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**Notes on the identity of *Oreodytes dauricus* (MOTSCHULSKY 1860)  
and other members of the *O. alaskanus*-clade  
(Coleoptera: Dytiscidae)**

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**A b s t r a c t :** Males of *Oreodytes dauricus* (MOTSCHULSKY 1860), so far poorly known and considered Palaearctic, were studied and their genitalia compared for the first time with those of similar species. *O. dauricus* is found to be a senior synonym of the Nearctic *O. recticollis* (FALL 1926) (n.syn.) and *O. leechi* ZIMMERMAN 1985 (n.syn.), which in the past could only be suspected, but not proved, because of the Palaearctic population only females had been available. The species is re-described, with illustrations of male and female genitalia; its geographical distribution is mapped. The lectotype of *Hydrocoptus dauricus* MOTSCHULSKY 1860 – currently placed in the genus *Oreodytes* SEIDLITZ 1887 – is designated. *O. dauricus* is one of four members of the *O. alaskanus*-clade, for which a key to species is given.

**K e y w o r d s :** Coleoptera, Dytiscidae, *Oreodytes*, *O. alaskanus*-clade, lectotype, new synonyms, description, key to species.

**Introduction**

In the past, the identity of *Oreodytes dauricus* (MOTSCHULSKY 1860), was more or less unclear, since not many specimens have been available and, in particular, those of Motschulsky's syntype series stored in ZMUM were almost totally destroyed by Dermestidae. After Motschulsky, ZAITZEV (1906, 1915, 1953, 1972), ALARIE (1993), and probably also MATIS & GRAMMA (1975) seem to be the only entomologists who have ever studied a Palaearctic *O. dauricus*, and none of them has studied the male genitalia.

We have found in the literature ca. 30 works in which the name *O. dauricus* is mentioned. In most cases the name is only given in simple lists, in others the original description or that of ZAITZEV (1906) is reproduced, and this is why we do not cite them all in the present work. Already HATCH (1933: 25) discussed the similarity of *O. dauricus* with *O. recticollis* (FALL 1926), emphasising the "three strongly impressed series of dorsal punctures" on each elytra of *O. dauricus* as the single distinguishing character, but by this only repeating a part of MOTSCHULSKY's description (1860: 100): "... trois lignes de points, fortement imprimés... sur chaque élytre...". LARSON (1975: 322) treated *O. recticollis* as synonym of *O. alaskanus* (FALL 1926) (both under the genus name *Hydroporus*), cited HATCH (1933) and added: "If these are conspecific, the name *H.* [=

*Hydroporus*] *dauricus* has priority." Both authors, however, deduced their conclusion only from Motschulsky's description, and had not studied any Palaearctic specimens of *O. dauricus*.

Recently collected Palaearctic material of *O. dauricus* and the discovery of two males from Motschulsky's syntype series enable us to confirm the so far only suspected synonymy of *O. dauricus* with *O. recticollis*. We take the opportunity to modify the key to the *alaskanus*-clade members given in LARSON et al. (2000), including for the first time *O. shorti* SHAVERDO & FERY (2006), which has recently been described from Mongolia. This key, which was originally created only for Nearctic species, can now be applied to all members of this Holarctic clade.

### Material and methods

The following codens for collections from which we have studied material are used in the text:

CAN..... coll. A.N. Nilsson, Umeå, Sweden

CHF..... coll. H. Fery, Berlin, Germany; property of the Naturhistorisches Museum Wien, Vienna, Austria

CYA..... coll. Y. Alarie, Sudbury, Canada

MNB..... Museum für Naturkunde, Humboldt-Universität, Berlin, Germany (M. Uhlig, B. Jaeger)

MZLU.... Museum of Zoology Lund University, Lund, Sweden (R. Danielsson)

SMTD.... Staatliches Museum für Tierkunde, Dresden (O. Jäger)

ZISP..... Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia (A.G. Kirejtshuk)

ZMUM... Zoological Museum, Lomonosov State University, Moscow, Russia (N.B. Nikitsky)

The following abbreviations are used in the text: TL (total body length), MW (maximum body width), hw (handwriting), and hw? (unknown handwriting). For the representation of the longitude/latitude data of localities we use the decimal style. Numbers in curly brackets mark localities and refer to those in the map (Fig. 19).

### Taxonomy

The *Oreodytes alaskanus*-clade includes four species in total: the Nearctic *O. alaskanus* and *O. productotruncatus* (HATCH 1944), the Holarctic *O. dauricus*, and the Palaearctic *O. shorti* from Mongolia. According to ALARIE (1993: 865), the *O. alaskanus*-clade members are characterised by the deeply curved inner margin of the protibia (Figs 11-14) in both sexes. Another conspicuous feature is the subapical lateral tooth on each female elytron (Fig. 15), a character, however, shared with the Palaearctic *O. alpinus* (PAYKULL 1798), *O. mongolicus* (BRINCK 1943), *O. kanoi* (KAMIYA 1938), and the Nearctic *O. laevis* (KIRBY 1837).

