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Notes on the identity of *Oreodytes okulovi* LAFER, 1988 (Coleoptera: Dytiscidae)

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A b s t r a c t: The male of *Oreodytes okulovi* LAFER, 1988 is described for the first time. Until this study, the species was known only from the description of the female holotype and a few records without any descriptive notes, and thus the identity of the species remained unclear. The material studied includes males and females collected not far from the type locality in the Russian Far East; however, most interestingly, we have also studied two specimens from the Tuva Republic, Russia, more than 3,000 km west of the type locality. At first glance the species can be mistaken for *O. sanmarkii* (C.R. SAHLBERG, 1826), but the shape of the aedeagus and some features of the ventral surface clearly separate *O. okulovi* from *O. sanmarkii* and other similar species. The habitus and the male genitalia are illustrated. An English translation of LAFER's original description – which is in Russian – is given in an Appendix.

K e y w o r d s: Coleoptera, Dytiscidae, Hydroporini, *Oreodytes*, redescription, new records, Russian Far East, Tuva Republic.

Introduction

Since its description *Oreodytes okulovi* LAFER, 1988 remained a taxon of unclear identity. This was because LAFER (1988) based the description of his new taxon on a single female. In addition to the original description, the taxon is mentioned in only a few publications known to us, these being catalogues (NILSSON 2001, 2014, NILSSON & HÁJEK 2014), two keys to species (LAFER 1989; KIREJTSHUK 2001), one list of Palearctic species of *Oreodytes* SEIDLITZ, 1887 (ERMAN & ERMAN 2002), a book review (BALKE 1990), a record from one specimen of unspecified sex (NILSSON et al. 1999) and finally a record in doubt ("*Oreodytes* sp. aff. *okulovi* LAFER, 1988" in KUZHUGET et al. 2013: 285).

According to the habitus figures in LAFER's article, one had to assume that it should be closely related to *Oreodytes sanmarkii* (C.R. SAHLBERG, 1826) (given there as *Oreodytes rivalis* (GYLLENHAL, 1827)), and it was not clear whether the distinguishing characters provided by him might be simply included in the range of variability of the latter species, which is distributed over a large part of the Palearctic to northern parts of the Nearctic zoogeographical regions. Since some time ago, we have studied diverse material from eastern Russia assumed to belong to *O. sanmarkii* or some closely related species, and found that it did include more than one species, but it remained unclear to us whether LAFER's species was among them or not. Unfortunately, we were also not enabled to

study the female holotype, preserved in the Institute of Biology and Soil Science, Far Eastern Branch, Russian Academy of Sciences, Vladivostok.

All members of ZIMMERMAN's (1985: 113) *Oreodytes angustior*-group have a similar short and rounded body shape. These are the Holarctic *O. sanmarkii* (including the Iberian subspecies *O. s. alienus* (SHARP, 1873)) and the Nearctic *O. abbreviatus* (FALL, 1923), *O. angustior* (HATCH, 1928), *O. congruus* (LECONTE, 1878), *O. crassulus* (FALL, 1923), *O. obesus obesus* (LECONTE, 1866), *O. o. cordillerensis* LARSON, 1990, *O. picturatus* (HORN, 1883), *O. rhyacophilus* ZIMMERMAN, 1985, *O. sierrae* ZIMMERMAN, 1985, and *O. subrotundus* (FALL, 1923). Most of these species also have an elytral colouration pattern similar to that of *O. okulovi* and rather weakly varying shapes of the median lobe of the aedeagus (cf. figs 8-15, 17-18 and 55-67, 71-78 in ZIMMERMAN 1985, where *O. sanmarkii* is given under the name *O. rivalis*, figs 1-4 in LARSON 1990 and figs 120-122 in LARSON et al. 2000). Thus, we had to assume that *O. okulovi* should have a median lobe at least slightly similar in shape to those of the species listed above.

When studying recently a very teneral specimen from Tuva, reported by KUZHUGET et al. (2013) as "*Oreodytes* sp. aff. *okulovi* LAFER, 1988", we failed to distinguish the genitalia with a stereomicroscope, but succeeded in locating the median lobe using a compound microscope and found that it had a shape strongly deviating from those of the allegedly closely related species listed above. Examination of a few other specimens from Primorye (south-eastern Far East of Russia) revealed two more males – mature ones – with such a median lobe. A comparison of these males and three females with LAFER's description of *O. okulovi* showed (1) that the specimens agreed in more or less all characters with LAFER's description and (2) that LAFER's detailed description is in fact largely correct. Since the content of LAFER's paper (which is in Russian) seems to be unknown to many colleagues, we give an English translation of that work in the Appendix. We also provide a redescription of the species, because several features which are not given in LAFER (1988) are seen as important, and add remarks on characters incorrectly described by LAFER (probably due to the fact that he has studied only a single female). In particular we provide illustrations of the male genitalia. A comparison of the most important distinguishing characters for *O. okulovi* and *O. sanmarkii* is given in Table 1.

