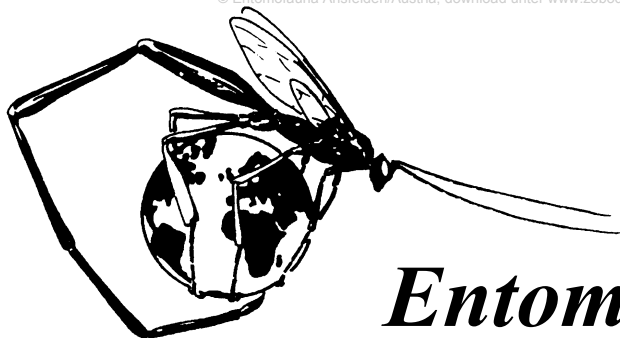




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Four new species of the genus *Holotrochus* ERICHSON, 1839 from South America (Staphylinidae: Osoriinae)

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Abstract

The following four new species of the genus *Holotrochus* are described for the Neotropical region: *H. spira*, *H. rugosus*, *H. struyvei* and *H. ignotus*. Additionally, *H. poundi* BLACKWELDER, 1943 is redescribed to present the differences to the similar *H. ignotus* nov. sp. Furthermore, *H. struyvei* nov. sp. is compared with the closely related *H. minor* CHEVROLAT & FAUVEL, 1863 and *H. ingae* IRMLER, 1981 and the geographic distribution discussed.

Zusammenfassung

Die folgenden vier neuen Arten der Gattung *Holotrochus* aus der neotropischen Region werden beschrieben: *H. spira*, *H. rugosus*, *H. struyvei* und *H. ignotus*. Zusätzlich wird die Art *H. poundi* BLACKWELDER, 1943 neu beschrieben, um die Unterschiede zu der ähnlichen *H. ignotus* nov. sp. darzustellen. *H. struyvei* nov. sp. wird mit dem nahe verwandten *H. minor* CHEVROLAT & FAUVEL, 1863 und *H. ingae* IRMLER, 1981 verglichen und die geographische Verbreitung diskutiert.

Introduction

In the last year, two collections could be studied from the National Museum Natural History, Prague, Czech Republic, containing mostly material from southern Brazil from the beginning of the 20th century and the private collection of Tim Struyve, Mechelen, Belgium, from French Guyana collected in 2011. In total, four new species of the genus *Holotrochus* have been found in the collections. In particular, the two new species from French Guyana initiated a more extensive study of two complexes of closely related species: the complex of the *H. poundi* BLACKWELDER, 1943 and *H. minor* CHEVROLAT & FAUVEL, 1863. Unfortunately, the male type specimen of *H. poundi* is lost. Thus, only the female type specimen could be compared with the available other material identified as *H. poundi*. *H. struyvei* is compared to the closely related *H. minor* and *H. ingae* IRMLER, 1981, separating characters and the geographic distribution are discussed.

Material and Methods

The material of the following museums and private collections have been studied:

NMPC	National Museum, Natural History, Prague, Czech Republic
NHMK	Natural History Museum University of Kansas, Lawrence, USA
AMNH	American Museum of Natural History, New York, USA
MCZ	Museum of Comparative Zoology, Boston, Mass. USA
USNM	United States National Museum of Natural History, Washington DC, USA
UIC	Collection of Ulrich Irmeler, Plön, Germany
TSC	Collection of Tim Struyve, Mechelen, Belgium
JJC	J. Janák collection, Prague, Czech Republic

For the measurements of the total length, the intersegmental space of abdominal segments was considered. The lengths of individual tagmata were determined along the midline, their width at the widest part of the respective tagma.

For the photographs, a Makroskop M 420 (Wild Herbrugg) was used in combination with a digital camera (Leica EC3) and CombineZ5 (Hadley 2006) for optimising the depth of focus.

Taxonomy

Genus *Holotrochus* ERICHSON, 1839

Holotrochus spira nov. sp.

(Fig. 1A, B, 6A)

Type material: Holotype: Male. Brazil, São Paulo, without further data, leg. Mráz (NMPC). Paratype: Male, with same data as holotype (NMPC).

Diagnosis: *H. spira* is a typical representative of the *H. minor*-group regarding the small size, the aedeagal structure and the absence of the abdominal pubescence. Due to the

approximately equal lengths of the second and third antennomeres it seems to be closely related to *H. hyleae* IRMLER, 1987, *H. trinitatis* (BLACKWELDER, 1943), *H. loretoi* IRMLER, 2005, and *H. ashei* IRMLER, 2005. It differs from *H. trinitatis* and *H. loretoi* by the distinct abdominal microsculpture. A certain identification is only possible by the structure of the aedeagus, in particular, the endophallus. In *H. hyleae* the apical lobe of the aedeagus is much longer and the endophallus has a long straight basal part with a short spiral apical part. The shape of the aedeagus in *H. ashei* is similar as in *H. spirae*, but the endophallus has a short straight basal part and an equally long part with wide torsions. The apical lobe of the aedeagus in *H. spirae* is shortly curved and the endophallus has several torsions without straight basal part.

Description: Length: 2.4 mm. Colouration: Dark brown; posterior edge of pronotum, shoulders, suture of elytra and posterior edge of abdominal segments lighter reddish; legs and antennae yellow.

