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On the *Cypha* fauna of China, with remarks on some species described from other regions (Coleoptera: Staphylinidae: Aleocharinae: Hypocyphtini)

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A b s t r a c t : *Cypha hebes* nov.sp. (China: Yunnan) and *C. ampliata* nov.sp. (China: Yunnan) are described and illustrated. The primary male sexual characters of *C. laeviuscula* (MANNERHEIM 1830) are illustrated. The currently known *Cypha* fauna of China is represented by four species, one of them undescribed. The following new combinations are established: *Cypha sinorum* (PACE 2010), nov.comb. (ex *Holobus* SOLIER 1849); *Holobus yunnanensis* (PACE 1998), nov.comb. (ex *Cypha* LEACH 1819); *Holobus hystrix* (PACE 1985), nov.comb. (ex *Cypha*); *Holobus hystrix* (PACE 1985), nov.comb. (ex *Cypha*); *Oligota besuchetiella* (PACE 1985), nov.comb. (ex *Cypha*); *Oligota loebliella* (PACE 1985), nov.comb. (ex *Cypha*); *Oligota nepalensis* (PACE 1985), nov.comb. (ex *Cypha*); *Oligota pusilla* (PACE 1985), nov.comb. (ex *Cypha*).

K e y w o r d s : Coleoptera, Staphylinidae, Aleocharinae, *Cypha*, *Holobus*, *Oligota*, Palaearctic region, China, taxonomy, new species, new combinations.

1. Introduction

In the Palaearctic region, the genus *Cypha* LEACH 1819 of the tribe Hypocyphtini is currently represented by fifty species; most of them were described as *Hypocyphtus* GYLLENHAL 1827, a junior synonym of *Cypha*. Thirty-four species have been recorded only from the Western Palaearctic, fourteen from the Eastern Palaearctic (including Middle Asia), and two from both the Western and the Eastern Palaearctic regions (ASSING 2004a-c, 2005a-b, 2007, 2008; DAUPHIN 2005; SMETANA 2004). Only one species, *C. yunnanensis*, has been reported from China (PACE 1998).

Among the eight genera of Hypocyphtini recorded from the Palaearctic region, *Cypha* is best identified by the habitus (distinctly wedge-shaped body; large and strongly transverse pronotum), the usually slender antennae, and particularly by the morphology of the aedeagus (median lobe usually slender, arched, and with more or less acute apex; internal sac with clasp-like structure; paramere very large and of highly derived structure). The females of those species whose generic assignment has been revised and confirmed, do not possess a sclerotized spermatheca.

With very few exceptions, *Cypha* species can be reliably identified only based on the morphology of the aedeagus. External characters are often rather uniform and subject to rather little interspecific, but often pronounced intraspecific variation. Nevertheless,

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species have been described based exclusively on females and/or without dissection of even in more recent years. On one occasion, as many as eight species were described from Nepal, India, and Sri Lanka. The descriptions of four of them are based exclusively on – mostly single – females, and remarkably three of them with sclerotized spermathecae (PACE 1985).

The present paper was initiated primarily by some specimens of *Cypha* from China, most of them made available to me by Michael Schülke, Berlin. A study of the descriptions and illustrations of Hypocyphtini species recorded from the East Palaearctic region revealed not only that the material included at least two evidently undescribed species, but also some obviously erroneous generic assignments.

2. Material and methods

The material referred to in this study is deposited in the following collections:

cAss..... author´s private collection

cSch..... private collection Michael Schülke, Berlin

The morphological studies were carried out using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). A digital camera (Nikon Coolpix 995) was used for the photographs.

Head length was measured from the anterior margin of the clypeus to the posterior margin of the head, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra. The length of the median lobe of the aedeagus was measured from the apex of the ventral process to the base of the capsule.

3. The *Cypha* fauna of China

Based on a study of recently collected material, as well as of the original descriptions of Hypocyphtini species, the *Cypha* fauna of China is represented by four species. One of them was described in *Holobus* SOLIER 1849 (PACE 2010), two species are described below, and a fourth species remains undescribed because the male sexual characters are unknown. The only species previously recorded from China, *C. yunnanensis* PACE 1998, belongs to the genus *Holobus* (see section 4).