### *Oreodytes dauricus* (MOTSCHULSKY 1860)

*Hydroporus dauricus* MOTSCHULSKY 1853: 6 (nomen nudum).

*Hydrocoptus dauricus* MOTSCHULSKY 1859: 489 (nomen nudum), 1860: 100 (original description), 1878: 61. - SHARP 1882: 785.

- Hydroporus dauricus* (MOTSCHULSKY); ZAITZEV 1906: 173, 1915: 253. - LARSON 1975: 322.  
*Hydroporus (Oreodytes) dauricus* (MOTSCHULSKY); HATCH 1933: 25.  
*Hydroporus alpinus* ? var. *dauricus* (MOTSCHULSKY); BRANDEN 1885: 50.  
*Deronectes dauricus* (MOTSCHULSKY); ZIMMERMANN 1919: 190, 1920: 130, 1933: 184. - BRINCK 1946: 148, 154.  
*Oreodytes dauricus* (MOTSCHULSKY); ZAITZEV 1953: 184, 1972: 196. - MATIS & GRAMMA 1975: 218. - ALARIE 1993: 865. - NILSSON 1995: 54, 2001: 178, 2003: 67. - KIREJTSHUK 2001: 167.  
*Oreodytes alpinus* (PAYKULL); LAFER 1989: 241 (giving *O. dauricus* as synonym of *O. alpinus*).  
*Hydroporus recticollis* FALL 1926: 140. (**n.syn.**)  
*Oreodytes recticollis* (FALL); ALARIE 1993: 864 (designation of lectotype), 1997: 423 (description of larva). - LARSON et al. 2000: 464. - NILSSON 2001: 179.  
*Hydroporus alaskanus* FALL; LARSON 1975: 321 (giving *H. recticollis* as synonym of *H. alaskanus*).  
*Oreodytes alaskanus* (FALL); ZIMMERMAN 1985: 110 (giving *O. recticollis* as synonym of *O. alaskanus*).  
*Oreodytes leechi* ZIMMERMAN 1985: 110. (**n.syn.**)

Type material of *Hydrocoptus dauricus*: Lectotype (by present designation): ♂, a small golden square label without any text, "Dauria, Mots." [hw Motschulsky], "13819" [yellow], "Hydrocoptus Dauricus Mots." [hw Motschulsky], "Staatl. Museum für Tierkunde. Dresden", "Lectotype, Hydrocoptus dauricus Motschulsky, 1860, des. H. Fery 2005" [red, printed] (SMTD).  
 Notes: The lectotype lacks the apical third of the last right protarsomere including the claws and nine articles of the right antenna, and the side of the right elytron is slightly damaged.

Paralectotypes: 1 ♀, a white square label without any text, "Type." [printed], "dauricus Mot... [almost illegible], Dauria" [hw Motschulsky], "dauricus Motsch. Dauria" [hw?, not Motschulsky!], "Zool. Mus. Berlin" [printed] (MNB). 3 ♂♂, 1 ♀, 2 exs. (sex identification impossible), "type" [hw Motschulsky], "Mt. Hamar-Dab." [light reddish brown label, letters printed in black], "Hydrocoptus dauricus, Daur. Alp. Motsch." [hw Motschulsky], "1226." [pink, hw Zaitzev]. The label "1226." relates to the item number presumably given by ZAITZEV (1915: 253) according to the order of specimens as they originally stood in coll. Motschulsky. All specimens originally glued onto a single transparent card. The specimens were separated by the senior author, and the pins provided with copies of the original labels. Each paralectotype is provided with a respective red label (ZMUM).

Notes: As ZAITZEV (1915: 253) already noted ("6 specimens, strongly damaged"), all the former syntypes from coll. Motschulsky (ZMUM) are in a poor condition caused by Dermestidae (see also ZAITZEV 1953: 184, 1972: 196). Nevertheless, the aedeagus of one male paralectotype is rather well preserved, although most of the rest of the body is missing. The median lobe is slightly broken short before apex, but eaten only distally so that its characteristic shape is perfectly recognisable, as well as that of the parameres.

Type locality: Russia, "les alpes de la Daourie". According to MOTSCHULSKY (1845: 129) and SCHÜTZE & KLEINFELD (1997: 79) the Dauria region encloses the south-eastern part of Transbaikalia (= Zabaykal'ye) and, thus, is situated south-east of Lake Baikal, not far from the Mongolian and Chinese border. MOTSCHULSKY (1845: 129) specified "includes the region around Nertschinsk [= Nerchinsk, ca. 52.00N 116.55E] {3} with the mountain ranges and mines".