Head: 0.29 mm long, 0.47 mm wide; eyes small; not prominent; temples as long as eyes; forehead semicircular; slightly sinuate in anterior central part; punctation moderately dense; irregular; on average, interstices between punctures twice as wide as diameter of punctures; few setiferous punctures on supraocular area and in anterior margin; without microsculpture on vertex; surface shiny; on clypeus with remains of microsculpture; on postocular area with dense microsculpture extending dorsad.

Antennae slightly longer than head; second antennomere oval; third conical and slightly narrower than second; fourth and fifth antennomeres as thick as third, but shorter; approximately quadrate; sixth slightly wider; seventh to eleventh distinctly wider than preceding antennomeres; penultimate antennomeres nearly twice as wide as long.

Pronotum: 0.49 mm long, 0.59 mm wide; widest in middle; narrowed to posterior and anterior angles in equal smooth and even curve; anterior and posterior angles obtusely rounded; lateral margin fine; in dorsal aspect, visible throughout its total length; posterior and anterior edge not margined except extremely outer part of anterior edge; punctation similarly dense and deep as on head, but irregularly dense; on average, interstices between punctures twice as wide as diameter of punctures; between normally deep punctures with weaker and sparser micro-punctuation; pair of setiferous punctures on central disc; without microsculpture; surface polished and shiny.

Elytra: 0.49 mm long, 0.57 mm wide; sides parallel; shoulders nearly rectangular; in dorsal aspect both lateral margins visible; punctation weak; hardly visible in coarse coriaceous ground sculpture.

Abdomen parallel; without punctuation; each tergite with few setiferous punctures; netlike microsculpture dense and moderately deep; surface less shiny than on pronotum.

Aedeagus with short apical lobe; shortly curved and ending in acute apex; paramera extending apex of central lobe; with numerous sensillae in middle; endophallus thick with two torsions.

Etymology. The specific name derived from the Latin word for spiral and refers to the spiral endophallus.

***Holotrochus rugosus* nov. sp.**

(Fig. 2A, B, 6B)

Type material: Holotype: Male. Brazil, São Paulo, without further data, leg. Mráz (NMPC).

Diagnosis: *H. rugosus* can be placed to the *H. minor*-group regarding the small size, the structure of the aedeagus, the absence of the anterior margin of the pronotum and the abdominal pubescence. It can be easily identified by the strongly curved sides of the pronotum and, in particular, the coriaceous ground-sculpture of the pronotum and the elytra.

Description. Length: 2.8 mm. Colouration: dark brown; legs and antennae yellow.

Head: 0.32 mm long, 0.52 mm wide; eyes not prominent; temples as long as eyes; forehead semicircular; punctuation moderately dense and deep; interstices between punctures slightly wider than diameter of punctures; small part at base of antennae impunctate; netlike to isodiametric microsculpture deep and dense; surface matt.

Antennae slightly longer than head; second antennomere globular and slightly narrower than first antennomere; third antennomere much thinner than second, but 1.5 times as long; fourth antennomere as narrow as third and only as long as second; following antennomeres increasing in width; fifth antennomere approximately quadrate; penultimate antennomeres twice as wide as long.

Pronotum: 0.54 mm long, 0.69 mm wide; widest in middle; sides strongly curved; slightly stronger narrowed to posterior angles than to anterior angles; anterior and posterior angles obtuse; anterior edge curved; lateral margin relatively wide; in dorsal aspect visible in its total length; lateral margin shortly continued to anterior edge; posterior edge not margined; punctuation moderately deep and dense; interstices between punctures slightly wider than diameter of punctures; on some parts of posterior half, punctuation sparser; between coarse punctuation with micro-punctuation; few setiferous punctures in lateral margin and at anterior edge; coriaceous microsculpture deep and dense; surface matt.

Elytra: 0.67 mm long, 0.70 mm wide; sides parallel; without punctuation; coriaceous microsculpture deep and dense; surface matt.

Abdomen with netlike microsculpture and very weak punctuation; punctures hardly visible in microsculpture; surface slightly shiny.

Aedeagus with strongly curved apical lobe ending in acute apex; paramera slender; slightly extending central lobe; row of sensillae in middle of paramera; endophallus with straight basal part and slightly curved apical part.

Etymology. The specific name derived from the same Latin word and means rough. It refers to the coarse and coriaceous surface of the pronotum.

***Holotrochus struyvei* nov. sp.**

(Fig. 5A, 7A, D)

Type material: Holotype: Male. French Guyana, Barrage de Petit Saut (53°02.53'W, 5°03.48'N), car net, 10.11.2011, leg. T. Struyve (UIC). Paratypes: 5 males, 17 females with same data as holotype (UIC, TSC, AMNH); Barrage de Petit Saut, 1 male, 6 females, 15.11.2011, leg. T. Struyve (UIC, TSC); Caussade (52°35.29'W, 5°03.57'N), 1male, 1 female, car net, 7.11.2011, leg. T. Struyve (UIC, TSC); Coralie (52°21.38'W, 4°30.41'N), 1 male, car net, 15.11.2011, leg. T. Struyve (UIC); Saramacca (52°41.21'W, 5°01.41'N), 2 females, car net, 13.11.2011, leg. T. Struyve (UIC, TSC).