Material and methods

The following abbreviations are used in the text for collections where the specimens are stored:

- CHF coll. H. Fery, Berlin, Germany; property of the Naturhistorisches Museum Wien, Vienna, Austria
 MPSU Moscow Pedagogical State University (Russia; K.V. Makarov)
 ZISP Zoological Institute, Russian Academy of Sciences, St. Petersburg (Russia; A.G. Kirejtshuk)

Other abbreviations of terms used in the text are TL (total length), MW (maximum width), and hw (handwriting). The specimens were studied with an Olympus SZX16 stereomicroscope; their genitalia were studied wet for illustrations (in part studied with an Olympus BH2 compound microscope). Photos were made with a Nikon Coolpix 995 camera attached to the stereomicroscope and then treated with CombineZP Image

Stacking software. Finally, the photos as well as the ink drawings were touched up with Adobe Photoshop CS5 software. Authors' remarks are given in square brackets.

Taxonomy

Oreodytes okulovi LAFER, 1988

Oreodytes okulovi LAFER, 1988: 52 (orig. descr.); 1989: 139, 242 (key); BALKE 1990: 18 (book review); KIREJTSHUK 2001: 542 (key); NILSSON 2001: 179 (cat.); 2014: 165 (cat.); NILSSON et al. 1999: 114; ERMAN & ERMAN 2002: 295; KUZHUGET et al. 2013: 285 (fauna); NILSSON & HÁJEK 2014: 37 (cat.).

Type locality: Russia, Far East, Primorsky Krai, Shkotovskoye Plateau; coordinates ca. 44.17N 133.23E.

Type material: The single female specimen (holotype) has been collected by A. Okulov in the Tyomny brook (headwaters of Arsenyevka river) on 29.7.1979. The holotype is stored in the collection of the Institute of Biology and Soil Science, Far Eastern Branch, Russian Academy of Sciences, Vladivostok (Russia; G.S. Lafer) (holotype not studied).

Material studied: 1♂, "Dal'ny Vostok [= Far East], Lazovsky zapovednik [= Lazovsky Nature Reserve], ur. [= urochishche = landscape unit] Benevskoye, 20.VIII.[1]984, leg. V. Gramma" [hw, in Russian], "coll. Zacharenko, Zoological Institute, St. Petersburg"; found together with a male of *O. sanmarkii*; both originally mounted on a single pin (ZISP) (habitus and aedeagus of this specimen are illustrated in Figs 2 and 6-8). **Note s:** The collecting site has coordinates of ca. 43.1N 133.9E. 1♂, "Dal'ny Vostok [= Far East], Staraya pristan' [= Old pier], point No. 8, 840(466), 16.IX.[19]58" [hw, in Russian], "rivalis /Gyll/" [hw], "coll. Zacharenko, Zoological Institute, St. Petersburg" (ZISP). **Note s:** Two specimens of *O. sanmarkii*, also stored in ZISP, were found at the same locality, but on other dates. 1♀, "Dal'ny Vostok [= Far East], 839/468 [?], Staraya pr. N 7 [?], gal'ka [= pebbles], gl. 10 sm [depth 10 cm], t° 8°C, 16.IX.[19]58" [hw], "rivalis (Gyll)." [hw], "coll. Zacharenko, Zoological Institute, St. Petersburg" (ZISP). 1♀, "Yevreyskaya AO [= Jewish Autonomous Oblast]. Dichun, r. Amur [Amur River] 130°45' E, bl. [= bliz = near] Radde 24.VIII.1978, Belov" [printed], "rivalis" [hw Belov], "Oreodytes okulovi Lafer, P. Petrov det. 2004" [printed], "Dept. Entomology, Lomonosov Moscow State University" [printed], "Oreodytes okulovi Lafer, det AN Nilsson-05" [printed]; found together with several *O. sanmarkii* (MPSU). **Note s:** Dichun has co-ordinates 48.52N 130.74E; Radde has co-ordinates 48.59N 130.59E. 1♂, 1♀, "3.9.2006 Russia, Tyva (Tuva), Ungesh River, stream, roiled, ca. 70 km SW Kyzyl, ca. 51.13N 93.75E, V. Zaika leg." (CHF, ZISP). **Note s:** The last two specimens and another one were reported by KUZHUGET et al. (2013) as "*Oreodytes* sp. aff. *okulovi* LAFER, 1988". C.N. KUZHUGET (Kyzyl, Tuva, Russia) kindly sent us some photos of the habitus and of the aedeagus of the third specimen recorded under this name. This specimen is a male from silt in Gnusny brook in the southern part of the valley of Lake Myun', ca. 120 km NEE Kyzyl (52.20N 96.00E), also collected by V. Zaika and stored in the Biodiversity and Geocology Laboratory, Tuva Institute for Exploration of Natural Resources, Siberian Branch, Russian Academy of Sciences (Kyzyl). It is clear from the photos that the specimen also belongs to *O. okulovi*.

