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Five new synonymies in *Haliplus* subgen. *Liaphlus* GUIGNOT, based on the variability of the left paramere (Coleoptera: Haliplidae)

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Abstract

The species of *Haliplus* (subgenus *Liaphlus* GUIGNOT) (Coleoptera: Haliplidae), which have a solid digitus on the left paramere are re-examined. The presence of such a digitus is not significant enough to justify a separate specific status. As a consequence, *Haliplus kulleri* VONDEL, 1988, *H. jaechi* VONDEL, 1991 and *H. ortali* VONDEL, 1991 have to be considered as junior synonyms of *H. abbreviatus* WEHNCKE, 1880, *H. davidi* VONDEL, 1991 as junior synonym of *H. diruptus* BALFOUR-BROWNE, 1946, and *H. holmeni* VONDEL, 1991 as junior synonym of *H. sharpi* WEHNCKE, 1880.

Key words: Coleoptera, Haliplidae, *Haliplus*, *Liaphlus*, taxonomy, new synonymies.

Introduction

VONDEL (1988) examined a series of specimens of *Haliplus* subgenus *Liaphlus* GUIGNOT, which have a distinct solid digitus on the left paramere. This character was not noticed before in other species and it was considered to be important enough to describe a new species: *Haliplus kulleri* VONDEL. During a revision of the Palearctic species of *Liaphlus* (VONDEL 1991) more specimens with such a digitus were encountered, resulting in the description of five additional species: *H. astrakhanus* VONDEL, *H. davidi* VONDEL, *H. holmeni* VONDEL, *H. jaechi* VONDEL and *H. ortali* VONDEL. After finding strong variation in the shape of the digitus VONDEL (1995a) synonymized *H. jaechi* and *H. ortali* with *H. kulleri*.

The doubts about the significance of the digitus increased recently, when more material became available, which makes it necessary to critically re-examine all species that are based on the presence of such a digitus.

Haliplus (*Liaphlus*) *abbreviatus* WEHNCKE, 1880

(Figs. 1–24)

Haliplus villiersi LEGROS, 1972
Haliplus kulleri VONDEL, 1988 **syn.n.**
Haliplus gafnyi VONDEL, 1991
Haliplus jaechi VONDEL, 1991 **syn.n.**
Haliplus ortali VONDEL, 1991 **syn.n.**

Material examined from Kazakhstan (collection of S. Litovkin):

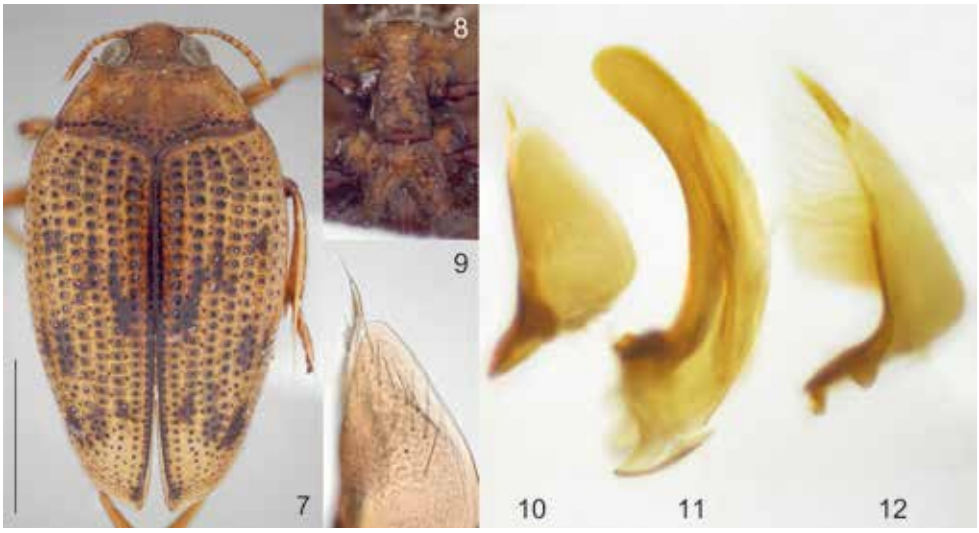
Karatau Mts., 18.5 km ENE Birlik, Akuyik River valley, at light, 43.93702°N 67.68030°E, 390 m, 29.IV.–2.V.2013, leg. S. Litovkin, 7 ♂♂, 5 ♀♀.

Karatau Mts., 18.5 km ENE Birlik, Akuyik River, 43.9366°N 67.6794°E, 380 m, 29.IV.–2.V.2013, leg. S. Litovkin, 1 ♂.

Kyzylorda Region, 4.3 km SE Tartogay, 44.41040°N 66.27504°E, 145 m, riparian forest (= tugay forest), near Syrdarja River, at light, 13.–14.VI.2015, leg. S. Litovkin, 1 ♂.

