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Oreodytes shorti sp.n. from Mongolia (Coleoptera: Dytiscidae)

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Abstract

Oreodytes shorti sp.n. (Coleoptera: Dytiscidae) is described from the central part of northern Mongolia. It is characterized by its relatively large elongate body, protruded and acute posterior angles of the pronotum, simple male protarsal claws, and strongly asymmetric median lobe. The new species is morphologically similar to the Palearctic *O. dauricus* (MOTSCHULSKY, 1860) and the Nearctic *O. recticollis* (FALL, 1926) thus placing it in the *O. alaskanus*-clade. Data on habitats of the new species are presented.

Key words: Coleoptera, Dytiscidae, *Oreodytes*, taxonomy, new species, Mongolia.

Introduction

The dytiscid fauna of Mongolia is relatively well known, owing chiefly to the collections of F. Jensen and Z. Kaszab (BRINCK 1943; GUÉORGUIEV 1965, 1968, 1969, 1972). Nonetheless, further faunistic data have been obtained since then and, in particular, a new species of Dytiscidae, *Hydroporus crinitisternus* SHAVERDO & FERY, 2001, was recently described from that country by SHAVERDO & FERY (2001).

A large number of water beetles was collected in July 2004 during the Selenge River Basin Expedition carried out by scientists associated with The Academy of Natural Sciences of Philadelphia, USA and the Mongolian Academy of Sciences, Ulaanbaatar, Mongolia. Our review of this material uncovered a new dytiscid species of the genus *Oreodytes* SEIDLITZ, 1887.

The genus *Oreodytes* includes 11 Palearctic, 17 Nearctic, and one Holarctic species (NILSSON 2001), inhabiting running waters, pools and puddles along or in the bed of large rivers, and shore areas of oligotrophic lakes. Four species of the genus have been hitherto recorded from Mongolia (NILSSON 2003): *O. alpinus* (PAYKULL, 1798), *O. mongolicus* (BRINCK, 1943), *O. sanmarkii* (SAHLBERG, 1826), and *O. septentrionalis* (GYLLENHAL, 1826).

Here we describe the new species, compare it with other *Oreodytes* species, and provide some notes on its habitat preferences.

Material and methods

The type material is deposited in the following collections:

AEZS	coll. A. Short, Ithaca, USA
ANSP	The Academy of Natural Sciences of Philadelphia, USA (J. Gelhaus)
CHF	coll. H. Fery, Berlin, Germany, property of Naturhistorisches Museum Wien, Vienna, Austria
CHS	coll. H.V. Shaverdo, Vienna, Austria
MAS	Mongolian Academy of Sciences, Ulaanbaatar, Mongolia (B. Namkhaidorj)

Fig. 1: *Oreodytes shorti* sp.n., habitus.

The following abbreviations are used in the text: hw (handwriting), TL (total body length), TL-H (total body length without head), MW (maximum width of body), n (number of the specimens measured).

The measurements were taken with a Wild M10 stereomicroscope equipped with an eyepiece micrometer. For drawing, the male and female genitalia were studied wet. The terminology to denote the orientation of the genitalia (ventral/dorsal and right/left) follows MILLER & NILSSON (2003). The numbering of the abdominal sterna refers only to those that are visible.

All specimen data are quoted as they appear on the labels attached to the specimens. Label text is cited using quotation marks separating different labels and backslashes to separate different lines on one label. Comments by the authors are indicated in square brackets.

Oreodytes shorti sp.n.

TYPE LOCALITY: northern Mongolia: Arkhangay Aimag [= Province], Bulgan Soum, Urd Tamir Gol [Gol = river in Mongolian], ca. 38 km SW Tsetserleg.

TYPE MATERIAL: **Holotype**: ♂, "MONGOLIA: Arkhangay Aimag \ Bulgan Soum, Urd Tamir Gol \ ~ 38 km SW Tsetserleg, elev. 1872 m \ N47.28244, E101.18793 \ 12–13.07.2004, A.E.Z. Short leg. \ AS-04-090/ SRP04071201", "Holotype \ Oreodytes shorti sp.n. \ Shaverdo & Fery 2005" [red] (MAS). **Paratypes**: 122 exs., same label data as holotype (MAS, ANSP, AEZS, CHS, CHF). 19 exs., "MONGOLIA: Arkhangay Aimag \ Bulgan Soum, unnamed hillside tributary \ of Khairkhan Davaani Gol, elev. 2311 m \ N46.94286, E100.85532, 13.07.2004 \ J.K. Gelhaus, J.C. Morse, A.E.Z. Short leg. \ AS-04-092/ SRP04071303" (MAS, ANSP, AEZS, CHS, CHF). 4 exs., "MONGOLIA: Arkhangay Aimag \ Bulgan Soum, ~ 86 km SW Tsetserleg \ 4 m puddle in road of dry Khaihkan Davaani \ Gol, elev. 2282 m, N46.95639, E100.87267 \ 13.07.2004, A.E.Z. Short, J.K. Gelhaus leg. \ AS-04-093/ SRP04071304" (MAS, CHS, CHF). Each paratype is provided with the respective red label.