Diagnosis. The species belongs to the *minor*-group of the Neotropical *Holotrochus* species and is closely related to *H. minor* regarding size, shape and punctuation of the head, pronotum and elytra and the shape of the antennomeres. The punctuation of the pronotum is slightly denser in *H. minor*. The aedeagus is very similar, too. However, the shape of the endophallus differs between the two species. In *H. minor*, the basal part is short and slightly meandering, whereas it is longer and straight in *H. struyvei*. Moreover, the apical torsions are thicker and shorter in *H. minor* than in *H. struyvei*. Regarding the structure of the endophallus, *H. struyvei* seems to be intermediate between the northern South American and Central American *H. minor* and the South Brazilian *H. ingae* (Fig. 7 B, C, E, F).

Description: Length: 3.0 mm. Colouration: brown, narrow posterior margin of pronotum lighter brown, legs and antennae yellow.

Head: 0.43 mm long, 0.51 mm wide; eyes not prominent, small, smaller than posteriorly widened temples; forehead semicircular, with narrow margin from posterior margin of eyes to front edge; punctuation moderately deep and dense; interstices between punctures approximately as wide as diameter of punctures; on posterior vertex punctuation more irregular than on forehead and interstices slightly wider; without microsculpture; surface polished.

Antennae slightly longer than head; first antennomere thick and rectangular; second very short; globular and only slightly narrower than first; third antennomere conical and much more slender; only slightly shorter than two preceding antennomeres combined; fourth antennomere as wide as third antennomere at apex and only half as long as third; following antennomeres decreasing in length and increasing in width; sixth antennomere quadrate; penultimate antennomere nearly twice as wide as long.

Pronotum: 0.51 mm long, 0.65 mm wide; widest in middle; evenly narrowed to anterior and posterior angles; posterior angles obtuse; shortly rounded; anterior angles not prominent; lateral margin from posterior angles to anterior angles and shortly continued to anterior edge; anterior and posterior edge not margined; punctuation deep and moderately dense; on average, interstices between punctures approximately as wide as diameter of punctures; at anterior and posterior angles slightly wider; surface without microsculpture; polished.

Elytra: 0.66 mm long, 0.67 mm wide; shoulders shortly prominent, forming short denticles; sides approximately parallel; only in front of posterior angles shortly narrowed; punctuation deep and moderately dense; irregular in size and density; in some parts coriaceous and forming longitudinal striae; in other parts with micro-punctuation between normal coarse punctures; sutural striae slightly curved.

Abdomen densely punctate; punctures finer than on fore-body; with fine netlike microsculpture; surface less shiny than on fore-body.

Aedeagus with thick and straight basal lobe and curved apical lobe ending in acute apex; paramera as long as apical lobe; sinuate; endophallus with straight and thick basal part; apical part with short torsions.

Etymology. The specific name honours the collector T. Struyve.

***Holotrochus ignotus* nov. sp.**

(Fig. 3A, B, 6E)

Type material: Holotype: Male. French Guyana, Barrage de Petite Saut (53°02.53'W,

5°03.48'N), car net, 10.11.2011, leg. T. Struyve (UIC). Paratypes: 10 males, 8 females with same data as holotype (UIC, TSC, AMNH).

Diagnosis: The species certainly belongs to the *syntheticus*-group of the Neotropical *Holotrochus* species established by IRMLER (1981) due to the pubescent abdomen and the wide pronotum with margined anterior edge. Within the group it mostly resembles *H. poundi* BLACKWELDER, 1943. Compared to the female type specimen, *H. ignotus* is slightly smaller. However, the size of *H. poundi* ranged between 3.6 mm and 4.1 mm (average of 6 specimens 3.9 mm) and *H. ignotus* between 3.7 mm and 4.1 mm (average 3.9 mm). Compared with the aedeagus of the non-type specimens of *H. poundi*, the apical lobe of *H. ignotus* is thicker and placed in nearly rectangular angle to basal lobe and the apex is less acute.

Description: Length: 3.8 mm. Colouration: Dark brown; legs and antennae yellow. Head: 0.42 mm long, 0.67 mm wide; eyes not prominent; as long as temples; narrow margin from posterior side of eyes to anterior edge of clypeus; punctation moderately weak and dense; interstices between punctures on forehead as wide as diameter of punctures; on vertex interstices wider than diameter of punctures; without microsculpture; surface polished.

Antennae slightly shorter than head and pronotum combined; first antennomere thick and rectangular; second globular, short and slightly narrower; third antennomere conical and nearly twice as long as second; following antennomeres slightly increasing in width; fourth approximately quadrate; penultimate slightly wider than long.

Pronotum: 0.64 mm long, 0.95 mm wide; widest in anterior half; shortly narrowed to anterior angles in even curve; in posterior half sides nearly parallel; only slightly narrowed to rectangular posterior angles; lateral margin beginning shortly in front of posterior angles; slightly widened to anterior angles and continued to anterior edge; anterior edge totally margined; posterior edge not margined; punctation moderately fine and dense; along midline denser than laterally; laterally, interstices at least twice as wide as diameter of punctures; along midline interstices as long as diameter of punctures; in front of posterior edge, punctures deeper and larger; without microsculpture; surface polished.