South Kazakhstan Region, vicinity of Kyzylkol' Lake, 43.77602°N 69.51012°E, 335 m, at light, 6.–7.VI.2015, leg. S. Litovkin, 2 ♂♂, 6 ♀♀.

Figs. 1–6: *Haliplus abbreviatus*, specimen A, Karatau Mts., collected at light; 1) habitus; 2) prosternal and metaventral process; 3–4) left paramere; 5) penis; 6) right paramere. Scale bar = 1 mm. Photographs by S. Litovkin.



Figs. 7–12: *Haliplus abbreviatus*, specimen B, Karatau Mts., collected at light; 7) habitus; 8) prosternal and metaventral process; 9–10) left paramere; 11) penis; 12) right paramere. Scale bar = 1 mm. Photographs by S. Litovkin.

In the material from Karatau Mountains one male has a well developed parallel digitus, two males have a short digitus and the remaining five males lack a digitus. The male from Kyzylorda Region has an elongated triangular appendix instead of the digitus (Figs. 15–16). The males from the South Kazakhstan Region have no digitus.

Figs. 13–18: *Haliplus abbreviatus*, specimen C, Kyzylorda Region, collected at light; 13) habitus; 14) prosternal and metaventral process; 15–16) left paramere; 17) penis; 18) right paramere. Scale bar = 1 mm. Photographs by S. Litovkin.

Figs. 19–24: *Haliplus abbreviatus*, specimen D, Karatau Mts., collected at light; 19) habitus; 20) prosternal and metaventral process; 21–22) left paramere; 23) penis; 24) right paramere. Scale bar = 1 mm. Photographs by S. Litovkin.

We strongly believe that all these specimens belong to one species and that the presence or absence of a digitus on the left paramere has no taxonomic value. In this case, *H. kulleri* has to be regarded as conspecific with *H. abbreviatus*. As a consequence, *H. jaechi* and *H. ortali* also have to be considered as junior synonyms of *H. abbreviatus*.

Variability: Left paramere without digitus, with elongated triangular appendix, or with short or long digitus. Elytral maculation variable, usually with long vague marks on even intervals, sometimes the discal mark on second interval connected to the sutural darkening, but sometimes the maculation is reduced to the vaguely darkened suture.

Distribution: Afghanistan, China (Xinjiang), Cyprus, Egypt, Iran, Iraq, Israel, Kazakhstan, Lebanon, Syria, Turkey.

Haliplus (*Liaphlus*) *astrakhanus* VONDEL, 1991

The description of this species was based on a single male from Astrakhan (Russia) with a small digitus on the left paramere. Later, another male specimen became available: Astrakhan Nature Reserve, Obzhorovsky, 46°18'N, 48°58'E, 12.V.1967 (PETROV & EGOROV 2005). This specimen has no digitus, but the other characters mentioned in the key (VONDEL 1991) distinguish it from the related *H. maculatus* MOTSCHULSKY and *H. abbreviatus*.

Zinchenko (https://www.zin.ru/animalia/coleoptera/rus/halastzv.htm) lists this species from eastern Kazakhstan, but the male genitalia are lost (pers. comm.) and confirmation of the identification is not possible.

Variability: Left paramere with or without digitus.

Haliplus (*Liaphlus*) *diruptus* BALFOUR-BROWNE, 1946

Haliplus davidi VONDEL, 1991 **syn.n.**

According to the description (VONDEL 1991), *Haliplus davidi* and *H. diruptus* can only be reliably distinguished by the presence or absence of a small digitus on the left paramere. One of the male paratypes of *H. davidi* is from Harbin (China: Heilongjiang). Another male from Harbin (Natural History Museum, London), identified as *H. diruptus*, has an extension on the left paramere looking like an intermediate stage between a paramere without a digitus and one with a digitus. Also in this case the presence or absence of the digitus seems not decisive. *Haliplus davidi* and *H. diruptus* are thus regarded as conspecific.

Distribution: China (Anhui, Beijing, Fujian, Guizhou, Hainan, Heilongjiang, Hong Kong, Hubei, Hunan, Jiangsu, Liaoning, Shaanxi, Shandong, Shanghai, Tianjin, Xinjiang, Yunnan), India, Japan (Ryukyu Islands), Laos, Myanmar, North Korea, Russia (Far East), South Korea, Taiwan, Vietnam.

Haliplus (*Liaphlus*) *sharpi* WEHNCKE, 1880

Haliplus holmeni VONDEL, 1991 **syn.n.**

According to the description, *Haliplus holmeni* can be distinguished from *H. sharpi* by the digitus on the left paramere (VONDEL 1991). As discussed above, this character is very variable. In this species there is usually no digitus, but sometimes a distinct digitus may be present. The other characters used in the keys by VONDEL (1991, 1995b) are also too variable for a reliable separation of these two species and we consider them as conspecific.