Cypha sinorum (PACE 2010), nov.comb.

Holobus sinorum PACE 2010: 83.

C o m m e n t : The original description is based on a single male from the Dailang Shan in southern Sichuan (PACE 2010). Based on a photograph of the habitus and a drawing of the lateral aspect of the aedeagus (PACE 2010: figures 1, 15), the species undoubtedly belongs to *Cypha*.

Cypha sp.

M a t e r i a l e x a m i n e d : China: 2♀♀, Yunnan, Dali Bai Aut. Pref., Mao Jiao Shan, 58 km NE Dali, E pass, 25°57'N, 100°40'E, 2525 m, secondary mixed forest, mushrooms, litter, and moss sifted, 4.IX.2009, leg. Schülke (cSch, cAss).

C o m m e n t : The above females probably represent an undescribed species.

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***Cypha hebes* nov.sp.** (Figs 1-6)

Type material: Holotype ♂: "China: Yunnan, Dali Bai Aut. Pref., mount. range E Weishan, 12 km NE Weishan, 25°17'02-15"N, 100°22'23-30"E, 2630-2660 m, scrub with pines and bamboo, litter sifted, 15.IX.2009, leg. M. Schülke [CH09-54] / Holotypus ♂ *Cypha hebes* sp. n. det. V. Assing 2010" (cAss).

Etymology: The name (Latin, adjective: blunt) refers to the apically truncate ventral process of the aedeagus, one of the characters distinguishing this species from the similar *C. laeviuscula* (MANNERHEIM 1830).

Description: Body length 1.8 mm; length from head to posterior margin of elytra: 0.85 mm; width of pronotum: 0.66 mm. Habitus as in Fig. 1. Coloration: body blackish, with the lateral margins of the pronotum diffusely yellowish; legs and antennae dark-brown, with antennomeres II-IV yellowish-brown.

Head strongly transverse; punctation fine, moderately dense; interstices without distinct microsculpture. Eyes moderately large, almost reaching posterior angles of head. Antennae slender (Fig. 2), with antennomeres VIII-X oblong and distinctly longer than the preceding antennomeres; X elongated, almost four times as long as wide and nearly as long as the combined length of VII-IX.

Pronotum approximately 1.9 times as wide as long and almost 1.5 times as wide as head; punctation as fine as that of head; interstices without evident microsculpture.

Elytra slightly wider than, and at suture approximately 1.1 times as long as pronotum; punctation denser and somewhat less fine than that of pronotum; interstices without evident microsculpture. Hind wings (fully?) developed. Protarsomere I elongated and enlarged (sexual dimorphism?), much broader and longer than the combined length of the two following tarsomeres. Metatarsomere I long, almost as long as the combined length of metatarsomeres II-IV.

Abdomen with punctation on anterior portions of tergites denser than on posterior portions, very fine on tergites III-VI and somewhat less fine on tergites VII-VIII; microsculpture very shallow or obsolete; posterior margin of tergite VII with palisade fringe.

♂: posterior margin of tergite VIII broadly convex, in the middle almost truncate; posterior margin of sternite VIII more strongly convex; median lobe of aedeagus 0.39 mm long; ventral process slender, moderatel arched in lateral view, and apically narrowly truncate in ventral view (Figs 3-6).

Comparative notes: The new species is distinguished from *C. sinorum*, the only *Cypha* species previously recorded from China, by much more slender body, darker coloration, and the different shape of the median lobe of the aedeagus. For illustrations of the habitus and the aedeagus of *C. sinorum* see PACE (2010).

In external morphology, coloration, and the shape of the median lobe of the aedeagus, *C. hebes* somewhat resembles *C. laeviuscula*. It is distinguished from the latter by the less strongly curved, the less slender, and apically truncate (*C. laeviuscula*: apex acute in ventral view) ventral process of the aedeagus. For illustrations of the aedeagus of *C. laeviuscula* see Figs 7-8.