Redescription of *Oreodytes okulovi* LAFER, 1988

Habitus and colouration

Dorsal surface: Habitus oval (Fig. 1); maximum width (MW) situated distinctly behind anterior third of elytra, near middle of elytral length; body outline with slight discontinuity at bases of pronotum and elytra. Upper surface of silky appearance,

neither shiny nor distinctly matt, to large extent brownish yellow. Head on vertex and near inner sides of eyes diffusely darkened. Antennomeres beginning with fifth or sixth weakly brownish darkened distally, eleventh with distal half darkened. Base of pronotum narrowly and anterior margin broadly brownish darkened; centre of pronotum with diffusely delimited brownish spot, sometimes reaching base; lateral rim of pronotum brown. Elytron with suture and six discal vittae blackish; sutural vitta reaching base of elytron and continued parallel to base until its middle, slightly broadened in apical fourth of elytron; discal second and fourth vittae anteriorly longer than first and third, in some specimens reaching base of elytron; short fifth vitta present at midlength of elytron, short sixth vitta parallel to elytral margin in apical third; fifth and fourth vittae fused, third and fourth vittae in some specimens fused posteriorly and also fused with sixth vitta.

V e n t r a l s u r f a c e: In mature specimens chiefly black; mouthparts brownish yellow, gula dark brown; prosternum largely black; hypomeron, propleuron and pro- and mesocoxae brownish yellow; prosternal process (blade), legs, epipleura in anterior half, lobes of metacoxal processes and first abdominal ventrite brownish; hind margins of second to fifth abdominal ventrites shining through brownish.

Structure and microsculpture

H e a d: Anterior margin of clypeus not evenly rounded, almost straight, even slightly indented (only visible if clypeus observed perpendicularly to its surface, otherwise anterior margin hidden and, thus, appearing evenly rounded; see Fig. 1, and fig. 1 in LAFER 1988). Anterior margin of clypeus without rim, shortly turned downwards and backwards laterally of indentation. Clypeal grooves (above antennal insertion) shallow. Entire surface reticulate, meshes small, almost isodiametric; interspersed with sparse small punctures with diameter subequal to that of meshes or slightly larger. Setae present only near eyes. Antennae rather thin (slightly thinner than in *O. sanmarkii*); length of antennomeres varying individually, usually fourth segment shorter than fifth, fifth somewhat shorter than sixth.

P r o n o t u m: Sides weakly rounded in posterior two thirds, distinctly rounded anteriorly. With deep sublateral longitudinal impression (stria) on each side; each stria prolonged posteriorly until pronotal base by some wrinkles; side margins with narrow rim, near anterior and posterior angles even narrower; posterior pronotal angles slightly obtuse, almost rectangular, not rounded; pronotum sub-basally between lateral striae somewhat impressed; thus, disc of pronotum appearing vaulted; space between pronotal sides and striae also vaulted. Pronotal reticulation on disc similar to that of head, punctuation also similar but sparser; reticulation directly behind anterior margin formed by rather elongate transverse meshes. Surface behind anterior margin and before posterior margin with irregular line of larger punctures, punctures sparser in middle, but lines not interrupted. Centre of disc with longitudinal scratch. Some very sparse setae present near sides.

E l y t r a: In dorsal view lacking distinctly pronounced shoulders; sides of elytra almost straight and diverging after shoulders (this being in contrast to LAFER's description), in posterior half evenly rounded, weakly pointed at apex. Elytra at shoulders obliquely truncate over short distance, resulting corners rounded (feature best to observe in ventral view). In dorsal view sides of elytra only visible near shoulders and at apex. In lateral view sides of elytron anteriorly slightly ascending to shoulders; epipleuron visible until

shoulders, without subhumeral oblique carina, near shoulders weakly excavated. **N o t e s:** This part of the epipleura is rarely dealt with in the literature. SHARP (1882: 242, 371, 849 etc.) named it "genicular or humeral area" or also "genicular fossa" and added that it "receives the knees of the front and middle legs and permits these parts to be very closely packed away when not in use." Elytral reticulation similar to that of head and pronotum. Punctuation even sparser than on pronotum and punctures even smaller. Entire surface covered with sparse short setae, but this only perceptible if adequately illuminated, near sides and apex with very few longer setae. Elytral puncture lines indistinct; sutural lines only perceptible in apical fifth, more anteriorly indicated by small black dots, but not impressed; two discal lines only perceptible in anterior half of elytra.