Elytra: 0.78 mm long, 1.02 mm wide; shoulders nearly rectangular; sides slightly curved; widest near middle; punctation weak and sparse; nearly invisible in coriaceous ground sculpture; near suture in posterior margin with irregular short striae; sutural striae parallel; surface slightly shiny.

Abdomen with dense setiferous punctation; with netlike microsculpture; surface matt.

Aedeagus with apical lobe placed in nearly rectangular angle to basal lobe; apical lobe strongly sclerotised; evenly narrowed to shortly acute apex; paramera sinuate and slightly projecting apical lobe; endophallus simply structured as weakly meandering elongate stick.

Etymology: The specific name derived from the same Latin word meaning unknown.

***Holotrochus poundi* BLACKWELDER, 1943**

(Fig. 4A, B, 6C, D)

Holotrochus poundi BLACKWELDER, 1943: 170.

Type specimen examined: Trinidad: St. Andrew, 5 miles WSW of Manzanilla junction, on the Plum Rd., dead log (61°03'W, 10°22'N), female, 18.12.1935, leg. R. Blackwelder (USNM).

Further specimens examined: Panama: Canal Zone (79°34'W, 8°58'N), 1 spec., 01.07.1969, leg. J.F. Lawrence (MCZ); Ecuador: Archidona, 2.4 km W, dense lowland vegetation on bank of stony river, wet leaf litter, 590 m elev. (77°49.45'W, 0°54.43'S), sifted, 3 spec. 21.11.2006, leg. M. Fikáček, M. (NMPC); 4.1 km W, dense secondary forest margin, nr. banks of muddy stream, wet leaf litter, 670 m elev. (77°48.4'W, 0°54.37'S), 2 spec., 19.11.2006, leg. M. Fikáček (NMPC); Santa Clara, 1.6 km SEE, dense lowland forest veg. on bank of stony river, shaded, leaf litter, 660 m elev. (77°52.32'W, 1°16.17'S), sifted, 1 spec. 17.11.2006, leg. M. Fikáček (NMPC); Tena, 59 km E of Loreto Rd, litter near stream, 930 m elev (77°49'W, 0°59'S), 1 spec. 04.11.1988, leg. L. Herman (AMNH); Tiputini, Yasuni Res., in *Eciton hamatum* colony (76°24'W, 0°40.0'S), 2 spec. 07.07.1999, leg. A. Tishechkin (NHMK); Brazil: Itabuna, CEPLAC, abandoned cacao plantation, 100 m elev. (39°18'W, 14°48'S) 1 spec. 26.01.1995, leg. D. Agosti (AMNH); Peru: Loreto, San Jacinto, rainforest litter, 200 m elev. (75°51.77'W, 2°18.75'S), flight intercept trap, 1 spec. 11.07.1989, leg. R. Leschen (NHMK); Puerto Maldonado, Reserva Cuzco Amazonica (69°12'W, 12°37'S), flight intercept trap, 4 spec., 13.07.1989, leg. J. Ashe (NHMK); San Luis de Shuaro, La Merced-Villa Rica Rd., 9.5 km NE, 880 m elev. (75°18.54'W, 10°47.08'S), 5 spec. 21.10.1999, leg. R.W. Brooks (NHMK, UIC); San Ramón de Pangoa, 40 km SE Satipo, 750 m elev. (75°19.6'W, 11°07.6'S), 2 spec. 23.03.1972, R.T. Schuh (AMNH); Yuyapichis, Panguana, cut rainforest, (74°568'W, 9°37'S), 1 spec. 04.05.1976, leg. W. Hanagarth (UIC); 1 spec. 04.12.1975, leg. W. Hanagarth (UIC); banana plantation 1 spec. 03.09.1975, leg. W. Hanagarth (UIC); French Guyana: Matoury, 41.5 km SSW Hwy N2, 50 m elev. (52°19'W, 4°50'N) 3 spec. 29.05.1997, leg. J. Ashe (NHMK, UIC); Roura (52°19'W, 4°43'N), 1 spec. 21.12.1998, leg. P. Krásenský (JJC); 8.4 km SSE, 240 m elev. (52°19'W, 4°43'N), flight intercept trap, 3 spec. 29.05.1997, leg. J. Ashe (NHMK).

Diagnosis: BLACKWELDER (1943) mentioned two type specimens, one male and one female, deposited in the U.S. National Museum, Washington, Smithsonian Institution. Unfortunately, only the female specimen could be found in the museum. Therefore, the graphed aedeagus based on non-type material. The two species *H. poundi* and *H. ignotus* can be hardly differentiated without dissecting the aedeagus. The main difference is based in the aedeagal shape. In *H. poundi* it is smoothly narrowed to acute apex, whereas it is broad and shortly narrowed to obtuse apex in *H. ignotus*. Furthermore, the shape of the endophallus is nearly equal. Beside the aedeagal differences, the species might be separated by the punctuation of the abdomen that is dense and deep in *H. ignotus* and fine in *H. poundi*. However, most specimens studied so far are females: Several specimens, in particular, those of the Andean region have a more distinct pronotal punctuation than the eastern South American species from the Guyanas. However, the pronotal punctuation in the Andean specimens varies largely. Thus, it might be that the specimens here composed under *H. poundi* are a complex of very similar species. This problem can be solved only, if more male material will be found from different regions of its distribution area.

