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A 'SWIMMING' *HETEROPODA* SPECIES FROM BORNEO (ARANEAE, SPARASSIDAE, HETEROPODINAE)

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ABSTRACT. *Heteropoda natans* new species (Araneae, Sparassidae, Heteropodinae) is described from Borneo. Additional illustrations of the genitalia of *H. hosei* (Pocock 1897) are provided for comparison purposes. The lectotype of *H. hosei* is designated.

Keywords: Sparassidae, *Heteropoda*, taxonomy, new species, Borneo

The sparassid subfamily Heteropodinae includes eight genera, of which *Heteropoda* Latreille 1804 is by far the most diverse with about 190 nominal species (Jäger 2002). The genus has not been revised in recent times except for the species from the Australian region (Davies 1994).

In 1998 Satie Airamé and Petra Sierwald observed and collected specimens of an unidentified *Heteropoda* species in a lowland rainforest on Borneo (Malaysia, Sabah). Individuals were observed in a laboratory and the hunting behavior was investigated. Hunting on the water surface could be shown the first time for the family Sparassidae. Even though the observations were made under artificial conditions, there is evidence that this behavior also occurs in natural situations (Airamé & Sierwald 2000).

Two *Heteropoda* species have been described previously from Borneo: *H. hosei* Pocock 1897 and *H. obtusa* Thorell 1890. After comparing the new material with type material and original descriptions, it appeared to be a species new to science, which is described below. Conspecifity of *H. obtusa* with the here described new species can be excluded by the distinctly smaller size of *H. obtusa* (ca. 14.5 mm body length: Thorell 1890). As *H. hosei* could be confused with the new species due to similar size, it is diagnosed and illustrated below.

METHODS

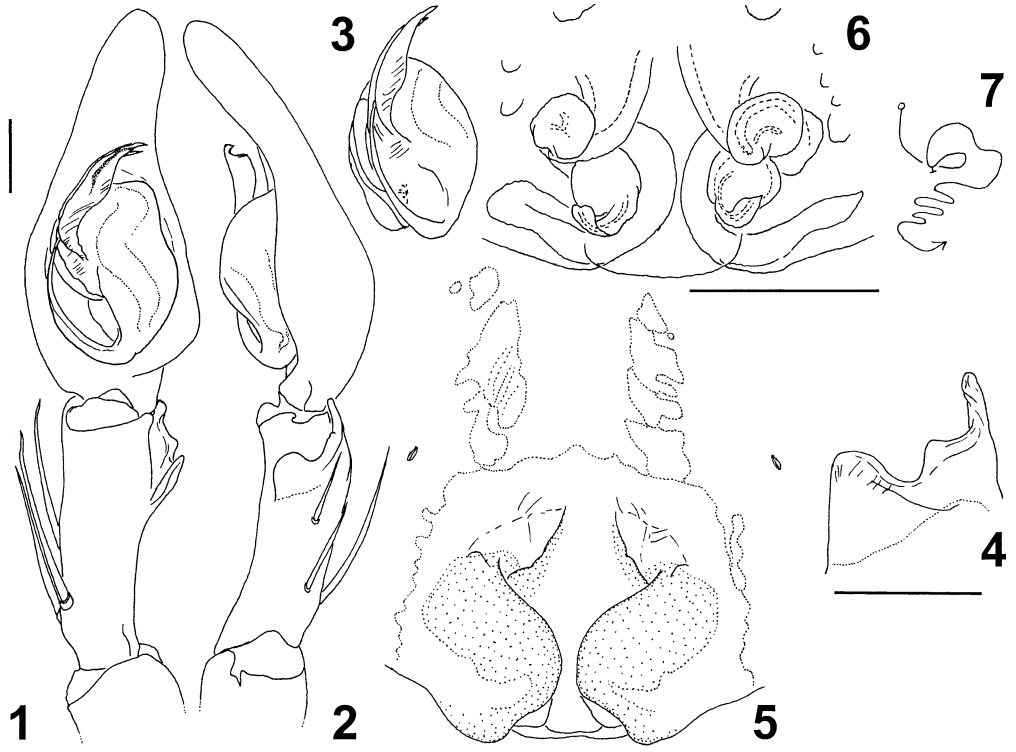
Specimens are deposited in the Field Museum of Natural History Chicago, USA (FMNH), Forschungsinstitut und Naturmuseum Senckenberg, Germany (SMF) and the Natural History Museum London, England (BMNH). Format and style of description as well as treatment of female genitalia follow Davies (1994) and Jäger (2000). Measurements are expressed in millimeters. Measurements of appendages are listed as: total length (femur, patella, tibia, metatarsus, tarsus). Arising points of tegular parts (i.e. embolus, conductor) are described for the left palp in a ventral view.