DESCRIPTION: **Size and shape** (Fig. 1): relatively long: TL = 5.00–5.65 mm (mean = 5.40 mm, n = 16), TL-H = 4.60–5.15 mm (mean = 4.95 mm), MW = 2.30–2.65 mm (mean = 2.53 mm), MW/TL-H = 0.5–0.53 (mean = 0.51); body shape elongate, rather depressed, with lateral outline distinctly discontinuous in dorsal view.

Base of pronotum distinctly narrower than base of elytra; pronotum with margins rounded in anterior half and strongly sinuate towards base, with posterior angles produced and acute (Fig. 1). Elytra elongate, depressed, and subparallel; in lateral view their margins strongly ascending to humeral angles, and epipleura visible until shoulders; elytral margins sinuate before apex. Prosternal process anteriorly without transverse ridge, behind procoxae lanceolate and convex in cross-section; sides flat and provided with very coarse punctures and distinct setae. Metacoxal lines divergent anteriorly ending far before posterior margin of metaventrite. Abdominal sternum 5 with posterior margin straight. Protibia broadly expanded and curved in apical half and narrow in basal half (Figs. 6, 7).

Coloration (Fig. 1): Head yellow, with two arrow-like spots between eyes often fused with middle of dark brown to black vertex. Pronotum yellow, with anterior and posterior margins very narrowly brownish; lateral striae blackish; disc with four dark brown to black spots variable in size, in particular, anterior spots often reduced; some small blackish punctures along anterior and posterior margins of pronotum shining through.

Elytra yellow, with dark elytral suture; each elytron with nine distinct dark brown to black longitudinal vittae: six discal and three lateral; vittae not reaching base of elytra; third and fifth anteriorly longer than second and fourth, first and sixth evidently shorter than other discal vittae; first and second vittae often fused slightly anterior to middle of elytral length; fourth, fifth, and sixth vittae conjoined far before elytral apex; seventh vitta starting laterally at shoulder, broken shortly anterior to middle of elytral length, behind forming distinct longitudinal spot, and further

to apex becoming very narrow, partly broken inconspicuous line; near apex appearing again as oblique oblong spot situated behind apical ends of second and third vittae and in some specimens fused with them; eighth vitta consisting of short longitudinal spot near shoulder, close to epipleuron, here often fused with seventh vitta, behind disappearing, continued behind anterior third of elytron but often two or three times shortly broken or consisting only of small punctures; ninth vitta rather indistinct, starting behind anterior half of elytron, ending far before elytral apex, running very close to eighth vitta and often fused with it. Epipleuron in anterior third with external half yellowish and inner half black, in posterior part completely black.