Redescription. Length: 4.0 mm; Colouration: dark brown; posterior margin of pronotum light brown; legs and antennae yellow.

Head: 0.48 mm long, 0.70 mm wide; eyes slightly prominent; as long as temples; punctuation fine and sparse; pair of setiferous punctures on middle posterior vertex; very weak netlike microsculpture, surface shiny.

Antennae as long as head and half of pronotum combined; second antennomere oblong and slightly shorter than third; third antennomere conical and at apex wider than second; following antennomeres slightly increasing in width; fourth antennomere approximately quadrate, penultimate antennomere distinctly wider than long.

Pronotum: 0.70 mm long, 1.03 mm wide; widest in middle; narrowed to anterior angles in smooth curve; sides in posterior half nearly parallel; lateral margin continued to anterior

edge; only middle of anterior edge not margined; posterior edge without margin; punctation deeper than on head; sparse; on average, interstices between punctures more than twice as wide as diameter of punctures; only in posterior middle; punctation denser; pair of indistinct depressions in posterior half near posterior angles.

Elytra: 0.88 mm long, 1.13 mm wide; shoulders nearly rectangular; sides slightly widened posteriad; widest in posterior third; lateral margin wide with few setiferous punctures; punctation indistinct in coriaceous ground sculpture.

Abdomen with fine pubescent punctation and dense netlike microsculpture; surface not shiny.

Aedeagus elongate; apical lobe widely curved; angle between basal and apical lobe obtuse; apical lobe smoothly narrowed; ending in acute apex; paramera sinuate; slightly projecting apical lobe; endophallus forming short, slightly meandering stick.

Discussion

The genus *Holotrochus* has a world-wide distribution. HERMAN (2001) mentioned 153 species world-wide from the Neotropic, Nearctic, Palaearctic, Ethiopian, Madagascan, Oriental, Australian and Oceanic region. In total, 54 *Holotrochus* species are known from the Neotropical region including the four new ones. Brazil, as the largest country, contributes with 18 species to the total. The next species rich countries are Panama and Costa Rica with 13 species. It is not astonishing that 2 of the new species are recorded from Brazil from the beginning of the 20th century, because Brazil is badly investigated and nearly no extensive samplings were made in the last three decades. On the other hand, the intensification of landuse in southern Brazil might have led to a higher extinction of species, in particular, in the Atlantic rainforest than in other parts of the country. In contrast to Brazil, Panama and Costa Rica have been well investigated in the last decades when Brazil hindered entomological surveys. It would be very interesting to know, if the newly described species from the surroundings of São Paulo are still existing there.

Three of the new species belong to the *minor*-group of the Neotropical *Holotrochus* species. This group is one of the most species rich group in the Neotropics and distributed all over the tropical regions. In particular, the three species *H. ingae*, *H. minor* and *H. struyvei* are closely related and seem to represent a group of species with geographical distinctness. *H. ingae* is distributed in southern Brazil and Paraguay, *H. minor* in northern South America, Central America and the West Indian Islands (Fig. 8). The new species *H. struyvei* combines these two species and additionally represents intermediate characters. Thus, it seems likely that these species developed from widely distributed ancestors in the past when the large Amazonian and Orinoco basins were flooded during Miocene and populations of many species were restricted on the higher Guyana Shield (RIBAS et al. 2012).

Acknowledgements

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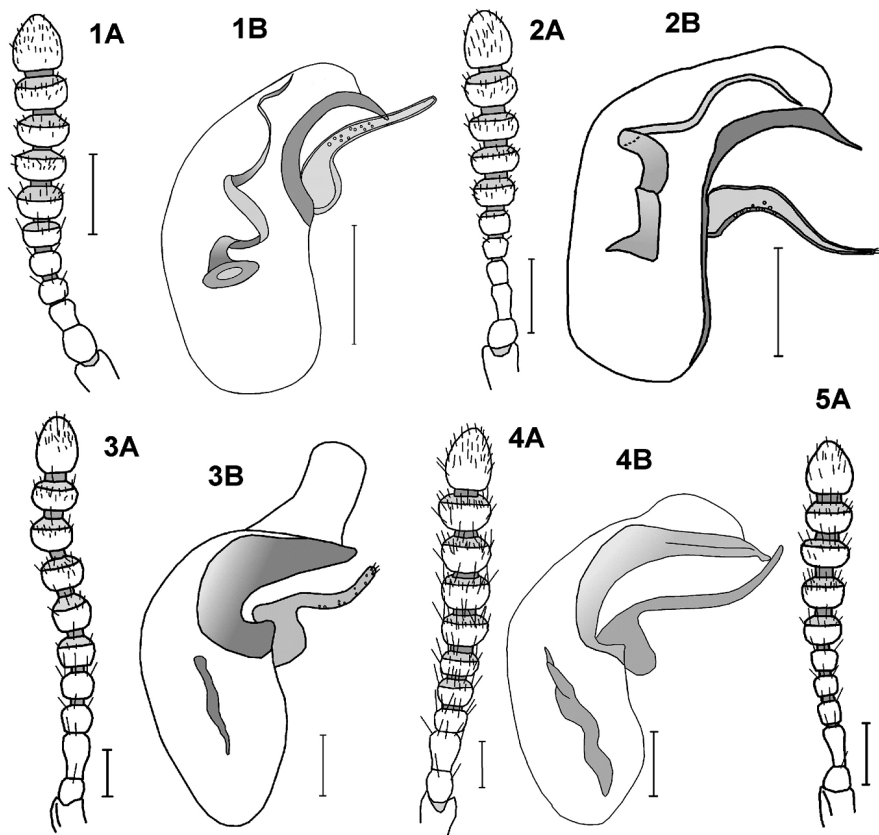
Struyve, Mechelen, Belgium, for the loan of his species from French Guyana and the type specimens for my collection.