V e n t r a l s u r f a c e: Due to rather strongly impressed microsculpture largely matt. Head without crease behind eyes, without wrinkles between eyes and mouthparts; area behind eyes (genae) more or less uniformly and distinctly reticulate, matt, impunctate. Gula less distinctly reticulate, medially almost smooth and shiny; on sides with some large punctures. Prosternal process lanceolate (and not sub-quadrangle as in *O. sanmarkii*; cf. ZIMMERMAN 1985: 112 for the term "quadrangle"); longitudinal carina roof-like in cross-section; process at sides excavated and with long setae. Process contacting anteromedial metaventral process. Mesepisternum densely punctate, mesepimeron reticulate, impunctate. **N o t e s:** So as not to damage any of the specimens, we neither studied whether the anterior metaventral process contacts the mesoventral fork nor whether the mesocoxal cavities are closed. The distance between the mesocoxae is, however, rather small and, thus, we assume that the cavities are not closed. We studied, however, *O. sanmarkii* in detail and found that the cavities are closed, due to the greater distance between the mesocoxae (cf. ZIMMERMAN 1985: 112). Anteromedial metaventral process with broad furrow for reception of prosternal process. Metaventral "wings" narrow, curved backwards, distally more or less straight (cf. fig. 1, B in LAFER 1988: 53). Metepisternum more or less triangular, border to metaventrite slightly curved; along anterior margin metepisternum only weakly excavated. Metacoxal lines slightly diverging anteriorly (not sub-parallel as claimed by LAFER 1988). Metacoxal processes incised, each obliquely cut, interlaminary bridge exposed. Last abdominal ventrite in both sexes apically weakly pointed and here provided with some bristles. Submarginal carina on inner (ventral) surface of elytra sub-apically slightly elevated, but without ligula.

Metaventrite except centrally, metacoxal plates, first two abdominal ventrites, last abdominal ventrite and sides of third and fourth ventrite densely covered with very fine punctures and unusually small, often incomplete but rather strongly impressed meshes (thus surface appearing matt); interior of meshes and/or interspaces between punctures swollen, appearing somewhat worm-like in part because of several swollen meshes connected; metaventrite centrally with indistinct larger meshes, here punctures slightly coarser, but shallow and sparser; space between metacoxal lines also with sparse shallow punctures, surface appearing roughly structured, with several rather long setae (about half as long as distance between metacoxal lines in middle); lobes of processes reticulate. Second to fifth abdominal ventrites centrally with normal, but weakly impressed reticulation (i.e. meshes). Surface of epipleura similarly structured as metacoxal plates. Metaventrite, metacoxal plates and first and second abdominal ventrites provided with some shallow wrinkles, more distinct near sides. Entire ventral surface without larger punctures, except very few almost imperceptible ones on abdominal ventrites. Sparse setae present on centre of metaventrite and on abdominal ventrites.

L e g s: Protibiae simple, in males not especially broadened distally. First three pro- and mesotarsomeres in males broadened; both pro- and mesotarsal claws equal, evenly curved, not modified in any way, in males very slightly longer than in females. Metatrochanter in both sexes normally shaped (in contrast to *O. sanmarkii*), with only a few larger punctures and very sparse setae. Metatibia and metatarsomeres distinctly reticulate, anterior face of metatibia with two lines of setiferous punctures, otherwise impunctate. Fifth metatarsomere ca. 1.5 times as long as fourth; first metatarsomere slightly shorter than second and third together. **N o t e s:** All other *Oreodytes* have the first pro- and mesotarsomeres with two pairs of distinct (although sometimes lost) more or less elliptical sucker cups (the stalk of the distal pair in several species rather long, so that these cups appear as belonging to the second tarsomeres), but *O. okulovi* lacks these cups! We suspected that these might have been lost in our three specimens studied due to mechanical damage, but one of the specimens is very immature and lacks these cups on all tarsomeres, nevertheless. The tarsi show only simple sucking setae, slightly trumpet-like, as they are well-known in other related genera, such as *Deronectes* SHARP, 1882, *Nebrioporus* RÉGIMBART, 1906, and other *Deronectina* (cf. NILSSON & ANGUS 1992). **N o t e s:** NILSSON & ANGUS (1992: 276) excluded *Oreodytes* from the *Deronectes*-group of genera (= "Deronectina") due to the presence of sucker cups ("adhesive discs") on pro- and mesotarsomeres; however, RIBERA's phylogram (2003: 483, fig. 3) shows clearly that it should be included (see also ANGUS 2010).