Distribution and natural history: The species is known only from the type locality in Yunnan province, China. The holotype was sifted from leaf litter in a shrub habitat with bamboo and pine at an altitude of 2630-2660 m.

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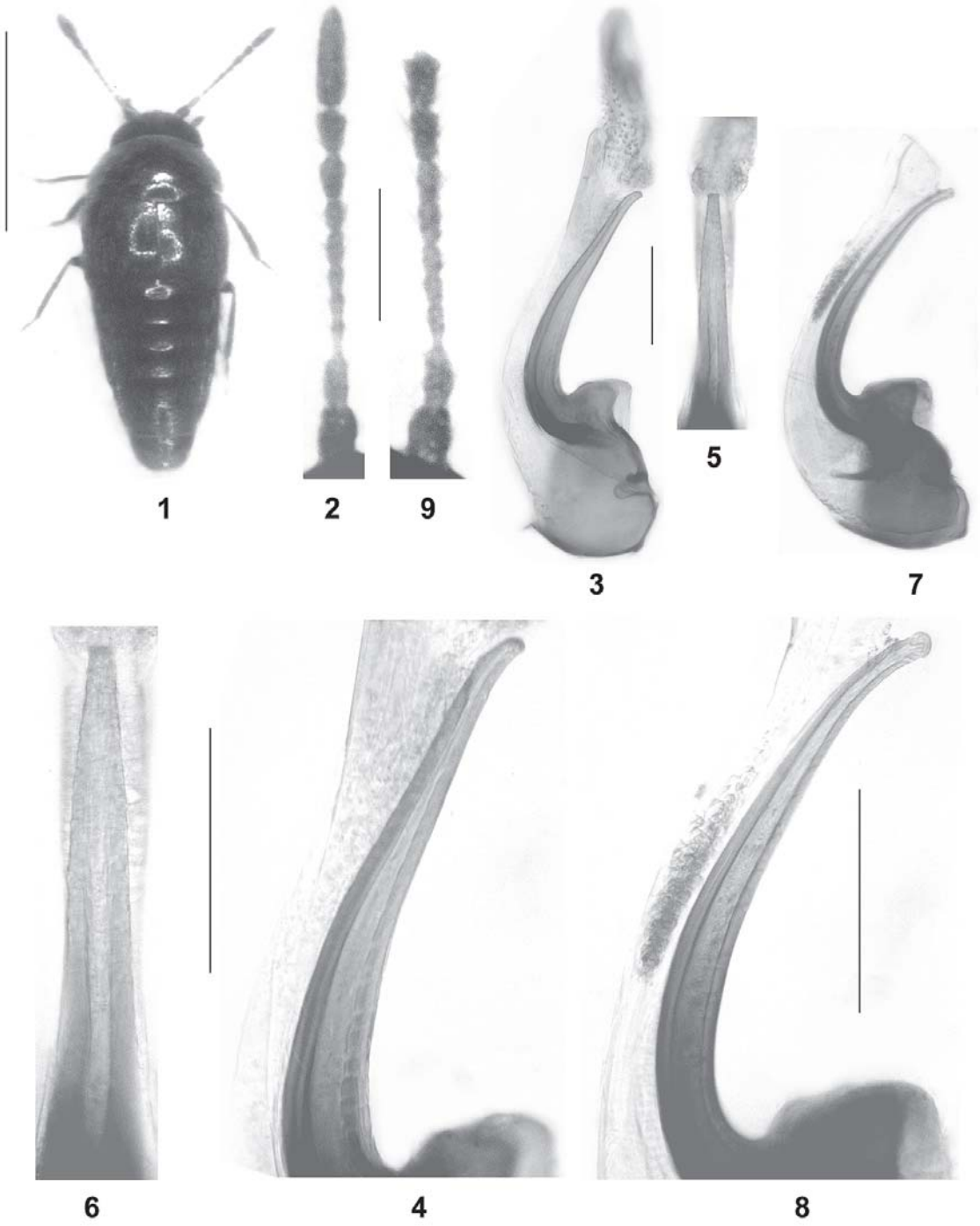