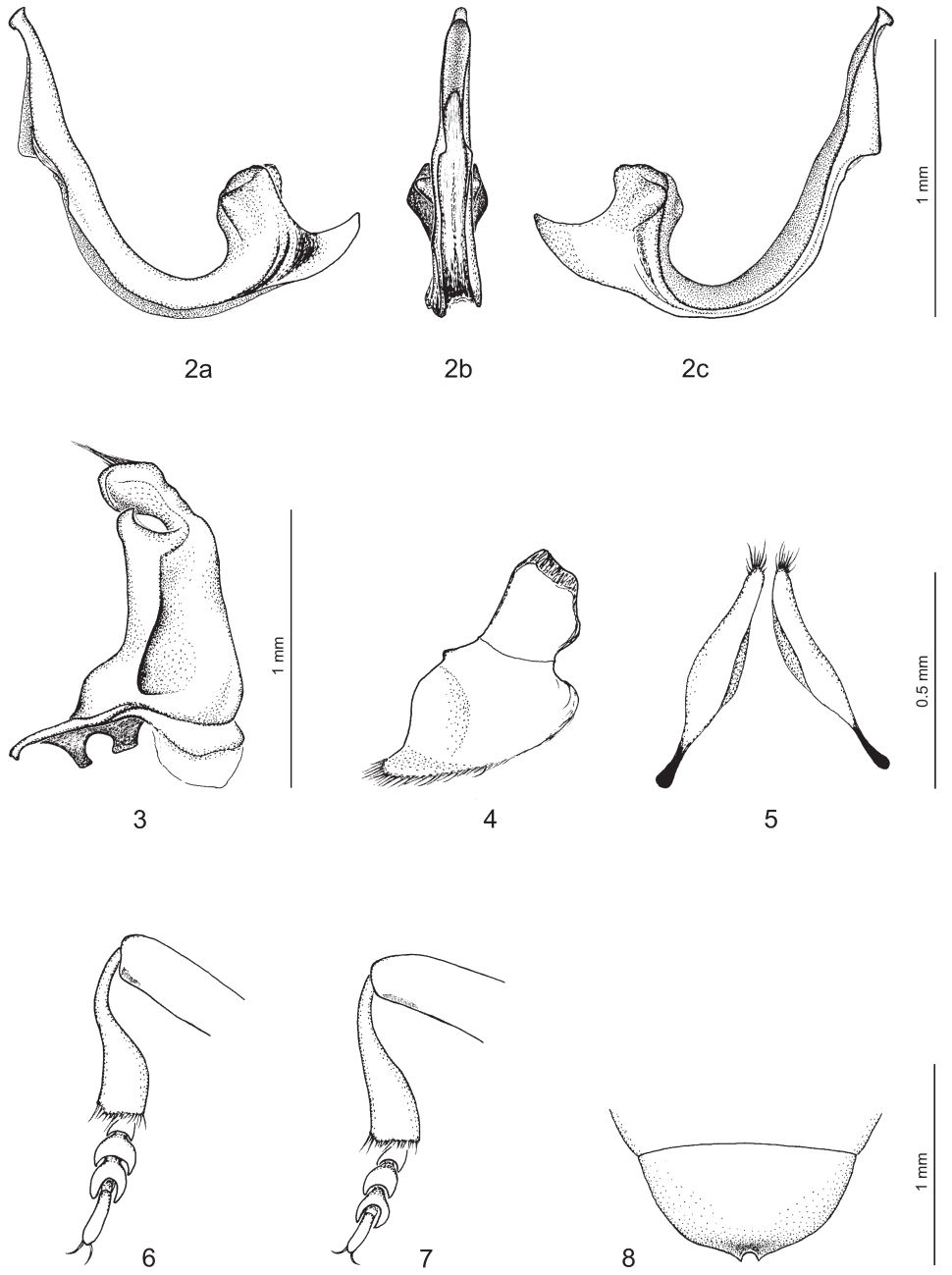
Antennae yellow, antennomeres progressively infuscate distally beginning with antennomere 6, 7, or 8, apical antennomeres more strongly infuscate than basal ones. Palpi yellow, apically infuscate. Coxae and trochanters yellowish brown; femora yellowish brown in basal half, yellow in apical half, and with infuscate knees; tibiae and tarsomeres yellow, slightly infuscate apically; claws yellowish brown. Ventral surface black, except yellow sides of prosternum and dark brown apex of metacoxal processes.

Surface sculpture: Dorsal surface with distinct microreticulation consisting of small, almost round meshes. Head with fine, sparse punctation interspersed with coarser punctures between eyes and behind anterior clypeal margin. Pronotum with fine punctation distinctly denser and finer than on head also interspersed with coarser punctures as well as with irregular row of very coarse punctures near its anterior margin. Elytra with punctation similar to that of pronotum, but coarser punctures distinctly sparser; each elytron with four rows of rather strongly impressed, very coarse and, in part, densely arranged punctures; two inner rows forming shallow grooves; three inner rows situated between third and fourth, fifth and six, and seventh and eighth black vittae; fourth row more indistinct and running parallel to elytral margins; punctures of rows with distinct yellowish setae.

Ventral surface microreticulate; metacoxal plates (except posterior margin), sides of metaventrite, and abdominal sternum 1 with fine and dense punctation; sides of metaventrite and metacoxal plates with additional coarser but relatively sparse punctures; coarser punctures rather dense near posterior margin of metaventrite, forming two stripes right and left of its mid-line; stripes diverging backwards, space between them without punctures; interlinear space of metacoxal processes and abdominal sterna, except apex of last sternum, with coarser punctures denser; coarser punctures on middle part of metaventrite, interlinear space of metacoxae, and on abdominal sterna with distinct yellowish setae.

Sexual dimorphism (male): Abdominal sterna with coarse punctation, especially dense on their middle parts. Last abdominal sternum rounded or indistinctly truncate, in posterior half with longitudinal flat impression; posterior margin narrowly beaded. Protibia strongly expanded and curved in apical half, in basal half sides almost parallel (Fig. 6). Protarsal claws simple, equal, and short. Basal three pro- and mesotarsomeres slightly expanded, provided with setae, first and second ones with up to four adhesive discs. Median lobe strongly asymmetric (Fig. 2), in lateral view with ventral margins angular in apical half and apex slightly hooked; paramere strongly sculptured, with subapical excavation and hooked apex (Fig. 3).