Abbreviations. ALE = anterior lateral eyes, AME = anterior median eyes, AW = anterior width of dorsal shield of prosoma, CH = clypeus height, FE = femur, MT = metatarsus, OL = opisthosoma length, OW = opisthosoma width, PA = patella, PH = height of dorsal shield of prosoma, PJ xx = serial number of Sparassidae examined by Peter Jäger, PL = length of dorsal shield of prosoma, PLE = posterior lateral eyes, PME = posterior median eyes, PP = palpus, PW = width of dorsal shield of prosoma, RTA = retrolateral tibal apophysis, TA = tarsus, TI = tibia, I/II/III/IV = leg I, etc.

TAXONOMY

Family Sparassidae Bertkau 1872
Genus *Heteropoda* Latreille 1804
Heteropoda natans new species
(Figs. 1–7)

Types.—Male holotype (PJ 1173), female paratype (PJ 1174): Malaysia, Borneo, Sabah, Kinabalu Park, near Poring, Hot Springs, Lowland Rainforest, stream edges, 6°03′N, 116°42′E, Airamé & Sierwald leg. IV-VI.1998



Figures 1–7.—*Heteropoda natans* new species: 1—2. left male palp; 1. ventral view; 2. retrolateral view; 3. left male bulb, prolateral view; 4. RTA, retrolateral view; 5. epigyne, ventral view; 6. vulva, dorsal view; 7. schematic course of internal duct system. Scale bars = 1 mm.

(FMNH 18975, 18972). Male paratype (PJ 1786): Malaysia, Borneo, Sabah, Kinabalu Park, near Poring Hot Springs. 6°03′N, 116°42′E, along river, 600m, *Heteropoda* male, P. Sierwald det. 1998 (SMF). Female paratype (PJ 1785): same data, *Heteropoda* female, P. Sierwald det. 1998 (SMF).

Etymology.—The specific name refers to the ability of this species to hunt on the water surface and to dive and hide under water (Latin: *natans* = swimming), adjective.

Diagnosis.—Tip of conductor divided into two parts as in *H. squamacea* Wang 1990 from southern China (see Wang 1990: figs. 6, 7), but male dorsal RTA of *H. natans* with a distinct protrusion between dorsal and ventral part (Fig. 4). Retrolateral margin of conductor undulating. Females with slightly rectangular epigynal field, this with distinct anterior bands. Lateral lobes not touching each other. Median septum anteriorly trapezoid. Spermathecae almost as large as anterior coils of copulatory ducts.

Description.—*Male holotype (PJ 1173):* PL 10.6, PW 10.2, AW 4.6, PH 2.6, OL 10.5, OW 6.8. Eyes: AME 0.51, ALE 0.71, PME 0.56, PLE 0.71, AME-AME 0.30, AME-ALE 0.08, PME-PME 0.42, PME-PLE 0.66, AME-PME 0.52, ALE-PLE 0.53, CH AME 0.98, CH ALE 0.77. Leg formula: 2143, spination: PP 131,101,2120, FE I-II 323, III 333, IV 331, PA 101, TI I-II 2326, III 2226, IV 2126, MT I-II 1014, III 2014, IV 3036. Leg measurements: PP 17.4 (5.9, 2.6, 3.4, -, 5.5), I 70.8 (18.5, 6.5, 21.1, 19.6, 5.1), II 82.2 (22.0, 6.7, 24.3, 23.7, 5.5), III 62.4 (17.6, 5.9, 18.5, 16.3, 4.1), IV 69.9 (19.6, 5.5, 19.6, 20.5, 4.7).

Chelicerae with 5–6 posterior teeth. Organization of palpal structures simple, i.e. embolus arising in a 6-o'clock-position on the tegulum, following a semi-circular path. Conductor arising in a 9:30-o'clock-position on the tegulum. Sperm duct shaped like broad 'S' across the tegulum.

Color: Reddish-brown to brown with dark markings, made up of short dark hairs. Chelicerae reddish-brown with three longitudinal bands. Prosoma with dark radial markings and

a white 'V'-shaped line, consisting of white short hairs, running along the suture between head and thoracical region. Sternum, gnathocoxae, labium, ventral coxae and trochanter pale brown without markings. Opisthosoma covered with dark hairs. Ventral opisthosoma with a light yellowish-brown median band.

