

Heteroprymna longicornis (Walker) from Finland, including the first description of its male (Hymenoptera: Chalcidoidea, Pteromalidae)

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Vikberg, V. 2019: *Heteroprymna longicornis* (Walker) from Finland, including the first description of its male (Hymenoptera: Chalcidoidea, Pteromalidae). – Sahlbergia 25(1): 11–14.

Several females of *Heteroprymna longicornis* (Walker) were swept under lime trees in September and October 2017 in two localities in southern Finland (South Häme: Janakkala, Turenki). The species is new to Finland. One male was collected together with the females and it is described for the first time. In addition, one female was collected already in 1938 in Lavansaari by Wolter Hellén and it appears to be a new record for the European part of Russia.

Pteromalidae-heimon kiilukainen *Heteroprymna longicornis* (Walker, 1835) on sukunsa ainoa laji Euroopassa ja Venäjän Kauko-Idässä. Se on melko harvinainen ja lajin koiras on tähän asti ollut tuntematon. Syyskuussa ja lokakuussa 2017 lajin naaraita löytyi Janakkalan Turengista kahdesta paikkaa lehmusten lehvästöistä ja alta. Isäntä on vielä tuntematon. Myös yksi koiras löytyi naaraiden kanssa ja se kuvataan ensimmäistä kertaa. Viittaus koiraaseen lisätään kahteen käytössä olevaan sukujen tutkimuskaavaan.

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Introduction

Walker (1835) described *Pteromalus longicornis* based on several females which were found near London. He described the colour of the body as green blue, antennae black, scape and legs fulvous, coxae blue-green, gaster blue, its discus black-cupreous, first tergum green, with base fulvous, apically gaster blue-cupreous. Later Walker (1848) described *Pteromalus camma* based on a female found by him in England.

Graham (1956) studied Walker's types of Pteromalidae and among four syntypes he designated a lectotype female for *Pteromalus longicornis* and redescribed the species in many details and figured its body from above, its head in profile and in front view, and pedicel and flagellum of right antenna. A new genus *Heteroprymna* was created by him with *Pteromalus longicornis* as its type species. Graham's (1969) monograph treated the species of Pteromalidae of Northwestern Europe. He designated a lectotype female for *Pteromalus camma* and synonymized the species with *Heteroprymna longicornis* (Walker). The genus *Heteroprymna* was included in the key to European genera of Pteromalinae for females. The male was unknown to him.

Bouček & Rasplus (1991) published an illustrated key to the West-Palaearctic genera of Pteromalidae. Bouček & Heydon (1997) provided a key to the North American genera. The female of *Heteroprymna* can be identified by using their keys.

Heteroprymna longicornis has been recorded in the following countries: United Kingdom: England (Walker 1835, Graham

1969), France (Bouček & Rasplus (1991): www.atbi.eu/mercantour-maritime/; Alpes maritimes, Parc National du Mercantour, 1100m, 27.VII.2009 1 specimen, Gérard Delvare leg. and det., Moldova (Bouček 1965), Serbia (Bouček 1977), Croatia (Bouček 1977), Czechia (Bouček 1968), The Netherlands (Gijswijt 2003), Sweden: Skåne and Närke (Hedqvist 2003), Russia: Far East, Kamchatka Territory (Tselikh 2016).

In addition, one unidentified species of *Heteroprymna* has been reported from Canada, New Brunswick (Bouček & Heydon 1997). One female was found on apple leaves (*Malus*). Its head and antenna were figured in front view. Possibly it also represents *H. longicornis*.

Material and methods

The following specimens have been studied from Finland and Russia:

Finland, South Häme: Janakkala, Turenki, Kuumola, Rotarypuisto (WGS84 60.914° N 24.652° E) 10 September 2017 2 ♀♀, 15 October 2017 1 ♀; Janakkala, Turenki, Vapari (WGS84 60.917° N 24.634° E) 13 October 2017 1 ♂ 6 ♀♀, 18 October 2017 4 ♀♀ (leg. V. Vikberg). In Vapari, the specimens were swept under lime trees, *Tilia cordata* Mill., and in Rotarypuisto under *Tilia cordata* or *Tilia* sp. The Finnish specimens will be deposited in the Finnish Museum of Natural History (Luomus). Russia, Leningrad oblast, Lavansaari, on dunes, 7 July 1932 1 ♀ (leg. W. Hellén; 1144) (coll. Luomus).