Figs 1-9: *Cypha hebes* nov.sp. (**1-6**), *C. laeviuscula* (MANNERHEIM) (**7-8**), and *C. ampliata* nov.sp. (**9**): (**1**) habitus; (**2, 9**) antenna; (**3, 7**) median lobe of aedeagus in lateral view; (**4, 8**) apical portion of median lobe of aedeagus in lateral view (4: external sac, including basal internal structure, extruded); (**5-6**) apical portion of ventral process of aedeagus in ventral view. Scale bars: 1: 1.0 mm; 2-9: 0.1 mm.

Cypha ampliata **nov.sp.** (Figs 9-14)

T y p e m a t e r i a l : Holotype ♂ [right antenna and left antennomere X missing]: "China - Yunnan, Gaoligong Shan, pass SW Baoshan, 4.-6.VI.2006, Jeniš / Holotypus ♂ *Cypha ampliata* sp. n. det. V. Assing 2010" (cAss).

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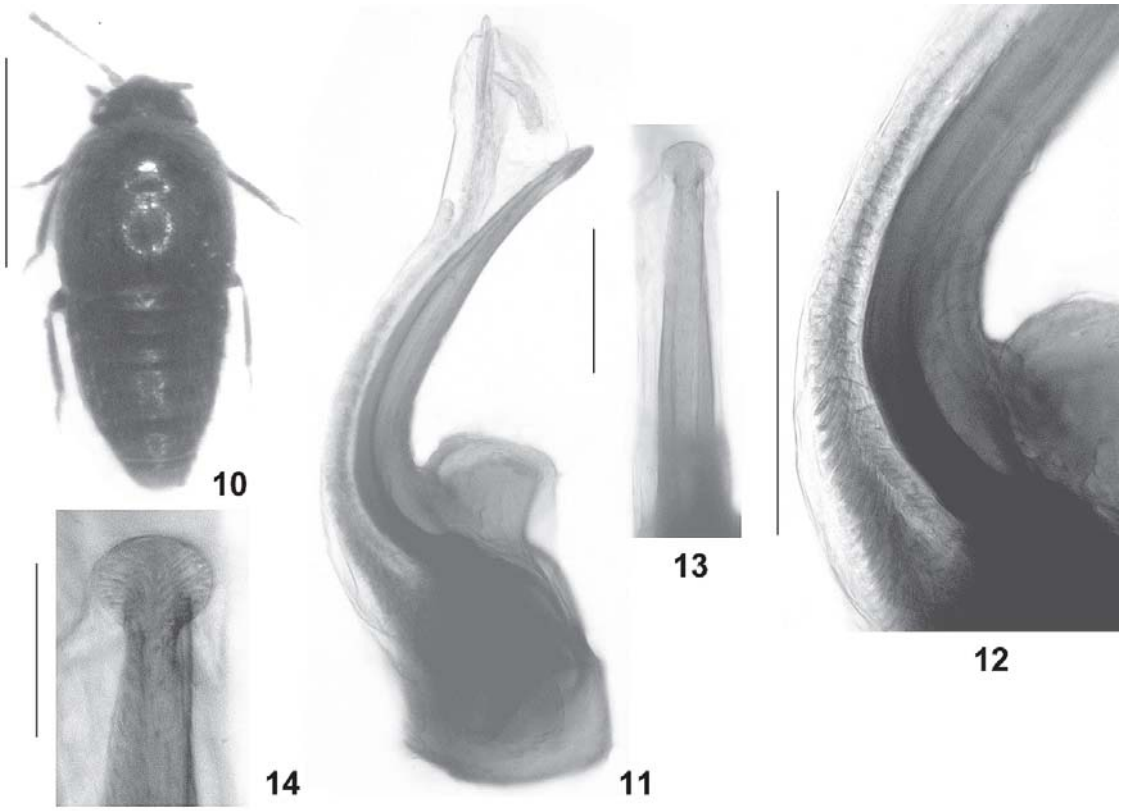
E t y m o l o g y : The name (Latin, past participle of ampliare: to dilate, to amplify) refers to the apically dilated ventral process of the aedeagus (ventral view).