Female paratype (PJ 1174): PL 14.9, PW 13.2, AW 6.5, PH 4.1, OL 19.2, OW 12.6. Eyes: AME 0.47, ALE 0.78, PME 0.63, PLE 0.77, AME-AME 0.57, AME-ALE 0.20, PME-PME 0.66, PME-PLE 0.86, AME-PME 0.77, ALE-PLE 0.80, CH AME 1.40, CH ALE 1.12. Leg formula: 2413, spination: PP 131,101,2(1)121,1014(3), FE I-II 323, III 333, IV 331, PA 101, TI I 21(2)26, II-IV 2126, MT I-II 1014, III 2014, IV 3036. Palpal claw with 8 teeth. Leg measurements: PP 22.9 (6.7, 3.2, 5.2, -, 7.8), I 71.9 (20.1, 7.4, 21.2, 18.5, 4.7), II 79.3 (22.7, 7.9, 23.5, 20.2, 5.0), III 65.6 (19.5, 7.1, 18.7, 16.2, 4.1), IV 75.4 (21.1, 7.0, 21.5, 20.7, 5.1).

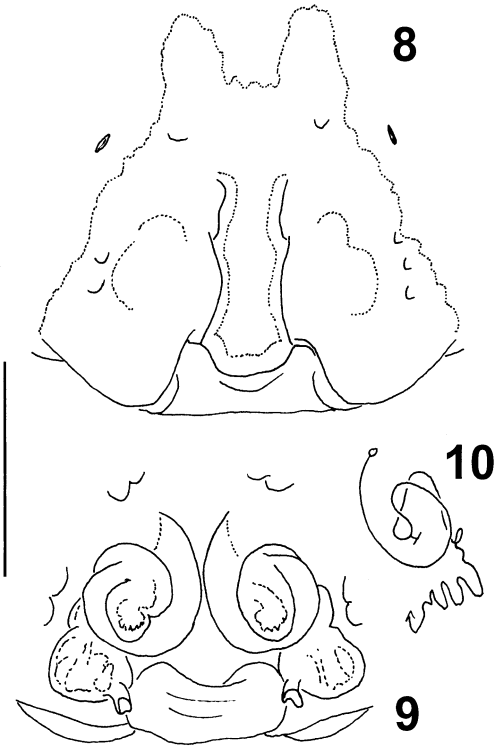
Chelicerae with 5 posterior teeth. Lateral lobes of epigyne broad tongue-shaped, covering mainly posterior parts of the median septum. Anterior bands of epigynal field fragmented. Spermathecae separated from each other by one of their diameters. Slit sense organs separated 2.5–4 times of their length from epigynal field (Fig. 5).

Color: As in male, but generally darker (i.e. reddish-brown). Prosoma and opisthosoma covered continously with dark hairs, without any pattern.

Variation.—*Male paratype (PJ 1786):* PL 11.6, OL 12.1; *female paratype (PJ 1785):* PL 13.7, OL 12.4.

Distribution.—Only known from the type locality.

Biology.—Observations on the biology of *Heteropoda natans* were made and published by Airamé & Sierwald (2000). Specimens were found sitting at the edge of streams. One specimen was observed jumping into the water and diving. In the laboratory, feeding experiments showed that individuals of *H. natans* monitor for prey by holding their pedipalps and the first two pairs of legs in the water. From the prey offered to the spiders (cockroaches, fish, large and small tadpoles) only tadpoles were rejected under laboratory conditions. In these experiments cockroaches were the preferred prey.



Figures 8–10.—*Heteropoda hosei* Pocock 1897: 8. epigyne, ventral view; 9. vulva, dorsal view; 10. schematic course of internal duct system. Scale bar = 1 mm.

Heteropoda hosei Pocock 1897
(Figs. 8–10)

Heteropoda hosei Pocock 1897: 614, figs. 21–21a; 1 female syntype (PJ 1765): Malaysia, Sarawak, purchased E. Gerrara, (BMNH 1894.9.19.11–31). Examined and herewith designated as lectotype (see Remarks below).

Diagnosis.—Epigynal field roughly trapezoid with short anterior bands, these neither fragmented nor separated from the field. Median septum covered only on its margins by lateral lobes. Posterior margin of median septum distinctly separated from the epigastric furrow. Spermathecae separated from each other by at least 1.5 times their diameters, extending laterally beyond the first windings of the internal duct system.

Description.—PL 10.0. Slit sense organs separated by their length from the epigynal field (Fig. 8). For further details see Pocock (1897).

Distribution.—Only known from the type locality (Sarawak).

Remarks.—Pocock (1897) mentioned two female specimens in his original description, one from Baram River in Borneo and one from Sarawak. These have to be considered syntypes. In the BMNH only one series of *H. hosei* was found. It comprises three adult females and one subadult female from Sarawak. One adult female is labelled as type, matches with the original description (the other specimens are smaller and probably added later to the vial) and is considered belonging to the syntype series. The other syntype was not found and its whereabouts remain unkown. To support stability the only located syntype (PJ 1765) is herewith designated as lectotype.

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