Figs. 1–2. Female of *Heteroprymna longicornis* (Walker).
Fig. 1. Dorsal view. **Fig. 2.** Lateral view.
Photographed by Pekka Malinen.

Kuvat 1–2. *Heteroprymna longicornis* (Walker) -naaras.
Kuva 1. Päältä. **Kuva 2.** Sivulta.
Valokuvannut Pekka Malinen

Abbreviations used in the text: F1–F6= funicular segments 1–6; Luomus= Finnish Museum of Natural History; L = length; W = width; H = height; Kotka = photo archives of Luomus.

Measurements were made with an ocular grid in an Ernst Leitz stereomicroscope (objective 8x, eye piece 12x). Scale: The measured value 200 corresponds to 1.01 mm in specimen.

Results

Some characters of the Finnish females (Figs. 1-2)

Graham (1956: 259–260) described the new genus *Heteroprymna* and the female of its only species *H. longicornis* in detail. The Finnish females were studied and compared with his descriptions.

Body length: Finnish females are 1.5–2.05 mm long. According to Graham: 1.5–2.2 mm; and according to Bouček & Rasplus (1991). the largest females are up to 2.3 mm.

Head black, with weak bluish tint; mesosoma black, with weak greenish tint. Graham described the body colour as bronzy- or steely-black. In the original description by Walker (1835: 94–95) main body colour was described as blue-green.

Head in dorsal view 2.1–2.2 times as broad as long [Graham: 2.5 times as broad as long, but measured from his figure 3 a value of 2.1x is obtained].

Prepectus dorsally as long as tegula, with its posterior margin as long as dorsal margin, its upper margin smooth, below reticulate or with irregular sculpture or almost smooth [Graham: lateral panels of prepectus narrow, reticulate]

Spiracles of propodeum oval, close to hind margin of metanotum, in two females small, roundish, further from hind margin of metanotum [Graham: spiracles very small, circular, separated by at least their own diameter from hind margin of metanotum]

Hind coxa dorsobasally with 2–4 small setae which are directed laterad [Graham: did not mention this character, but Graham (1969) and Bouček & Rasplus (1991) placed the genus in their couplets "dorsal surface of hind coxae bare in its basal half"]

Legs rather slender; hind femur 4.4 times as long as wide in lateral view, hind tibia 7.6 times as long as wide. Hind tarsus 0.78 times as long as hind tibia

Relative measurements of the largest photographed female with a body length of 2.05 mm (length, unless stated otherwise): Head 58, W 144, H 95. Antennal segments (L x W): Scape 64 x 10, pedicel 14 x 10, F1 17 x 9, F2 16 x 9, F3 16 x 10, F4 14 x 10, F5 13 x 10, F6 12 x 11, clava 40 x 12. Mesosoma 167, W 112, H 110. Hind femur 92, W 21. Hind tibia 106, W 14. Hind tarsus 83. Gaster 200, W 120, H 50.

Description of the male of *Heteroprymna longicornis* (Figs. 3-4)

Head 1.3 times as broad as mesoscutum, in dorsal view 2.1 times as broad as long, temples strongly converging behind eyes and 0.36 times as long as eyes, ocelli in a triangle of 120°,



Figs. 3–4. Male of *Heteroprymna longicornis* (Walker).
Fig. 3. Dorsal view. **Fig. 4.** Lateral view.
Photographed by Pekka Malinen.

Kuvat 3–4. *Heteroprymna longicornis* (Walker) -koiras.
Kuva 3. Päältä. **Kuva 4.** Sivulta.
Valokuvannut Pekka Malinen.