H i n d w i n g s: In one male and one female of the new species we have found that the hind wings are considerably reduced. Thus, we suspect that at least these specimens were incapable of flight. We refrained from studying the wings of other specimens so as not to risk their destruction. Interestingly, reduced (to a much greater degree) hind wings have been found also in the recently described *Amurodytes belovi* FERY & PETROV, 2013, which seems to have a similar geographical range. This species, however, lacks not only the setae on the pro- and mesotarsi and a subapical lamella of the parameres (lateral lobes of the aedeagus), but also the pronotal striae. We have studied the hind wings of one male and one female *O. sanmarkii* from the Russian Far East: both have normally developed wings, i.e. these are about as long as the TL of the specimens; however, we have not studied the flight muscles (cf. JACKSON 1952: 59, 1956: 80, and 1973: 258 – all under the name *O. rivalis* – and KEHL & DETTNER 2007: 150 for the flight capacity of *O. sanmarkii*).

V a r i a b i l i t y: We could not find any considerable variation of any character except a slight variation of the elytral pattern and extension of the brownish colouration on the ventral surface.

M e a s u r e m e n t s: TL: 2.95-3.2 mm, MW: 1.8-1.95 mm, TL/MW: 1.62-1.68; two males and three females measured, the third male is too immature. Among this small number of specimens we could not find differences between males and females. For comparison we provide also measurements of 13 specimens of *O. sanmarkii* from the Far East of Russia: TL: 2.8-3.1 mm, MW: 1.65-1.8 mm, TL/MW: 1.65-1.72. **N o t e s:** SCHAEFLEIN (1979: 52) provided for *O. sanmarkii* a total length of 2.5-3.0 mm and NILSSON & HOLMEN (1995: 74) 2.9-3.3 mm. We, however, have never seen specimens shorter than 2.8 mm and longer than 3.2 mm. Thus, we can say that both species have more or less the same length, but *O. okulovi* appears slightly broader. Specimens of *O. sanmarkii* from the Russian Far East seem to be slightly smaller than *O. okulovi*; however, the total length does not allow distinguishing between these two species.

♂♂: The shape of the median lobe (see Figs 3 and 4) is very different from that of other externally similar short and rounded *Oreodytes* species (*O. angustior*-group; see above): in ventral view it is very thin and more or less parallel in distal third and only shortly before the apex tapering to pointed tip, while it is broad and with the apex broadly rounded in *O. sanmarkii* (see Figs 6 and 7) and most other species mentioned above. In lateral view, the median lobe is also rather thin in distal third and here more or less straight, while it is curved and rather broad in the other species.

A very important although not conspicuous feature can be found in the parameres of *O. okulovi* (Fig. 5): these are not hooked (as in the larger species of *Oreodytes*, e.g. *O. alpinus* (PAYKULL, 1798)), are more or less triangular and lack a lamella on the distal part of the inner surface (named "subapical membranous sac" in LARSON et al. 2000: 452), while the other externally similar *Oreodytes* have the shape of the paramere more parallel over much of its length and have a distinct large lamella, which in fact is often difficult to observe because it is completely attached to the inner surface of the paramere; however, this lamella is well visible when somewhat lifted (see Fig. 8 for a specimen of *O. sanmarkii*).

♀♀: Externally, females are similar to males, except the pro- and mesotarsomeres, which are not broadened, and the protarsal claws, which are slightly shorter. Unfortunately, the gonocoxae and the gonocoxosterna of the three *O. okulovi* females which are at our disposal are either absent or in such a state that they cannot be adequately illustrated or compared with those of *O. sanmarkii*. This deficiency, however, is of minor importance, because we have enough other features which allow a safe separation of females of these two species.

D i s t r i b u t i o n: *Oreodytes okulovi* so far has been collected in the Russian Far East, and in the Tuva Republic (East Siberia). Both areas are about 3,000 km apart from each other. We were unable to check a record from Kamchatka (NILSSON et al. 1999). Thus, at present we cannot give any reliable statement about the limits of the range of this species, other than stating that it is present in Eastern Siberia and in the Far East of Russia.