D e s c r i p t i o n : Body length 2.0 mm; length from head to posterior margin of elytra: 1.0 mm; width of pronotum: 0.75 mm. Habitus as in Fig. 10. Coloration: body blackish, with the lateral margins of the pronotum diffusely yellowish and the abdominal apex somewhat paler; legs dark-brown; antennae with antennomeres I-V yellowish and VI-IX gradually darkened apically.

Head strongly transverse; punctation fine, moderately dense; interstices without distinct microsculpture. Eyes moderately large, almost reaching posterior angles of head. Antennae slender (Fig. 9), antennomeres VI-IX oblong and distinctly longer than the preceding antennomeres; shape of antennomere X unknown.



Figs 10-14: *Cypha ampliata* nov.sp.: (**10**) habitus; (**11**) median lobe of aedeagus in lateral view; (**12**) median portion of median lobe of aedeagus in lateral view; (**13**) ventral process of aedeagus in ventral view; (**14**) apical portion of ventral process of aedeagus in ventral view. Scale bars: 10: 1.0 mm; 11-13: 0.1 mm; 14: 0.05 mm.

Pronotum strongly transverse, approximately twice as wide as long and approximately 1.5 times as wide as head; punctation as fine as that of head; interstices without evident microsculpture.

Elytra slightly wider than, and at suture approximately 1.1 times as long as pronotum; punctation fine, denser than that of pronotum; interstices without evident microsculpture. Hind wings (fully?) developed. Protarsomere I elongated and enlarged (sexual dimorphism?), much broader and much longer than the combined length of the two following tarsomeres. Metatarsomere I elongated, but somewhat shorter than the combined length of metatarsomeres II-IV.

Abdomen with punctation somewhat denser and finer on anterior than on posterior ter-

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gites; microsculpture very shallow or obsolete; posterior margin of tergite VII with palisade fringe.

♂: posterior margin of tergite VIII broadly convex; posterior margin of sternite VIII more strongly convex; median lobe of aedeagus 0.45 mm long; ventral process moderately slender, moderately arched in lateral view, and apically spoon-shaped in ventral view; internal sac with clasp-shaped sclerotized basal structure and with long membranous structure (Figs 11-14).

C o m p a r a t i v e n o t e s : From *C. sinorum*, *C. ampliata* is distinguished by darker coloration, the more slender body, the more slender antennae with longer antennomeres VI-VII, and the different shape of the median lobe of the aedeagus. For illustrations of the habitus and the aedeagus of *C. sinorum* see PACE (2010). From *C. hebes*, it is separated by larger size, the broader body, a more transverse pronotum, and the larger and differently shaped aedeagus; for illustrations of *C. hebes* see Figs 3-6.

D i s t r i b u t i o n a n d n a t u r a l h i s t o r y : The species is known only from the type locality in western Yunnan province, China. Bionomic data are not available.

4. Species transferred to other genera

Holobus yunnanensis (PACE 1998), nov.comb.

Cypha yunnanensis PACE 1998: 156.

C o m m e n t : The original description is based on a male holotype and two paratypes of unknown sex from "Yunnan, Ruili". The drawings of the habitus and the median lobe of the aedeagus provided by PACE (1998: figures 5-7) leave no doubt that the species was erroneously assigned to *Cypha*. Instead, the morphology of the somewhat asymmetric aedeagus resembles that of species of *Holobus*, a generic placement additionally supported by the – rather schematic – illustration of the habitus.

Holobus hystrix (PACE 1985), nov.comb.

Hypcyphtus hystrix PACE 1985: 84.