POL:OOL 1.4: 1; in front view 1.3 times as broad as high, with vertex convex. Genae converging towards mouth but slightly curved in outline, with weak hollow just above base of mandibles. Eyes about 1.2 times as high as wide, separated on vertex by 1.6 times their own length, inner orbits diverging ventrally. Malar space 0.5 times height of eye, genal sulcus fine. Mouth two times as broad as malar space is long. Head reticulate, clypeus and lower part of face finely radiately strigose; genae with a shiny strip outside genal sulcus. Antennae with scape linear, reaching median ocellus; combined length of pedicel and flagellum 1.4 times breadth of head. Pedicel (in profile) 1.2 times as long as broad. Anelli strongly transverse. First funicular segment as stout as, and 2.3 times as long as pedicel, 2.7 times as long as broad. Remaining segments slightly progressively decreasing in length, sixth 1.7 times as long as broad, and as broad as pedicel. Clava slightly narrower than sixth funicular segment, longer than two preceding funiculars, 4.6 times as long as broad, apically acute. Funicle and clava covered with long (about as long as width of corresponding segment), rather pale outstanding setae, those on clava directed more apicad. Funicle and clava with sparse sensillae in a single row on each segment.

Mesosoma about 1.5 times as long as broad. Pronotum with anterior portion steeply declined; collar medially 0.09 times as long as mesoscutum, sharply margined throughout, mainly smooth and shiny, with transverse row of setae in front of the middle. Mesoscutum 1.76 times as broad as long, with rather

wide-meshed reticulation. Incomplete notauli shallow, except anteriorly. Axillae separated by 0.26 of breadth of mesoscutum. Scutellum as broad as long, strongly convex, its sculpture finer than that of mesoscutum. Propodeum finely reticulate, shiny, its median area about half as long as scutellum, and broader than long (1.7:1); plicae curved and converging posteriorly; nucha represented by subtriangular transversely reticulate strip. Prepectus shiny, its upper surface mostly smooth, its lower part irregularly reticulate, with its posterior margin about as long as dorsal margin.

Legs rather slender; hind femur 4.6 times as long as wide in lateral view, hind tibia 8.6 times as long as wide. Hind tarsus 0.77 times as long as hind tibia. Hind coxa dorsobasally with 1–2 small setae which are directed laterad. Fore wing broad, 1.9 times as long as broad, apically ciliate. Costal cell on upper side bare, with 9–10 setae in apical 0.3. Basal cell bare, in apical half with 6–7 setae, speculum large, mostly open below. Postmarginal vein subequal in length to marginal vein, 1.3 times longer than stigmal vein.

Metasoma. Petiole transverse, smooth. Gaster distinctly shorter and narrower than mesosoma, 1.9 times as long as maximally broad, flattened (height about half of its breadth). Genitalia slightly protruding, digitus with three spines.

Colour. Head black, with weak bluish tint. Scape and pedicel black, flagellum blackish, clava slightly brownish. Mandibles rufo-testaceous. Mesosoma, including coxae black with weak greenish tint. Tegula testaceous. Wings hyaline, veins brownish yellow. Legs reddish yellow. Petiole rufous. Gaster above blackish, gastral tergum 1 in basal half with strong greenish tint. Gastral terga 2–4 with cupreous transverse bands, terga 5–7 with weak greenish tint, terga 5–6 apically slightly cupreous. Length 1.65 mm.

Relative measurements of body parts (length, unless stated otherwise). Head 58, W 126, H 95. Antennal segments (L x W): Scape 47 x 10, pedicel 12 x 10, F1 27 x 10, F2 20 x 9, F3 19 x 9, F4 19 x 9, F5 18 x 10, F6 17 x 10, clava 41 x 9. Mesosoma 145, W 99, H 95. Hind femur 83, W 18. Hind tibia 95, W 11. Hind tarsus 73. Gaster 127, W 68, H 35.

Discussion

Heteroprymna longicornis is a rather rare species with a Palaearctic distribution. It is possible that the unidentified female from Canada also belongs to the same species. Females are now recorded from about 22 localities. Dates of capture range from June (4 exx.), July (6 exx.), August (4 exx.), September (1 ex.) to October (2 exx.). In southern England the species was swept on two different occasions from the foliage of lime trees (Graham 1969) and in Finland the specimens were swept on foliage or below the lime trees in two localities, so it seems to be associated with lime trees, but the host is unknown so far.