Paralectotype localities: The Hamar-Daban (= Khamar-Daban) mountain range is situated in the Irkutsk oblast and the Buryatiya republic, south of the south-eastern part of Lake Baikal {2} (ca. 51N 104E; see also the map in MOTSCHULSKY 1860).

Note: Initially, we wanted to select the one male syntype with almost complete aedeagus of the ZMUM as lectotype. However, finally the syntype of the SMTD was selected by us since it is the single almost fully preserved male of all the former syntypes. F. Hieke (MNB) kindly informed us that Motschulsky no doubt had intensive contacts with L.W. Schaufuss (entomologist, founder of the "Museum Ludwig Salvator", and insects trader in Dresden, Germany; see HORN et al. 1990: 345); both have exchanged material and, in particular, type specimens. Whenever Motschulsky came to Germany, he visited the Dresden Museum. On the other hand, further Schaufuss material is no doubt present in the collections of the MNB and SMTD. This is why we do not hesitate to treat the male from the SMTD (the lectotype) and the female from the MNB as belonging to the original syntype series.

Note: The original syntype series included not only specimens collected by Motschulsky in

"les alpes de la Daourie", but also specimen(s) collected by "M. Ditmar aux environs de Nikolaevsk sur l'Amour septentrional" {6} (= Nikolaevsk-na-Amure, Khabarovsk kray, ca. 53.15N 140.75E) (see MOTSCHULSKY 1860: 100). We have not been able to locate these former syntypes from the Khabarovsk kray, which, nevertheless, must be regarded as paralectotypes. It is possible that ZAITZEV (1906: 172) studied a single female of that part of the syntype series from the "Mus. Zool. Petrop. [St. Petersburg]", but he gave no locality data of the specimen studied, citing only both Motschulsky's localities "Transbaikalien" and "Amur". ZAITZEV (1953: 184, 1972: 196) did not repeat his 1906 observations and provided only data on the specimens from "Dauria", possibly, by mistake. It should be emphasised that we are not sure about the identity of the Nikolaevsk part of the syntype series, this being the essential reason for designating a lectotype.

**Type material of *Hydroporus recticollis*:** Lectotype (♂) and 2 paralectotypes (♀♀) stored in the Museum of Comparative Zoology, Harvard University, Cambridge, USA; studied by ALARIE (1993), but not in the course of the present work. **Type locality:** USA, Alaska, Kenai Peninsula, Seward {15} (ca. 60.1N 149.4W).

**Type material of *Oreodytes leechi*:** Holotype (♂), allotype (♀) and 51 paratypes, 49 of these stored in the Californian Academy of Sciences, San Francisco, USA; most paratypes were studied by ALARIE (1993), but not in the course of the present work. **Type locality:** USA, Alaska, Glenn Hwy, Mile Post 86, Tok cut off. Most probably situated near Mentasta Lake {16}, ca. 62.93N 143.67W. A part of the paratype series has been collected in Canada, Yukon, Edith Creek, 61.8N 140.05W {17}.

#### **Additional material studied:**

**Russia:** 1♀, "Sibirien. Bystraja R. [= river], nr. Antjuk., Loc. 15, 17.VIII.[19]68. Lindroth", "*Oreodytes dauricus* Motsch., det. A. Nilsson" (MZLU). According to Per Douwes (Lund, Sweden), who accompanied Carl Lindroth on his collecting trip in 1968, the locality Antjuk is near village Bystraya, about 20 km W of Kultuk, which is situated at the westernmost point of Lake Baikal {1} (Irkutsk oblast, ca. 51.75N 103.45E). 1♂, 2♀♀, "Priamurye [= the Amur River region], Dusse-Alin' mountain range [between the rivers Bureya and Amgun', ca. 50.7N 133.3E], 2.9.1976 Kabakov" [hw Kabakov, in Russian/Cyrillic], "Zoological Institute, St. Petersburg, coll. Kabakov"; one ♀ with additional "*Oreodytes alpinus* Payk., Kabakov det. 1997" [hw Kabakov] {4} (ZISP). 1♂, "Sikhote-Alin' [mountain range in Primorye and the Khabarovsk kray], [railway] station Otkosnaya [ca. 50.13N 139.08E, Vanino district, Khabarovsk kray], 30.9.1976 Kabakov" [hw Kabakov, in Russian/Cyrillic], "Zoological Institute, St. Petersburg, coll. Kabakov" {5} (ZISP). 1♀, same label data, except "4.10.1976" (ZISP). 1♀, 1 ex., "Chukotka Chaplin. [= Chaplino, ca. 64.4N 172.3E], hot springs 19/VII.[19]58, Mikhaylova, the Grigorovs leg.", [hw Zacharenko, in Russian/Cyrillic], "Zoological Institute, St. Petersburg, coll. Zacharenko" {14}; the female lacks both antennae; the other specimen is strongly damaged, only head, pronotum, small parts of elytra, and venter present; nevertheless, the black epipleura are clearly recognisable (ZISP). 2♀♀, "Sakhalin: Uglegorskiy reg., Boshniakovo [ca. 49.67N 142.30E], Avgustovka R[iver]., 2003-07-24 N. Minakava", "*Oreodytes dauricus* Motsch., det. AN Nilsson-04" {7} (CAN).