E c o l o g y: We do not know much about the life history of *O. okulovi*. LAFER (1988: 54) provided: "*The holotype was collected in the zone of dark coniferous taiga on a plateau (750-800 m above sea level) in a forest stream about 2 m wide, in a waterlogged forest. Water brown, peaty, and muddy after rains.*" Judging by our material, we can say that the species can co-occur with *O. sanmarkii*. In Tuva it has been recorded in brooks with silty-stony substrate (C.N. KUZHUGET, pers. comm.).

Differential diagnosis with *O. sanmarkii*

We do not give a detailed description of *O. sanmarkii*, which is distributed in large parts of the Palearctic realm and recorded also from a few localities in arctic North America (see e.g. LARSON et al. 2000). This species (of which the subspecies *Oreodytes s. alienus* has been described from the Iberian Peninsula) seems to be quite variable over its huge area of distribution (cf. LARSON 1990). This is why we restrict our comparison of the two species to those features which display no considerable variation in *O. sanmarkii*, and, thus, allow distinguishing the two specimens readily from each other. This comparison is given in Table 1.

Table 1: Most important distinguishing characters for *Oreodytes okulovi* and *O. sanmarkii*.

character	<i>O. okulovi</i>	<i>O. sanmarkii</i>
posterior pronotal angles	slightly oblique, almost rectangular, not rounded	distinctly oblique and rounded
shoulders in dorsal view	not prominent	prominent
sides of elytra in anterior third (dorsal view)	straight, diverging backwards	evenly curved
position of maximum width	distinctly behind anterior third of elytra (Fig. 1)	in anterior third of elytra (Fig. 2)
discal elytral puncture lines	obsolete	present
sides of elytron in lateral view	slightly ascending to shoulders	more strongly ascending to shoulders
shape of antennomeres	relatively thin	relatively thicker
reticulation on centre of gula	absent	present
shape of prosternal process	lanceolate	sub-quadrate
shape of shoulders in ventral view	shortly truncate	rounded
epipleuron in lateral view	visible until shoulders	not visible until shoulders
shape of metepisternum	almost triangular	almost L-shaped, because metaventral wings strongly convexly expanded anteriorly
excavation behind anterior margin of metepisternum	weak	distinct
shape of metaventral "wings"	laterally more or less straight	laterally distinctly curved
metacoxal lines	very slightly diverging anteriorly	strongly diverging anteriorly
male metatrochanter	with sparse setae, only few punctures	with many setae, several coarse punctures
large punctures on metaventrite and metacoxal plates	absent	present, distinct
microsculpture on ventral surface	most parts densely punctate; meshes small, impressed, often forming worm-like structures	without dense fine punctures; meshes normal, not forming worm-like structures
median lobe of aedeagus	long and narrow in apical third	short and broad in apical third
parameres (lateral lobes of aedeagus)	triangular, without lamella on inner face (Fig. 5)	not triangular, with lamella on inner face (Fig. 8)
last abdominal ventrite	apically slightly pointed, here with bristles	apically rounded or truncate, without bristles
sucker cups on first pro- and mesotarsomeres of males	absent	present
male protarsal claws	not much longer than in females, evenly curved	longer than in females, proximally and distally more strongly curved than medially
hindwings	reduced (two specimens studied)	without considerable reduction



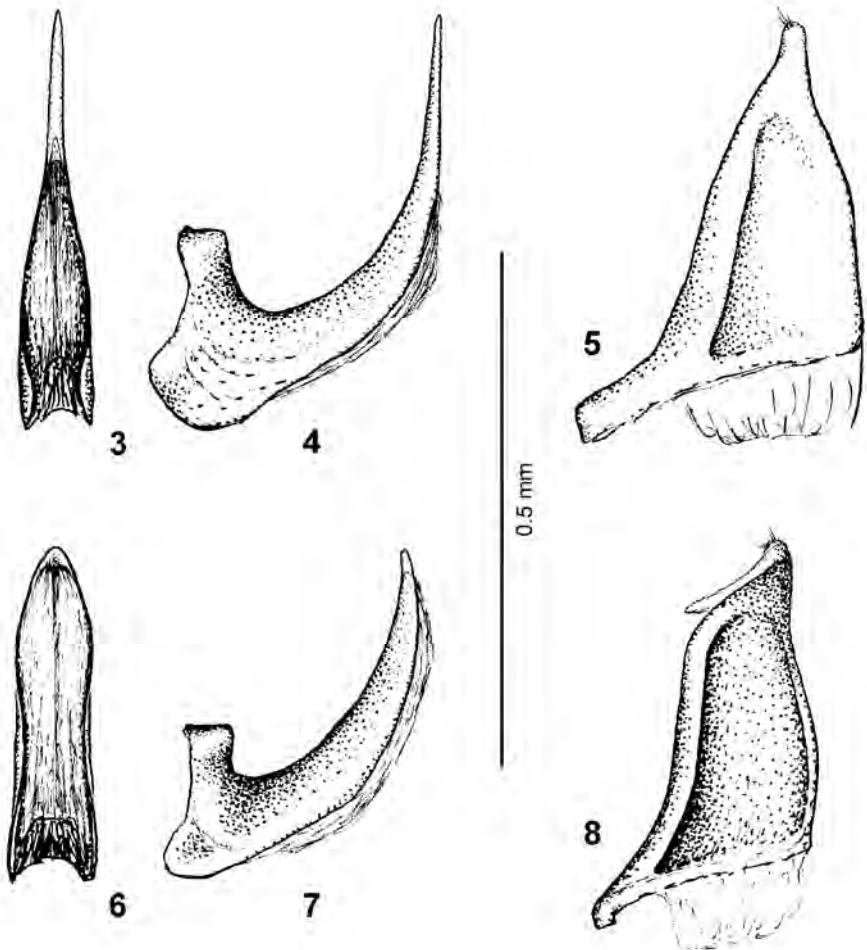
Figs 1-2. Habitus of (1) *Oreodytes okulovi* LAFER, 1988 and (2) *O. sanmarkii sanmarkii* (C.R. SAHLBERG, 1826) (both specimens from Lazovsky Nature Reserve, Russian Far East).