The male has been unknown until now. It cannot be identified by using the keys in Bouček & Rasplus (1991) or Bouček & Heydon (1997), because these use two characters of the female: the structure of antenna and shape of gaster, which are quite different in male. Graham (1969) constructed a key to most males of European Pteromalinae, and a new footnote for *Heteroprymna* could be added into the couplet 51 (41) and its asterisk placed there before number 52:

Footnote: If the male is small (1.5–2 mm), black with weak bluish or greenish tint, its antennal flagellum is acute apically, pronotum sharply margined anteriorly and medially 0.09 times as long as mesoscutum, and propodeum with cordiform median area with straight median carina and curved plicae, it should be compared with *Heteroprymna longicornis* (Walker, 1835). See description of its male in Vikberg (2019).

In Europe, the key of Bouček & Rasplus 1991 is now perhaps most often used and a new footnote for the male of *Heteroprymna* could be added into the couplet 131 (129) and its asterisk placed there before number 132:

Footnote: If the male is small (1.5–2 mm), black with weak bluish or greenish tint, its antennal flagellum is acute apically, pronotum sharply margined anteriorly and medially 0.09 times as long as mesoscutum, propodeum with cordiform median area with straight median carina and curved plicae, it should be compared with *Heteroprymna longicornis* (Walker, 1835). See description of its male in Vikberg (2019). For female characters see also couplet 230 (225) in this key.

Acknowledgements

Juho Paukkunen solved the number code of Wolter Hellén's specimen from Lavansaari. He kindly read and corrected the manuscript. Lars Ove Hansen sent PDF's of three articles of Graham on Francis Walker's species of Pteromalidae. Pekka Malinen took the photographs of Finnish specimens of *Heteroprymna longicornis*.

References

- Bouček, Z. 1965: A review of the Chalcidoid fauna of the Moldavian S.S.R., with descriptions of new species (Hymenoptera). — Acta faunistica entomologica Musei Nationalis Pragae 11(97): 5–38.
- Bouček, Z. 1968: A contribution to the Czechoslovak fauna of Chalcidoidea (Hym). — Acta faunistica entomologica Musei Nationalis Pragae 12(132): 231–260.
- Bouček, Z. 1977: A faunistic review of the Yugoslavian Chalcidoidea (Parasitic Hymenoptera). — Acta entomologica Jugoslaviaca 13, Supplementum: 1–145.
- Bouček, Z. & Heydon, S. L. 1997: Chapter 17. Pteromalidae. — In: Gibson, G. A. P., Huber, J. T. & Woolley, J. B. (Eds.), Annotated keys to the genera of Nearctic Chalcidoidea (Hymenoptera) (Hymenoptera): 541–692. NRC Research Press, Ottawa, Ontario, Canada. 794 p.
- Bouček, Z. & Rasplus, J.-Y. 1991: Illustrated key to West-Palaearctic genera of Pteromalidae (Hymenoptera: Chalcidoidea). — Institut National de la Recherche Agronomique 147: 1–140.
- Gijswijt, M. J. 2003: Naamlijst van de Nederlandse bronswespen (Hymenoptera: Chalcidoidea). — Nederlandse Faunistische Mededelingen 18: 1–64.
- Graham, M. W. R. de V. 1956: A revision of the Walker types of Pteromalidae (Hym., Chalcidoidea). Part 2 (including descriptions of new genera and species). — Entomologist's Monthly Magazine 92: 246–263.
- Graham, M. W. R. de V. 1969: The Pteromalidae of North-western Europe (Hymenoptera: Chalcidoidea). — Bulletin of the British Museum (Natural History), Entomology, Supplement 16: 1–908.
- Hedqvist, K.-J. 2003: Katalog över svenska Chalcidoidea [Catalogue of Swedish Chalcidoidea]. — Entomologisk Tidskrift 124(1–2): 73–133.
- Tselikh, E. V. 2016: New data on the Pteromalid Wasps (Hymenoptera, Chalcidoidea: Pteromalidae) of the Russian Far East. — Entomological Review 96 (2): 175–190. [Original Russian text in Entomologicheskoe Obozrenie 95(1): 91–112.]
- Walker, F. 1835: Monographia Chalciditum (Continued). — Entomological Magazine 3(1): 94–97, 182–206.
- Walker, F. 1848: List of the specimens of Hymenopterous insects in the collection of the British Museum. Part II: Chalcidites. Additional species. — Trustees of the British Museum, London, iv + 237 p.