**Canada:** 1♂, 4♀♀, "Canada. Yukon, Klondyke River at Dempster Hwy. [ca. 63.97N 138.7W] 94-100, 27.VI.1994, Y. Alarie coll.", "*Oreodytes recticollis* (Fall), Det. Y. Alarie" {18} (CYA, CHF). 1♂, 3♀♀, "Canada. Yukon., Dempster Hwy, 100 km N. Klondike Hwy [ca. 64.9N 38.3W] 26.VI.1994, Y. Alarie coll. 94-80", "*Oreodytes recticollis* (Fall), Det. Y. Alarie" {19} (CYA, CHF).

#### **Further records, material not studied:**

**Russia:** MATIS & GRAMMA (1975: 218) gave several records from the Magadan oblast in the Russian Far East; we reproduce their data below and represent them in the map (Fig. 19), but want to emphasise that we have not been able to control the determinations: floodplain of Neryuchi River (left-hand tributary of Kulu River), 23 km WNW Kulu settlement, 660 m, 1.VIII.1974 [ca. 62N 147.2E] {8}; floodplain of Sukhakha River (right-hand tributary of Debin River), 17 km SW Yagodnoye settlement, 450 m, 24.VI.1974 [ca. 62.4N 149.E] {9}; floodplain of Seymchan River, 11 km N Seymchan settlement, 250 m, 15.VIII.1974 [ca. 63N 147.2E] {10}; valley of Khasyn River, near Khasyn settlement, 82 km N Magadan, 5.VI.1972, 10.VI.1972, 1.VII.1972, and 18.VII.1972 [ca. 60N 151E] {11}; upper reaches of Yama River, 25 km SSW Atka settlement, 6.IX.1974 [ca. 60.6N 151.6E] {12}; upper reaches of Kolyma River, mouth of Taloy River (left-hand tributary of Buyunda), 30 km NE Talaya resort, 500 m, 14.VI.1974 [ca. 61.4N 152.75E] {13}.

**D e s c r i p t i o n :** Habitus: Body elongate, rather depressed; in dorsal view lateral outline with distinct discontinuity since base of pronotum narrower than base of elytra (Figs 1-6). Dorsal surface yellow, with brownish to black spots on head and pronotum, and vittae on elytra.

**C o l o r a t i o n :** Head between eyes with two blackish spots of varying shape, these posteriorly fused with middle of black vertex. Pronotum with anterior and posterior margins narrowly darkened; anteriorly black vertex shining through; lateral striae blackish; lateral rim very narrowly darkened; disc between striae with four dark brown to black spots of variable size, in particular anterior spots often reduced. Elytra with suture narrowly darkened; each elytron with up to nine dark brown to black longitudinal vittae, discal ones fused in part, lateral ones considerably reduced or even absent. Vittae anteriorly shortened, only fifth exceptionally reaching base of elytra; third and fifth anteriorly longer than second and fourth, first and sixth distinctly shorter than other discal vittae. First and second vittae fused shortly before middle of elytral length; fourth, fifth, and sixth vittae conjoined far before elytral apex; seventh vitta starting behind shoulder, broken shortly anterior to middle of elytral length, behind forming a distinct longitudinal spot fused with sixth vitta, and further to apex becoming very narrow or indistinct; eighth vitta usually starting far behind shoulders, behind middle of elytra more or less fused with seventh vitta, apically fused with ends of first to third vittae; ninth vitta indistinct, anteriorly consisting of a longitudinal spot at lateral margin behind shoulders, behind disappearing, visible again near apex of elytra, running close to eighth vitta and often fused with it.

Ventral surface black in large parts; mouthparts, sides of prosternum, prosternal process behind procoxae, and apical part of metacoxal processes dark brownish; hind margins of abdominal sterna shining through brownish. Coxae, basal parts of trochanter, and basal two thirds or three quarters of femora dark brownish, knees infuscate; rest of legs, palpi and antennae lighter brownish; antennomeres progressively darkened apically beginning with fifth or sixth; last articles of palpi darkened apically. Epipleuron black; several specimens, however, with external half yellowish in anterior third.