Conclusions

Whilst the general external appearance of *O. okulovi* strongly supports its placement in the genus *Oreodytes* (in particular in the complex of short and rounded species near *O. sanmarkii*), the shape of the median lobe, the lack of a lamella in the parameres and in particular the lack of distinct sucker cups on the tarsomeres raise strong doubts about its systematic position. On the other hand, the species shows distinctly impressed sublateral stria on the pronotum, a character unique among Deronectina and present in all *Oreodytes* except the enigmatic *O. quadrimaculatus* (HORN 1883). At present we are unable to interpret these observations in detail and assume that the absence of the sucker cups and lamella is secondary. Possibly, future molecular studies can help to find a solution for this problem.

Acknowledgments

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Figs 3-8. *Oreodytes okulovi* LAFER, 1988: (3) median lobe of aedeagus in ventral view, (4) median lobe in lateral view, (5) left paramere (lateral lobe); *O. sanmarkii sanmarkii* (C.R. SAHLBERG, 1826): (6) median lobe of aedeagus in ventral view, (7) median lobe in lateral view, (8) left paramere.

Zusammenfassung

Oreodytes okulovi LAFER, 1988 war bisher nur durch die Beschreibung des weiblichen Holotypus aus den Fernen Osten Russlands bekannt. Darüber hinaus existieren nur einige wenige Meldungen von Aufsammlungen, diese aber ohne jegliche weiteren beschreibenden Erläuterungen; insbesondere wurden bisher noch keine männlichen Exemplare der Art beschrieben. Aus diesen Gründen blieb die Identität der Art bisher weitgehend unklar. Anhand von neu aufgefundenem Material, welches sowohl Männchen als auch Weibchen einschließt, können nun erstmals die männlichen Genitale illustriert werden. Zusätzlich wird die Art neu beschrieben und einige

Ungenauigkeiten in LAFER's Arbeit können damit korrigiert werden. Die Art ähnelt äußerlich auf den ersten Blick dem *O. sanmarkii* (C.R. SAHLBERG, 1826), kann aber anhand zahlreicher Merkmale – insbesondere dem männlichen Genital – eindeutig und relativ einfach von diesem und weiteren ähnlichen Arten unterschieden werden. Interessanterweise konnten nicht nur Exemplare aus der Nähe vom locus typicus, sondern auch solche aus der russischen Tuva Republik untersucht werden; der betreffende Fundort ist etwa 3000 km westlich vom dem des Holotypus gelegen, was darauf schließen lässt, dass *O. okulovi* wesentlich weiter verbreitet ist als bisher angenommen. Da LAFER's Arbeit in Russisch geschrieben ist, wird im Appendix für interessierte Leser eine englische Übersetzung angeboten.

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Appendix – LAFER's description of *Oreodytes okulovi*

The following translation of LAFER's original description has been done by the junior author. Please note that LAFER gives the species *O. sanmarkii* under the name *Oreodytes rivalis* (GYLLENHAL, 1827). LAFER also uses the term "metasternum" instead of "metaventricle". Some features described by LAFER have proved to be incorrect; these parts are given by us in *italics* and in braces {}.

