* (sic!) CAM., l.c. : 438.

1911. *Cryptochilus (Mygnimia) obsoletus* SCHULZ, Zool. Ann. 4 : 104.

The original description is said to be based on four females, but the figure represents a male. According to SCHULZ, DE SAUSSURE's collection.

contains four males of this species. The propodeum of this species is trituberculate posteriorly.

**Hemipepsis obsonator (BINGHAM).**

1897. *Salius obsonator* BINGHAM, l.c. : 144, ♂ (Allahabad, N.W. India).

The type of this species is a male *Hemipepsis* in the B.M. collection; the transverse vein at base of first discoidal cell (basal vein) is rather strongly curved.

**Hemipepsis odin (STRAND).**

1914. *Salius (Hemipepsis) odin* STRAND, Archiv für Naturg. 80 A, : 138, ♀ (Perak, Malaya). (Type in Deutsch. Ent. Inst., Berlin-Dahlem).

**Hemipepsis opulenta (SMITH).**

1863. *Mygnumia opulenta* SMITH, Jl. Proc. Linn. Soc. Zool. 7: 32, ♂ (Mysol).

The type is a male, labelled "M" in the SAUNDERS collection. Median cross vein steep and almost straight. Claws of fore legs with two teeth. Postscutellum prominent. No distinct macula in first discoidal cell. This is perhaps the male of *H. ferruginea* (SM.).

**Hemipepsis perplexa (SMITH).**

1855. *Mygnumia perplexa* SMITH, l.c. : 185, ♀ (Madras) (nec *Pompilus perplexus* SMITH, l.c. : 147).

1891. *Salius megaera* CAMERON, l.c. : 445 (new name for *Salius perplexus* (SMITH)).

1897. *Salius perplexus* BINGHAM, l.c. : 130, ♀ ♂ (Sikkim; S. India; Tenasserim).

1897. *Salius perplexissimus* DALLA TORRE, l.c. : 236 (new name for *Salius perplexus* (SMITH)).

1911. *Cryptochilus (Mygnumia) perplexus* SCHULZ, Zool. Ann. 4 : 107, ♀ (recorded from Ceylon).

1921. *Salius perplexus* DOVER, Rec. Ind. Mus. 22 : 384.

It appears that CAMERON, upon discovering that SMITH had already used the name *perplexa* for a species of *Pompilus* which in his opinion should be placed in *Salius*, changed the name in *megaera*. Unfortunately, this name had been applied previously by SMITH to an African species of *Mygnumia*. In DALLA TORRE's catalogue *megaera* CAM. is placed under *megaera* SM., but this is undoubtedly incorrect.

*Pompilus perplexus* SM. is not a "*Salius*" but a species of the genus *Orientaloplius* HPT. and DALLA TORRE's name is therefore unnecessary.

The type of *H. perplexa* (SM.) in the British Museum is a female, bearing a label "Presented by Walter Eliot Esq., *Pompilus flavus* Fabr., *Sphex flava* Fabr. Ent. Syst. II 217, 80; Madras". It agrees well with SMITH's description.

**Hemipepsis petri (SCHULZ).**

1905. *Salius frederici* CAMERON, Ann. Mag. Nat. Hist. (7) 15 : 474, ♂ (Khasia Hills, Assam) (nec *S. frederici* CAM. 1904).  
 1906. *Cryptochilus petri* SCHULZ, n.n. Spolia Hym. : 166, no. 224.

**Hemipepsis placida (BINGHAM).**

1896. *Salius placidus* BINGHAM, Jl. Proc. Linn. Soc. Zool. 25 : 437, ♂ (Tenasserim).  
 1897. *Salius placidus* BINGHAM, l.c. : 267, ♂.

The type is a male from Ataran Valley, Tenasserim, March 1894, BINGHAM (coll. B.M.).

**? Hemipepsis praestabilis (BINGHAM).**

1897. *Salius praestabilis* BINGHAM, l.c. : 136, ♂ (Pegu Yoma, Burma, Tenasserim).  
 ? 1929. *Leptodialepis praestabilis* HAUPT, Treubia 10 : 465 (recorded from Krakatau).  
 ? 1938. *Leptodialepis praestabilis* HAUPT, Notes d' Ent. Chin. Mus. Heude 5 : 33.

A male from Pegu Hills, Birma, June 1886, is labelled as type. Whether this is correct, appears to be open to doubt. HAUPT regards *praestabilis* BINGH. as belonging to his genus *Leptodialepis*, an opinion which is based on material from the BINGHAM collection in the Berlin Museum. The specimen in the B.M. is a rather large *Hemipepsis* which has a distinct hyaline spot in the proximal part of the first discoidal cell. In the original description, however, the wings are described as follows: "wings dull fuscous throughout, with no hyaline patch, and very slightly effulgent."