**S t r u c t u r e :** Clypeus with two large longitudinal impressions between eyes. Base of pronotum distinctly narrower than base of elytra; lateral margins convexly rounded in anterior two thirds, concavely rounded before base, with posterior angles slightly acute. Sides of pronotum near longitudinal scratches slightly impressed, in some specimens also impressed behind anterior and before posterior margin, thus, disc appearing vaulted. Elytra elongate, depressed, rounded at shoulders, behind subparallel in anterior two thirds; maximum width before second quarter of elytral length; behind in most specimens very slightly concavely emarginate; in lateral view margins strongly ascending to humeral angles, epipleura visible until shoulders.

Third antennomere slightly shorter than second and fourth. Prosternal process before procoxae 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 metaventricle. Protibia curved, broadly expanded in apical half, narrow in basal half (Figs 11-12).

**S u r f a c e s c u l p t u r e :** Entire surface of head microreticulated, but shiny; re-

tication consisting of small, almost round meshes, interspersed with sparse punctation of two different diameters; near anterior margin punctation slightly denser, coarser punctures still denser in clypeal impressions. Surface of pronotum shiny; microreticulation similar to that on head, however, punctation denser; near its anterior margin with irregular row of very coarse punctures; posterolaterally with some more or less longitudinal wrinkles. Centre of pronotal disk with distinctly impressed large puncture or short groove. Elytra with reticulation and punctation similar to that of pronotum, but coarser punctures distinctly sparser and surface slightly less shiny; in posterior half smaller punctures becoming distinctly denser. Each elytron with four rows of impressed coarse punctures; inner two rows forming shallow grooves; inner three rows situated between third and fourth, fifth and sixth, and seventh and eighth black vittae; fourth row indistinct, running parallel to elytral margins; punctures of rows with indistinct yellowish setae.

Ventral surface with microreticulation, however, at least on metacoxal plates weakly impressed and appearing as very fine punctation when not adequately illuminated; sides of metaventrite and anterior parts of metacoxal plates with sparse shallow larger punctures; metaventrite right and left of its mid-line with two stripes of coarse punctures; stripes diverging backwards, space between them without punctures; interlinear space of metacoxal processes with coarser punctures rather dense, and with some setae; on first two abdominal sterna coarse punctures rather indistinct, distinct, however, in posterior two thirds of following three sterna and anterior two thirds of last visible sternum. Third to fifth sternum anteromedially with flat but rather large impression, here coarse punctures denser and provided with long setae; rest of abdomen also provided with sparse setae. Setation on rest of venter almost imperceptible.

♂ ♂: Elytra before apex obliquely truncate or even slightly concavely sinuate. Last abdominal sternum rounded or indistinctly truncate, not emarginate; posterior margin with narrow beading; before apex with large, but rather flat depression. Third and fourth abdominal sterna posteriorly with some wrinkles, these, however, in several specimens studied very indistinct. Protibia curved and strongly broadened apically (Fig. 11). Basal three pro- and mesotarsomeres slightly expanded, provided with setae, first and second ones with up to four adhesive discs, these, however, difficult to observe and in some studied specimens missing; protarsal claws simple, equal, and short. Median lobe asymmetric (Fig. 7a-c); parameres (or lateral lobes) strongly sculptured, with subapical excavation and hooked apex (Fig. 8).

♀ ♀: Elytra at apex obliquely cut, each with distinct subapical tooth (Fig. 15); sides of elytra forming an acute angle with suture at apex. Punctation on abdominal sterna sparser and less coarse. Last abdominal sternum posteriorly narrowly beaded, distinctly flattened before apex and on sides; apex protruding and curved upwards, appearing U-shaped (Fig. 15), however not lobed as in *O. productotruncatus* and *O. alaskanus* (cf. ALARIE 1993: Figs 7, 13). Cuticle in U-shaped area very thin, thus, here rather transparent and in several females studied in part broken away. Wrinkles on third and fourth sternum absent or very indistinct. Shape of protibia almost equal to those of males, only slightly narrower and less curved (Fig. 12). Basal pro- and mesotarsomeres more slender, with some setae, but without adhesive discs. Gonocoxosterna (Figs 16-17) varying individually within populations between both shapes figured; gonocoxae as in Fig. 18.

**M e a s u r e m e n t s :** Palaearctic specimens studied have: TL: 4.7-5.3 mm, MW: 2.2-2.5 mm, TL/MW: 2.04-2.24. LARSON et al. (2000: 465) gave for Nearctic specimens

(under the name *O. recticollis*): TL: 4.7-5.3 mm, MW: 2.1-2.4 mm, TL/MW: 2.15-2.24. We confirm these values.

**V a r i a b i l i t y** : Spots on head and pronotum rather variable in size. Elytral vittae strongly variable, in some specimens lateral ones distinctly reduced or even absent in part, in others at least discal vittae diffusely broadened and connected (Figs 1-6). Nearctic populations studied with contrast between yellowish surface and dark spots and vittae more prominent, this, however, may be due to the fact that these specimens have been more recently collected.