Sexual dimorphism (female): Microreticulation of dorsal surface as in male; on abdominal sterna coarser punctures smaller and sparser. Elytral margins at apex obliquely cut, with distinct subapical tooth; elytral apex pointed (Fig. 1). Last abdominal sternum narrowly beaded, flattened before apex; apex somewhat protruded and narrowly curved upwards, appearing U-shaped (Fig. 8), however not so strongly protruded as in *O. productotruncatus* (HATCH, 1944) and *O. alaskanus* (FALL, 1926) (cf. ALARIE 1993: Figs. 7, 13). Protibia slightly less expanded and less curved in apical half and more diverging in basal half (Fig. 7). Gonocoxosternum and gonocoxae as in Figs. 4–5.



Figs. 2–8: *Oreodytes shorti* sp.n., 2) median lobe of aedeagus (a) lateral view, right side, (b) ventral view, (c) lateral view, left side; 3) paramere, external view; 4) gonocoxosternum, ventral view; 5) gonocoxae, ventral view; 6) male foreleg; 7) female foreleg; 8) last abdominal sternum of female.

Fig. 9: Type locality of *Oreodytes shorti* sp.n.: Urd Tamir River, northern Mongolia.

Variability: Size and shape of dark sports on pronotum and vittae on elytra are variable.

DISCUSSION: The new species ranks within the *O. alaskanus*-clade sensu ALARIE (1993). It is morphologically similar to the Nearctic *O. recticollis* (FALL, 1926) which differs from the new species by the following characters: lateral margins of pronotum more rounded, posterior angles of pronotum not protruding; ventral margins of median lobe in lateral view subapically broadly angular, apex rounded; dark pattern of head broader; dark spots on elytra reduced (cf. ALARIE 1993: 856–857; LARSON et al. 2000: 465). *Oreodytes shorti* is also similar to the Palearctic *O. dauricus* (MOTSCHULSKY, 1860), which is known only from a very few specimens (cf. ALARIE 1993). Externally, *O. dauricus* is very similar to *O. recticollis* (posterior angles of pronotum also not protruding). So far, males of *O. dauricus* have never been described. A few specimens of *O. dauricus*, including males, have been recently studied by the junior author, who found that the shape of the median lobe does not at all coincide with that of *O. shorti* (FERY et al., in preparation).

The other Mongolian *Oreodytes* species can be distinguished from *O. shorti* as follows:

Oreodytes sanmarkii and *O. septentrionalis*: body small, short, almost round and strongly vaulted.

Oreodytes mongolicus: lateral margins of pronotum and elytra more rounded (cf. BRINCK 1943: Fig. 1); posterior angles of pronotum not protruding; elytral margins of male not sinuate before apex; protibiae not broadly expanded and curved in apical half; females with truncate elytral apex and subapical angles more strongly developed (cf. BRINCK 1943: Fig. 1); apex of last abdominal sternum in females simple; dark colour pattern of dorsal surface less developed

(head and pronotum sometimes almost uniformly yellow, and elytral vittae distinctly thinner); coarser punctation of elytra distinctly denser; male protarsal claws very long, longer than protarsomere 5, and almost straight; in lateral view ventral margins of median lobe not angular in apical half (cf. Fig. 2; BRINCK 1943: Fig. 1).

Differences with *Oreodytes alpinus* are not discussed here because this species is extremely similar to *O. mongolicus*, except for the shape of the apex of the median lobe. In addition, we suspect that all literature records of *O. alpinus* from Mongolia in fact refer to *O. mongolicus*.

HABITAT: The new species occurs at high altitudes from 1870 m to more than 2300 m in habitats which are typical for *Oreodytes*. It was collected from three different water bodies: 1) isolated pools (with cobble and gravel substrate and lacking vegetation) along the margin of the large river Urd Tamir Gol (123 specimens collected) (Fig. 9); 2) a hillside tributary of Khairkhan Davaani Gol (19 specimens), and 3) a muddy puddle (ca. 4 m in diameter) in the road following the dry Khaihkan Davaani Gol (4 specimens).

In the two last habitats it was the only representative of the genus that was collected. In the pools of Urd Tamir Gol, where the species was especially numerous, it was collected together with the much less abundant *O. mongolicus* (15 specimens) and *O. sanmarkii* (28 specimens).

DISTRIBUTION: Central part of northern Mongolia.

ETYMOLOGY: The new species is named after its collector Andrew Short. Although the name "shorti" absolutely does not fit the facts as *O. shorti* is one of the longest members of the genus, and, on the other hand, Andrew, being 188 cm tall, is a rather long representative of his species.

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