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Figs 1-5. Antenna (A) and aedeagus (B) of *Holotrochus spira* (1), *H. rugosus* (2), *H. ignotus* (3), *H. poundi* (4) antenna of type, aedeagus of specimen from French Guyana, and *H. struyvei* (5); scale bar: 0.1 mm.

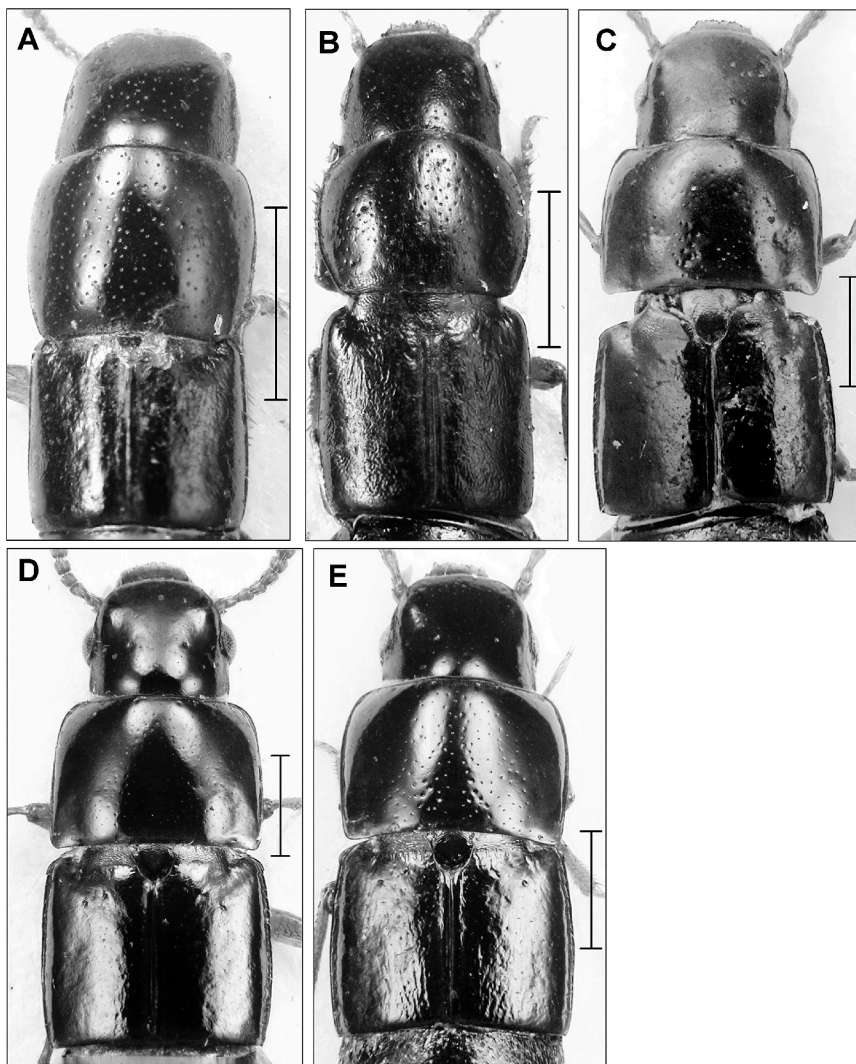


Fig. 6. Fore-body of *Holotrochus spira* (A), *H. rugosus* (B), *H. poundi* type specimen from Trinidad (C), *H. poundi* specimen from French Guyana (D), *H. ignotus* (E); scale bar: 0.5 mm.