**D i s t r i b u t i o n** : Russia: Transbaikalia (Irkutsk oblast, Buryatiya republic), Primorye, Khabarovsk kray, Chukotka autonomous okrug and Sakhalin; according to MATIS & GRAMMA (1975) also in the Magadan oblast. North America: south-eastern Alaska (USA) and western Yukon Territory (Canada). **N o t e s** : BRINCK (1946: 148, 154) provided "Manchuria" in China, and "Manchuria-East Sibiria", however, without specifying the source of his information (cf. the comments on the name "Manchuria" in NILSSON 1995: 36). **N o t e s** : LAFER (1989: 241) gave: "Chukotka, Magadan oblast, Kamchatka, Khabarovsk kray, Amur oblast, Primorye, Sakhalin; Siberia, N European USSR. – Mongolia, N Europe"; several of these data, however, must be qualified since this author treated *O. dauricus* as synonym of *O. alpinus*.

**E c o l o g y** : Little is known about the ecology and life history of *O. dauricus*. LARSON et al. (2000: 466) gave: "Label data indicated some paratypes of *O. leechi* were collected from roadside pool." The specimens which were collected by Y. Alarie in 1994 were found in shallow flowing waters along the Dempster Highway which goes up to the Arctic circle; the bottom was made of small boulders and the vegetation was sparse to lacking. MATIS & GRAMMA (1975: 219) gave: Common in north-eastern USSR. Restricted, however, to floodplain landscapes, preferring standing water bodies on sandy-argillaceous banks and shallow brooks with weak silting. Retains activity at water temperature as low as +2° C.

#### **Notes on *Oreodytes shorti* SHAVERDO & FERY 2006**

This species was recently described from Mongolia and so far known only from three localities in a small region of the Changai mountain range, ca. 450 km WSW Ulaanbaatar, and ca. 25-75 km SW Tsetserleg (straight line). Since then specimens from a fourth, nearby locality became known with the following collecting data: Arkhangay Aimag, Bulgan Soum, Urd Tamir Gol, braid upstream of bridge, ca. 63 km SW of Tsetserleg, 47.11192N 101.01048E, 2066 m, 13.-15.7.2004, A.E.Z. Short leg. All four localities are so close to each other that they can be represented by only a single square in the map (Fig. 19). For comparison, the male genitalia are given in Figs 9-10 and the male and female right fore legs in Figs 13-14.

#### **Discussion**

*Oreodytes dauricus* and *O. shorti* are two very similar species. They can be easily separated from all other known members of the genus by the relatively complicated and strongly asymmetric shape of the male median lobe. The shape of the male protibia and

that of the female last abdominal sternum separate both from other *Oreodytes* which do not belong to the *O. alaskanus*-clade, in particular from the Palearctic *O. alpinus*, *O. kanoi*, and *O. mongolicus*. On the other hand, *O. dauricus* and *O. shorti* show several distinct differences that make their separation easy as well. Already externally, the strongly protruded and acute posterior angles of the pronotum of *O. shorti* (cf. Fig. 1 in SHAVERDO & FERY 2006) do not allow this species to be mistaken for *O. dauricus*. The different shape of the median lobe – although similar in a way – is another separating character; further ones are noted in the key to species below.

While *O. dauricus* is distributed in large parts of eastern Russia and north-western parts of North America and, thus, is a Holarctic species, the Palearctic *O. shorti* seems to be restricted to central Mongolia, and – as far as we know at present – to a relatively small area near Tsetserleg.

### Key to species of the *Oreodytes alaskanus*-clade

The following key to species is based in part on that given in LARSON et al. (2000: 453). Numbers with an asterisk (\*) relate to figures in this work.