C o m m e n t : The original description is based on a single female from Mussoorie district, northern India. A spermatheca is not illustrated, suggesting that it is not sclerotized in this species. According to the drawing of the habitus (PACE 1985: figure 28), the pronotum is only weakly transverse and not much broader than the head, and the abdomen is wedge-shaped, suggesting that the species belongs to *Holobus*. In *Cypha* species the pronotum is generally strongly transverse and much broader than the head.

Oligota besuchetiella (PACE 1985), nov.comb.

Hypcyphtus besuchetiellus PACE 1985: 81.

C o m m e n t : The original description is based on a male holotype and nine paratypes (one male and eight females) from several localities in West Bengal. Based on the drawings of the habitus, the aedeagus (median lobe and parameres), and the spermathecae [sic] of two females provided by PACE (1985: figures 14-18), this species clearly belongs to the genus *Oligota* MANNERHEIM 1830, not to *Cypha*.

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***Oligota loebliella* (PACE 1985), nov.comb.**

Hypcyphtus loebliellus PACE 1985: 81.

C o m m e n t : According to the original description, which is based on a male holotype and two female paratypes from two localities in Bagmati province, Nepal, this species is externally identical to *O. besuchetiella*. Like the latter, *Hypcyphtus loebliellus* belongs to *Oligota*, as can be inferred from the morphology of the aedeagus and the spermatheca (PACE 1985: figures 19-21).

***Oligota nepalensis* (PACE 1985), nov.comb.**

Hypcyphtus nepalensis PACE 1985: 81 ff.

C o m m e n t : The original description is based on a male holotype and a male paratype from one locality near Kathmandu in central Nepal. The illustrations of the habitus and the aedeagus (PACE 1985: figures 22-24) suggest that this species, too, belongs to *Oligota*.

***Oligota pusilla* (PACE 1985), nov.comb.**

Hypcyphtus pusillus PACE 1985: 84.

C o m m e n t : The original description is based on a single female from Meghalaya, India. Based on the illustration of the habitus and particularly on the presence of a sclerotized spermatheca (PACE 1985: figures 25-26), this species does not belong to *Cypha*. Based on the shape of the spermatheca, which is highly similar to that of *O. pusillima* (GRAVENHORST 1806), it is transferred to *Oligota*. This assignment, however, is somewhat tentative, since the wedge-shaped abdomen would rather place it in *Holobus*.

Other species of doubtful generic assignment

The possibility that *Hypocyphtus helvetiorum* PACE 1985 (Sri Lanka), *H. puer* PACE 1985 (West Bengal; male unknown), and *H. senilis* PACE 1985 (West Bengal; male unknown) belong to *Cypha* cannot be ruled out based on their original descriptions. A revision would be required to confirm their current generic assignment.

Acknowledgement

Michael Schülke provided the material which stimulated this paper; the generous gift of the holotype of *C. hebes* is greatly appreciated.

Zusammenfassung

Cypha hebes nov.sp. (China: Yunnan) und *C. ampliata* nov.sp. (China: Yunnan) werden beschrieben und abgebildet. Die primären männlichen Geschlechtsmerkmale von *C. laeviuscula* (MANNERHEIM 1830) werden abgebildet. Die derzeit bekannte *Cypha*-Fauna von China umfasst vier Arten, von denen eine wahrscheinlich unbeschrieben ist. Folgende Neukombinationen werden vorgenommen: *Cypha sinorum* (PACE 2010), nov.comb. (ex *Holobus* SOLIER 1849); *Holobus yunnanensis* (PACE 1998), nov.comb. (ex *Cypha* LEACH 1819); *Holobus hystrix* (PACE 1985), nov.comb. (ex *Cypha*); *Holobus hystrix* (PACE 1985), nov.comb. (ex *Cypha*); *Oligota besuchetiella*

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(PACE 1985), nov.comb. (ex *Cypha*); *Oligota loebliella* (PACE 1985), nov.comb. (ex *Cypha*); *Oligota nepalensis* (PACE 1985), nov.comb. (ex *Cypha*); *Oligota pusilla* (PACE 1985), nov.comb. (ex *Cypha*).

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