Distribution: China (Anhui, Chongqing, Fujian, Guizhou, Liaoning, Shanghai, Yunnan), Japan (Hokkaido, Honshu, Kyushu, Shikoku), North Korea, South Korea, Taiwan.

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Buchbesprechung

(Fortsetzung von p. 14)

Der Inhalt des Buches setzt sich aus folgenden Kapiteln zusammen: „Introduction“ (pp. 1–20), „Taxonomy and Morphology“ (pp. 21–38), „Key to Major Groups (Subfamilies, Adults, pp. 39–43; Subfamilies, Larvae, pp. 43–45; Subterranean & Terrestrial Genera, pp. 45–49)”. Danach folgen in den Kapiteln 4–37 die Kurzbeschreibungen aller 188 Gattungen sortiert nach Unterfamilien und Triben (pp. 50–258). Diese Kapitel enthalten reich illustrierte Bestimmungsschlüssel zu den Triben und Gattungen. Insgesamt finden sich in diesem Werk 300 Farbfotos und 556 qualitativ hochwertige Strichzeichnungen.

Die Beschreibungen der einzelnen Gattungen beinhalten jeweils Angaben zu „Body Length“, „Classification“, „Diversity“, „Natural History“, „Distribution“ sowie eine kleine Verbreitungskarte und (bis auf eine einzige Ausnahme) ein oder mehrere Habitusfotos adulter Käfer. Die Habitusfotos sind zwar klein aber zumeist von guter Qualität. Im Gegensatz zur Behauptung auf dem hinteren Buchdeckel sind nicht alle Gattungen mit einem „high-resolution habitus image“ versehen, denn der Holotypus von *Sinodytes hubbardi* ist traurigerweise nicht mehr auffindbar und anstelle einer Fotografie findet sich nur eine Umrisszeichnung (p. 253).

Nach den vielen lobenden Worten möchte ich aber noch auf zahlreiche weitere, kleinere oder gröbere Fehler hinweisen. Hier eine kleine Auswahl:

In der Einleitung (p. 1) wird zum Beispiel erwähnt, dass in Sharp (1882): “On aquatic carnivorous Coleoptera or Dytiscidae“ etwa 200 Gattungen inkludiert wären, also deutlich mehr als in Miller & Bergsten (2016) behandelt werden! Ich habe daher die Arbeit von Sharp (1882) kurz durchgeblättert und kam auf ca. 68 Dytisciden-Gattungen (79 Gattungen sind übrigens in Zimmermann (1920): „Coleopterorum Catalogus“ aufgelistet). Auch die Angabe der Artenzahl ist nicht nachvollziehbar. Während laut Miller & Bergsten (2016) bei Sharp (1882) angeblich 1140 Dytisciden-Arten inkludiert sind, ergab meine Recherche etwa 1455 (Gesamtartenzahl 1551, minus Amphizoidae, Noteridae, Paelobiidae).

Die Namen einiger Taxa sind falsch geschrieben: *Abagus* [= *Agabus*] (p. 277), *Bidessodes knishii* [= *knischi*] (p. 231), *Borneodessus zetteli kal[i]mantanensis* (p. 233), *Hyphydrus jächi* [= *jaechi*] (p. 303), *Kuschel[~~l~~]ydrus* (p. 143), *Limbodessus macrolor[n]aensis* (p. 49), *Onychohydrus scutelleris* [= *scutellaris*] (p. 108).

Einige der Verbreitungskarten sind unvollständig: In der Karte von *Hyphoporus* fehlen Sinai, Kuwait und Saudi Arabien; bei *Glareadessus* fehlen die Vereinigten Arabischen Emirate; *Limbodessus* und *Sternhydrus* kommen auch in Neukaledonien vor.

Der Bestimmungsschlüssel zu den Triben der Hydroporinae (p. 139–141) nennt nur ein einziges Merkmal zur Unterscheidung von Hygrotini und Hydroporini, nämlich das Fehlen (Hydroporini) oder Vorhandensein (Hygrotini) einer Transversalleiste auf den Epipleuren. Da *Rhithrodytes* (Hydroporini) aber eine solche Transversalleiste besitzt, kann diese Gattung mithilfe dieses Schüssels nicht der richtigen Tribus zugeordnet werden.

In der Abb. 29.4 (p. 173) sind die Artnamen vertauscht worden.

Bei *Exocelina* sind unter „Diversity“ (p. 84) sieben Publikationen aufgelistet, nicht aber einer der bedeutendsten Beiträge zu diesem Thema, nämlich Wewalka, G., Balke, M. & Hendrich, L. 2010: Dytiscidae: Copelatinae (Coleoptera), pp. 45–128. – In Jäch, M.A. & Balke, M. (eds.): Water beetles of New Caledonia (part 1). – Monographs on Coleoptera 3: IV + 449 pp. In dieser Arbeit werden 36 neue *Exocelina*-Arten beschrieben.

(Fortsetzung auf p. 282)