There is another specimen under the name *praestabilis* BINGH. in the B.M. which differs from the type; this is perhaps a male of *Hemipepsis aeruginosa* (SM.).

**Hemipepsis princeps (SMITH).**

1858. *Mygimima princeps* SMITH, Jl. Proc. Linn. Soc. Zool. 2 : 98, ♀ (Sarawak, Borneo).

The type is a female *Hemipepsis*, labelled "Sar." in the SAUNDERS collection (Oxford University Museum). *H. princeps* SM. is closely allied to *H. speculifer* (LEP.). BANKS (1934) incorrectly used the name *princeps* SM. for a species of *Parasalius*. The British Museum possesses 3 ♀ and 2 ♂ from Borneo.

**Hemipepsis quadridentata v. D. VECHT & WILCKE.**

1953. *Hemipepsis (Rhodopepsis) quadridentata* v. D. VECHT & WILCKE, Treubia 21 : 721, ♀ ♂ (West and Central Java).

**Hemipepsis robertiana** (CAM.).

1903. *Salius robertianus* CAMERON, Jl. Straits Br. R. As. Soc. 39 : 157, ♂ (Kuching, Sarawak, Borneo).

The type is a male from Kuching (coll. B.M.). This species is closely allied to *H. misera* from Singapore, but it is larger, the antennae are darker on upper side, the wings more strongly infuscated on outer half. Both forms have a comb at the base of the hind metatarsi and some dark, fine and appressed pubescence on the second abdominal tergite.

**Hemipepsis rubida** (BINGHAM).

1890. *Mygnimia rubida* BINGHAM, l.c. : 238, ♀ ♂ (Ceylon).  
 1896. *Salius rubidus* BINGH., Proc. Zool. Soc. : 435, pl. XV, fig. 2.  
 1897. *Salius rubidus* BINGH., l.c. : 130, ♀ ♂.

According to information recently received from Dr I. H. H. YARROW, the British Museum possesses a female specimen claiming to be the type of this species. It is labelled "Pundaloya, Ceylon, 8/90, Bingham coll." I have not examined this specimen.

**Hemipepsis saevissima** (SMITH).

1873. *Mygnimia saevissima* SMITH, Ann. Mag. Nat. Hist. (4) 12 : 256, ♀ (Bombay Presidency, India) (type in Br. Mus.).  
 1893. *Salius saevissima* BINGH., l.c. : 375 (occurrence in Tenasserim).  
 1897. *Salius consanguineus* BINGHAM, l.c. : 138. (*S. consanguineus* SAUSS. = *S. saevissimus*).

**Hemipepsis satelles** (BINGHAM).

1896. *Salius satelles* BINGHAM, Jl. Proc. Soc. Zool. 25: 433, ♂, pl. XIX, fig. 7 (Ataran Valley, Tenasserim).  
 1897. *Salius satelles* BINGHAM, l.c. : 127, ♂.

BINGHAM placed this species in the *Hemipepsis* group of the genus *Salius*. The type is a male, labelled 4/93, in the B.M. collection. I have not examined this specimen.

**Hemipepsis speculifer speculifer** (LEP.).

1845. *Anoplius speculifer* LEPELETIER, Hist. nat. Insect. Hymén. 3: 442, no. 1, ♀ (Java).  
 1855. *Pompilus speculifer* SMITH, l.c. : 146.  
 1911. *Cryptochilus* (*Mygnimia*) *speculifer* SCHULZ, Zool. Ann. 4: 102 (recorded from Amboina, certainly based on incorrectly labelled specimen).  
 1935. *Hemipepsis diselene* (SM.) HAUPT, Revue suisse Zool. 42: 307 (recorded from Java).  
 1953. *Hemipepsis speculifer* v. D. VECHT & WILCKE, Treubia 21: 700, ♀ ♂; figs. 2 and 6 (p. 689 and 693); (Java).

**Hemipepsis speculifer diselene (SMITH) (new status).**

1855. *Pepsis diselene* SMITH, l.c. : 200, ♂; type loc.: "India (Singapore)".  
 1858. *Mygymia ducalis* SMITH, Jl. Proc. Linn. Soc. Zool. 2: 98, ♀ (Mt Ophir, Malaya) (n. syn.).  
 1897. *Pepsis diselene* DALLA TORRE, l.c. : 251.  
 ? 1901. *Salius diselene* ENDERLEIN, Stett. Ent. Ztg. 62 : 152.  
 ? 1905. *Salius ducalis* BINGH., Fasc. Mal. Zool. 3 : 42, ♀ (Malaya).