- 1 Male with median lobe in ventral view narrow and subparallel (Figs 7b, 9b); last but one visible sternum with hind margin straight, lacking a posteromedial lobe. Female with apex of last visible sternum not protruded, but deeply U-shaped in posterior view (Fig. 15). One Palearctic and one Holarctic species .....2
- Male with median lobe in ventral view broadened subapically and spoon-shaped (Figs 117E\*, 117J\*); last but one visible sternum with at least a small posteromedial lobe. Female with apex of last visible sternum distinctly protruded and lobed medially (Figs 117C\*, 117H\*). Nearctic species .....3
- 2 Pronotum with posterior angles acute, but moderately produced. Protibia less strongly curved (Figs 11-12). Body shorter (TL: 4.7-5.3 mm). Male median lobe as in Figs 7a-c. Species known from the Russian Far East, Alaska (USA), and the Yukon Territory (Canada).....*O. dauricus* (MOTSCHULSKY)
- Pronotum with posterior angles acute and strongly produced. Protibia strongly curved (Figs 13-14). Body longer (TL: 5.0-5.7 mm). Male median lobe as in Figs 9a-c. Species known from Mongolia..... *O. shorti* (SHAVERDO & FERY)
- 3 Male median lobe moderately broadened subapically, its maximum width less than two times its medial width (Fig. 117E\*). Female elytron with subapical tooth obtuse, hind margin behind tooth forming an angle of much less than 90° with suture (Fig. 117A\*, 117B\*). Species known from southern Alaska, Alberta, and Washington.....  
..... *O. alaskanus* (FALL)
- Male median lobe strongly broadened subapically, its maximum width two or more times its medial width (Fig. 117J\*). Apex of female elytra conjointly truncate, thus, hind margin of elytra and suture forming approximately a right angle (Fig. 117G\*, 117H\*); subapical tooth more or less right angled. Species known from the Rocky Mountains of western Alberta, south-eastern British Columbia and western Montana.....  
.....*O. productotruncatus* (HATCH)

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### Zusammenfassung

*Oreodytes dauricus* (MOTSCHULSKY 1860) ist eine nur wenig bekannte Art, die zudem bisher als rein paläarktisch angesehen wurde. Weiterhin waren bisher nur Weibchen dieser Art verfügbar, so dass über mögliche verwandtschaftliche Beziehungen zu ähnlichen Arten lediglich spekuliert werden konnte. Das Auffinden von männlichen Exemplaren ermöglicht nun zum ersten Mal einen direkten fundierten Vergleich, und so kann gezeigt werden, dass die nearktischen *O. recticollis* (FALL 1926) und *O. leechi* ZIMMERMAN 1985 jüngere subjektive Synonyme von *O. dauricus* sind. Diese nun als holarktisch anzusehende Art wird neu beschrieben, sowohl die männlichen als auch die weiblichen Genitale werden illustriert und die geographische Verbreitung wird dargestellt. Der dem *O. dauricus* sehr ähnliche *O. shorti* SHAVERDO & FERY 2006 aus der Mongolei wird ebenfalls in die Betrachtungen mit einbezogen. Weiterhin wird der Lectotypus des *Hydrocoptus dauricus* MOTSCHULSKY 1860 – heute in der Gattung *Oreodytes* SEIDLITZ 1887 – designiert. *O. dauricus* ist damit eine von vier Arten aus einem Komplex, der von ALARIE (1993) mit "alaskanus-clade" bezeichnet wurde, und in den neben den oben genannten beiden Arten auch noch *O. productotruncatus* (HATCH 1944) und *O. alaskanus* (FALL 1926) gehören. Für diese vier Arten wird ein Bestimmungsschlüssel gegeben.