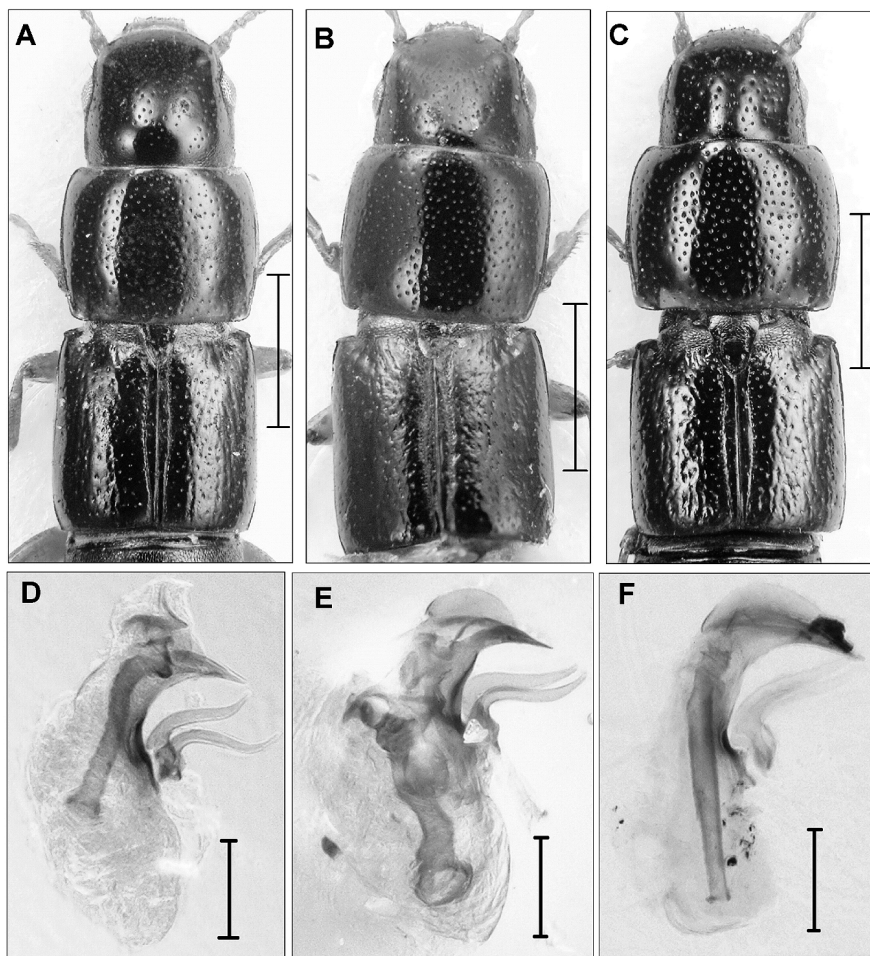


Fig. 7. Fore-body of *Holotrochus struyvei* (A), *H. minor* (B), *H. ingae* (C); aedeagus of *H. struyvei* (D), *H. minor* (E), *H. ingae* (F); scale bar for A-C: 0.5 mm, for D-F: 0.1 mm.

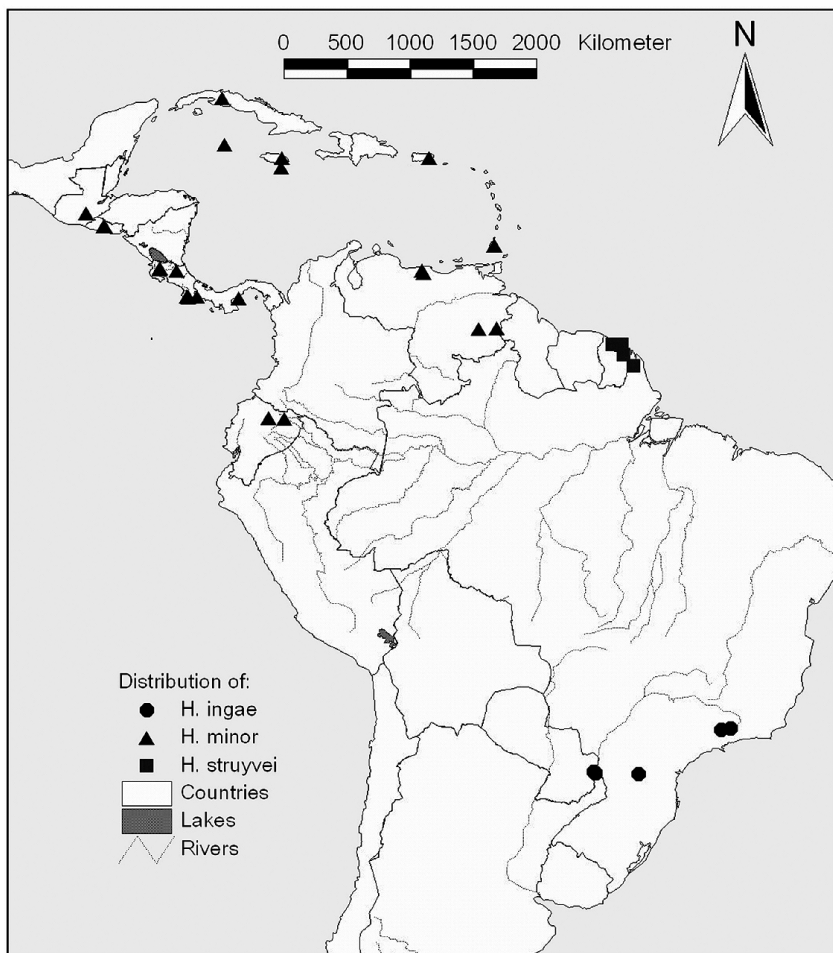


Fig. 8. Distribution of *Holotrochus struyvei*, *H. minor* and *H. ingae*.