The type of *P. diselene* is apparently a male, labelled "India", in the SAUNDERS collection. The type of *M. ducalis* is not in Oxford; the SAUNDERS collection contains one female with blue label "Penang (Siam. Malac)" and one male with a round label "Sum." (= Sumatra).

BANKS (1934, l.c.: 8) recorded *H. ducalis* from Borneo, but since he says the tip of the marginal cell is rounded, he probably had a different species before him.

The subspecies *diselene* SM. (= *ducalis* SM.) differs from typical *speculifer* in the shape of the silvery mark on the fore wing; this mark is almost circular in the Javan form, but it has the form of a transverse band in specimens from Malaya and Sumatra.

**Hemipepsis sycophanta GRIB.**

1884. *Hemipepsis? sycophanta* GRIBODO, Ann. Mus. Civ. Stor. Nat. Genova (2a) 1 : 359, ♀ (probably from Ceylon).  
 1893. *Salius severus* BINGH. (nec DRURY), l.c. : 371 (Pegu Yoma and Tenasserim).  
 1896. *Salius severus* BINGH. (nec DRURY), l.c. : 215, pl. II, fig. 2, ♀.  
 1897. *Salius sycophanta* BINGHAM, l.c. : 131, ♀ (S. India, ? Ceylon, Birma, Tenasserim).  
 ? 1901. *Salius sycophanta* CAMERON, Proc. Zool. Soc. 1901, 2: 23 (Malaya).  
 1933. *Hemipepsis sycophanta* HAUPT, Bull. Mus. Hist. Nat. Belg. 9 : 1 (Malaya).

**Hemipepsis tagala GRIB.**

1894. *Hemipepsis tagala* GRIBODO, Miscellanea entomologica 2: 2, ♀ (Philippine Islands).  
 1934. *Hemipepsis tagala* BANKS, l.c. : 11, ♀ ♂ (Philippine Islands).

**Hemipepsis taprobanae (CAM.).**

1901. *Salius taprobanae* (sic!) CAMERON, Proc. Zool. Soc. Lond. 1901, 2 : 23, ♀ (Trincomali, Ceylon).

The type of this species is in the B.M. collection; it is a female *Hemipepsis* with yellow wings; the first discoidal cell is long and narrow, with a light fenestra at the base; there is a small dark spot near the anterior margin of the cell, close to the distal end of the fenestra; the dark apical margin of the wings is narrow; in the hind wings the cubitus is strongly curved inwards at its base and originates before the end of the submedian cell; carina of hind tibiae strongly dentate, with approximately 20 separate teeth.



**Hemipepsis thione** (SMITH).

1861. *Mygimnia thione* SMITH, Jl. Proc. Linn. Soc. Zool. 5 : 121, ♀ (Amboina).

The type is a female *Hemipepsis* of the *fervida*-group in the SAUNDERS collection. Mesopleura distinctly projecting posteriorly; anterior margin of clypeus depressed and shiny, truncate; propodeum with about 10 transverse rugae, on each side with a shallow longitudinal impression. Antennal segments 3 : 4 = 12 : 7; distance between eyes on vertex = 11. Fore wings with distinct spot in base of first discoidal cell. Length 14 mm.

**Hemipepsis veda** (CAM.).

1891. *Salus (Mygimnia) veda* CAMERON, l.c. : 445, 449 (Poona, Bombay).

1897. *Salus veda* BINGHAM, l.c. : 133.

The type is said to be in the collection of Mr WROUGHTON, but I do not know where this collection is preserved. Neither CAMERON nor BINGHAM mention the sex of the type. I place this species, which is only 9 mm long, with some doubt in the genus *Hemipepsis*.

**Hemipepsis velutina** V. D. VECHT & WILCKE.

1953. *Hemipepsis velutina* V. D. VECHT & WILCKE, Treubia 21 : 707, ♀ ♂ (Java, Bawean, Bali).

**Hemipepsis venatoria** (BINGHAM).

1896. *Salus venatorius* BINGHAM, Jl. Proc. Linn. Soc. Zool. 25 : 437, ♂, pl. XIX, fig. 9 ("♀", recte ♂!) (Burma and Tenasserim).

1897. *Salus venatorius* BINGHAM, l.c. : 136, ♂ (Burma).

The type is a male from Pegu Yoma, Burma, July 1887 (coll. B.M.).

This species is distinguished by the colour of the wings which are dark with a transverse yellowish hyaline band in the middle.

**Hemipepsis vulcanica** V. D. VECHT & WILCKE.

1953. *Hemipepsis vulcanica* V. D. VECHT & WILCKE, Treubia 21 : 715, ♀ (West Java).

## ERRATUM.

In Indo-Australian Pompilidae I (Treubia 20, 1949), fig. 4 on p. 283 represents a ♀ of *Cyphononyx peregrinus* (Sm.), not a ♂!

---