M a t e r i a l: Holotype: female, Primorsky Krai, Shkotovskoye Plateau, Tyomny brook (headwaters of Arsenyevka river), 29.VII 1979 (A. OKULOV leg.).

C o l o u r a t i o n. Body dorsally, palpi, antennae and legs brownish yellow; longitudinal vittae on elytra, body ventrally, and eyes black. Black pattern on elytra consisting of narrow vitta along suture, dilated preapically, and each elytron with thin stripe at suture and 6 longitudinal vittae, outer 2 being only in fragments: vitta 5 medially confluent with vitta 4; vitta 6 in posterior half (fig. 1, E). Head with vertex slightly darker. Pronotum with brown stripes along margins (the widest stripe along anterior margin) and vague round spot medially on disc. Ventrally, proepisterna and proepimera, wide anterior part of elytral epipleura, and apices of metacoxal processes reddish brown.

S t r u c t u r e. Body short and wide. {*Elytra rather strongly and evenly rounded*

laterally}, with maximum width near middle, conjointly pointed apically. Head large. Anterior margin of clypeus straight. Antennae simple, slender, with elongate segments of subequal length. Pronotum (fig. 1, A) wider than long, with maximum width at base (PB/PL=2.21). Sides of pronotum almost straight and almost parallel basally, conspicuously rounded anteriorly, especially at front angles. Anterior margin of pronotum deeply recessed, front angles narrowly pointed and strongly protruding, pressed to head. Posterior margin of pronotum with cuneate prominence. Hind angles obtuse, distinct. Surface of pronotum more or less even, with rather deep, weakly curved longitudinal grooves laterally on each side, bordered exteriorly with bulge-like prominent intervals. Puncture rows along anterior margin of pronotum uninterrupted, double, formed by fine scattered punctures. Pronotum with traces of transverse depression anterior to base, with fragment of medial line medially on disc, with short longitudinal rugae laterally on base. Scutellum not visible. Elytra with traces of puncture rows. Prosternal process between coxae narrowly carinate medially, laterally with deep sulci bordered exteriorly. Metasternum laterally narrowed to very thin, long, curved lobes subulate in shape (fig. 1, B). Metacoxal lines long, almost parallel anteriorly (fig. 1, Г). {*Pro- and mesotarsi as narrow as metatarsi*} (fig. 1, Д). Size parameters of holotype: L [= total length] 3.21; EW [= maximum width of both elytra together] 1.95; PA [= width of anterior margin of pronotum] 1.05; PB [= width of base of pronotum] 1.50; PL [= length of pronotum medially] 0.68; EL [= length of elytra along suture] 2.41.

M i c r o s c u l p t u r e. Dorsal surface of body reticulate, with meshes very small and rounded, and micropunctate, almost matt. Meshes of reticulation and punctures on head approximately twice as large as on elytra and more rounded than on elytra, lines of reticulation deeper on head. Meshes on pronotum smaller than on head, but larger than on elytra. Ventral surface reticulate with meshes very small, but coarse, rounded, with scattered small longitudinal rugae, but impunctate.

G e n i t a l i a. For the avoidance of forfeiting [sic!] the holotype, the genitalia remained unexamined until more material is available.

D i f f e r e n t i a l d i a g n o s i s. The new species is especially similar to *O. rivalis* (GYLL.) (figs. 1, E-K) in short oval body shape, but differs from it in characters given in the identification key below.

1. Elytra with maximum width near middle, with colouration pattern as in fig. 1, Б, puncture row 1 visible only in anterior half, its punctures widely scattered. Exterior lobe of metasternum long, evenly curved, subulate in shape (fig. 1, B). Metacoxal lines weakly diverging anteriorly, almost straight in anterior half (fig. 1, Г). Metasternum, measured medially, relatively longer. Metacoxae and metasternum impunctate. Antennomeres 5 and 6 subequal in length..... *O. okulovi* LAFER
- Elytra with maximum width immediately posterior to shoulders, with colouration pattern as in fig. 1, Ж, punctures of row 1 forming a regular line, visible almost to apex of elytra. Exterior lobe of metasternum shorter, more abruptly curved posteriorly (fig. 1, 3). Metacoxal lines strongly diverging anteriorly, {*more curved*} (fig. 1, И). Metasternum medially relatively shorter, distinctly punctate, as are metacoxae. {*Antennomere 6 twice as long as antennomere 5.*}..... *O. rivalis* (GYLL.)

D i s t r i b u t i o n. Southern Sikhote-Alin.

E c o l o g y. The holotype was collected in the zone of dark coniferous taiga on a plateau (750-800 m above sea level) in a forest stream about 2 m wide, in a waterlogged forest. Water brown, peaty and muddy after rains.

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