Buchbesprechung

WILSON D.E. & R.A. MITTERMEIER (eds.): **Handbook of the Mammals of the World. 5. Monotremes and Marsupials.** – Lynx Edicions, Barcelona, 2015. 799 S.

Im 5. Band der “Mammals of the World” werden Monotremata (Kloakentiere) und Marsupialia (Beuteltiere) gemeinsam (traditionell) behandelt. Dieser Entschluss ist praktisch und damit akzeptabel, auch wenn es zur Phylogenie dieser Gruppen andere Auffassungen geben kann. Insgesamt beinhaltet dieser Band die Beschreibung der Arten von 8 Ordnungen und 21 Familien.

Das erste Kapitel beschäftigt sich mit (kürzlich) ausgestorbenen Beuteltieren - in diesem Kontext absolut vertretbar, auch wenn sonst in dieser Handbuch-Reihe keine ausgestorbenen Arten berücksichtigt werden. Während alle Monotremata auf Australien und Neuguinea beschränkt sind, zeigen die in Australien und Südamerika vorkommenden Beuteltiere ihre Gondwanaland-Wurzeln. Die Opossums der Neuen Welt erstrecken sich sogar vom südlichen Kanada bis nach Argentinien. Ganz aktuell werden auch zwei Arten erwähnt, die erst 2014 beschrieben wurden.

Der Aufbau folgt konsequenterweise den vorangegangenen Bänden; zu jeder taxonomischen Gruppierung (Familie) gibt es eine allgemeine Einführung zu Systematik, morphologische Aspekte, Habitat, Kommunikation, Nahrung und Ernährung, Fortpflanzung, soziale Organisation, den Beziehungen zum Menschen, Status und Naturschutz. Nach dem gleichen Gliederungsschema werden die Arten abgehandelt, zusätzlich versehen mit einer Verbreitungskarte und französischen, deutschen und spanischen Trivialnamen. 717 Farbfotos und die 44 Bildtafeln mit den farbig gezeichneten Arten (z.T. auch Unterarten) sind von der üblichen fantastischen Qualität. Die Referenzen beinhalten die Zitate der Originalbeschreibungen und über 4.500 Literaturzitate.

Mehr als die Hälfte der Bände der “Mammals of the World” sind nun erschienen; es folgen noch die Nagetiere, Insektenfresser und Fledertiere. Höchste Zeit für alle, die noch nicht eingestiegen sind – eine empfehlenswertere Monographie zu den Säugetieren der Welt wird es in absehbarer Zeit nicht geben.

R. Gerstmeier

KINGDON J.: **The Kingdon field guide to African Mammals.** – Bloomsbury, London, second edition, 2015. 640 S.

Der bekannte “Kingdon Field Guide” behandelt mehr als 1160 Säugetierarten Afrikas, d.h. er beinhaltet mehr oder weniger auch alle bekannten afrikanischen Spitzmäuse (Afrosoricida), Elefantenspitzmäuse (Macroscelidea), Nagetiere (Rodentia) und Fledertiere (Chiroptera). Sofern es sie gibt, finden sich zu Beginn größerer Taxa phylogenetische Stammbäume. Zu jeder Art werden neben dem lateinischen auch englische, französische und deutsche Namen sowie das entsprechende Wort in Swahili angegeben. Alle relevanten Merkmale (Körpergröße), die für die Erkennung wichtig sind, werden aufgelistet, ebenso die geographischen Variationen (Unterarten), kombiniert mit farbigen Zeichnungen, z.T. Schädelabbildungen, SW-Sketch-Zeichnungen zu besonderen Verhaltensweisen und eine

farbige Verbreitungskarte. Des weiteren wird explizit die Verbreitung (Länder, Regionen) und das Habitat sowie Nahrung, Verhalten und Anpassungen angegeben. Soweit bekannt, gibt es auch einen Hinweis zum Schutzstatus (IUCN Red List). Die über 780 Farbzeichnungen sind von guter Qualität, die 520 Verbreitungskarten sind aktuell, detailliert und vielfach mehrfarbig (Unterarten). Bemerkenswert ist der etwas über 20 Seiten umfassende einleitende Teil: Hier bekommt in kompakter Form einen kompletten Überblick zum afrikanischen Kontinent, dessen evolutive Entwicklung, Die Haupt-Endemismen-Zentren, die physikalische Landschaft, Klima und Vegetation und Fotos zu diversen Landschaftstypen, wie z.B. afromontaner Regenwald, Mopane Waldland, Akaziensavanne, Grasland und Wüste. So kurz wie dieser einleitende Teil ist, so empfehlenswert ist seine Lektüre. Das gleiche gilt für den Abschluss des Buches mit dem Kapitel über Naturschutz. Ein kurzes Literaturverzeichnis (leider nicht die im Text erwähnten Zitate, z.B. zu den phylogenetischen Arbeiten) und ein 7-seitiges Glossar bilden den Abschluss dieses 1,14 kg schweren Feldführers.

Der beste Bestimmungsführer zur Säugetierfauna Afrikas der zur Zeit auf dem Markt ist und ein wichtiges Nachschlagewerk – absolut empfehlenswert, ein Muss für jeden Afrika-Liebhaber.

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