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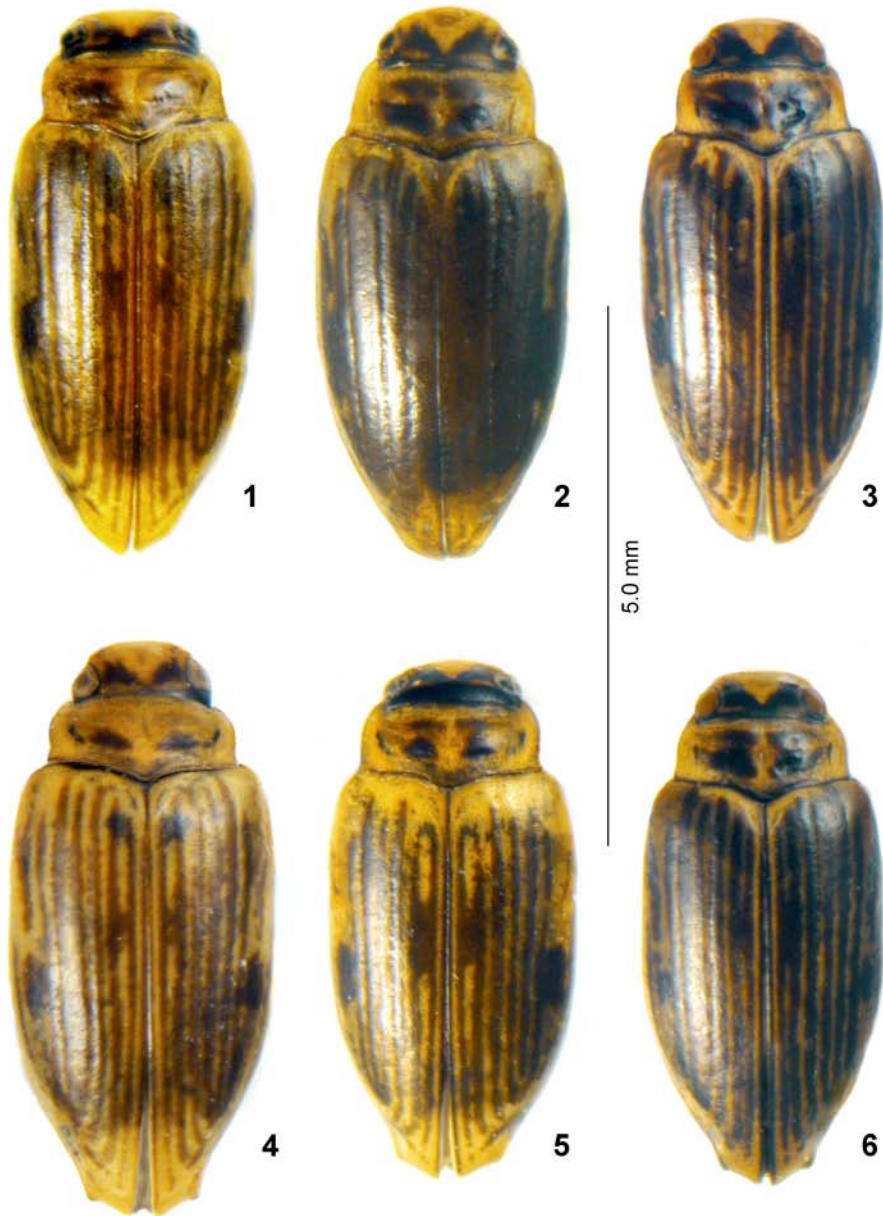
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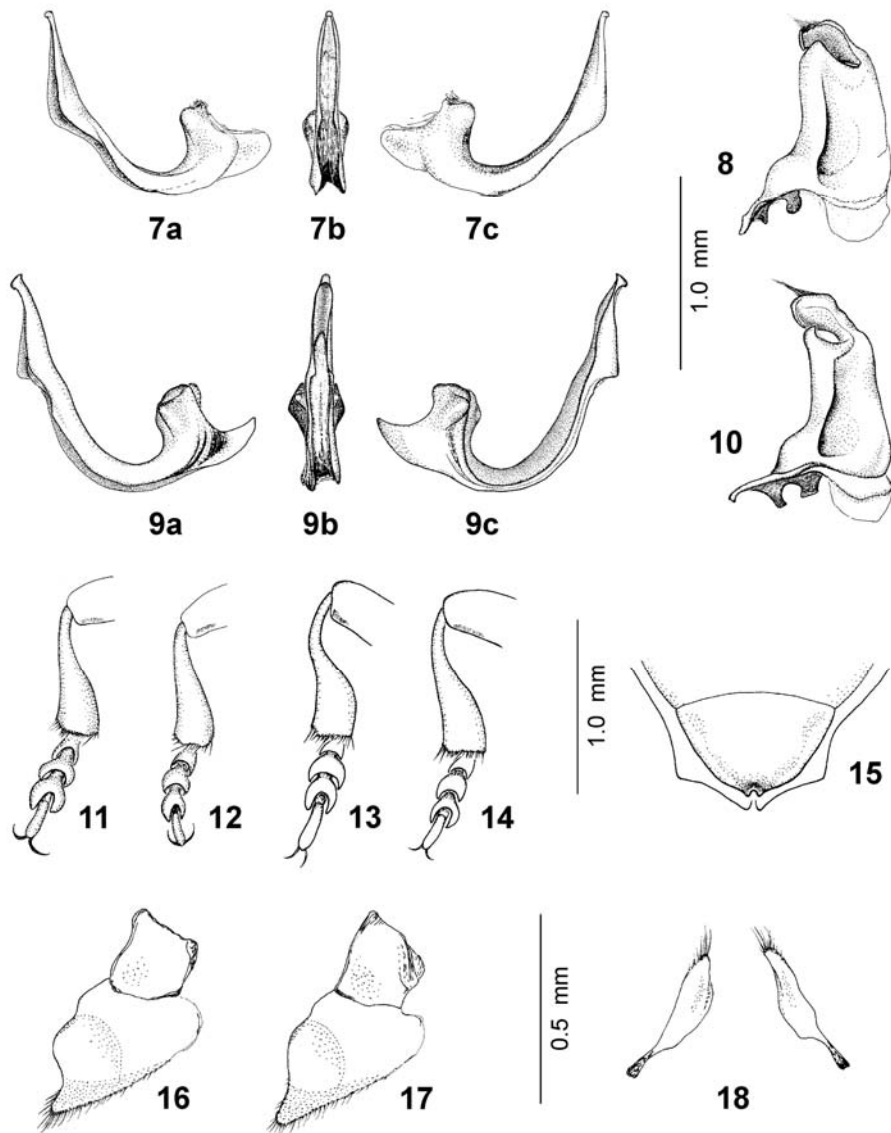
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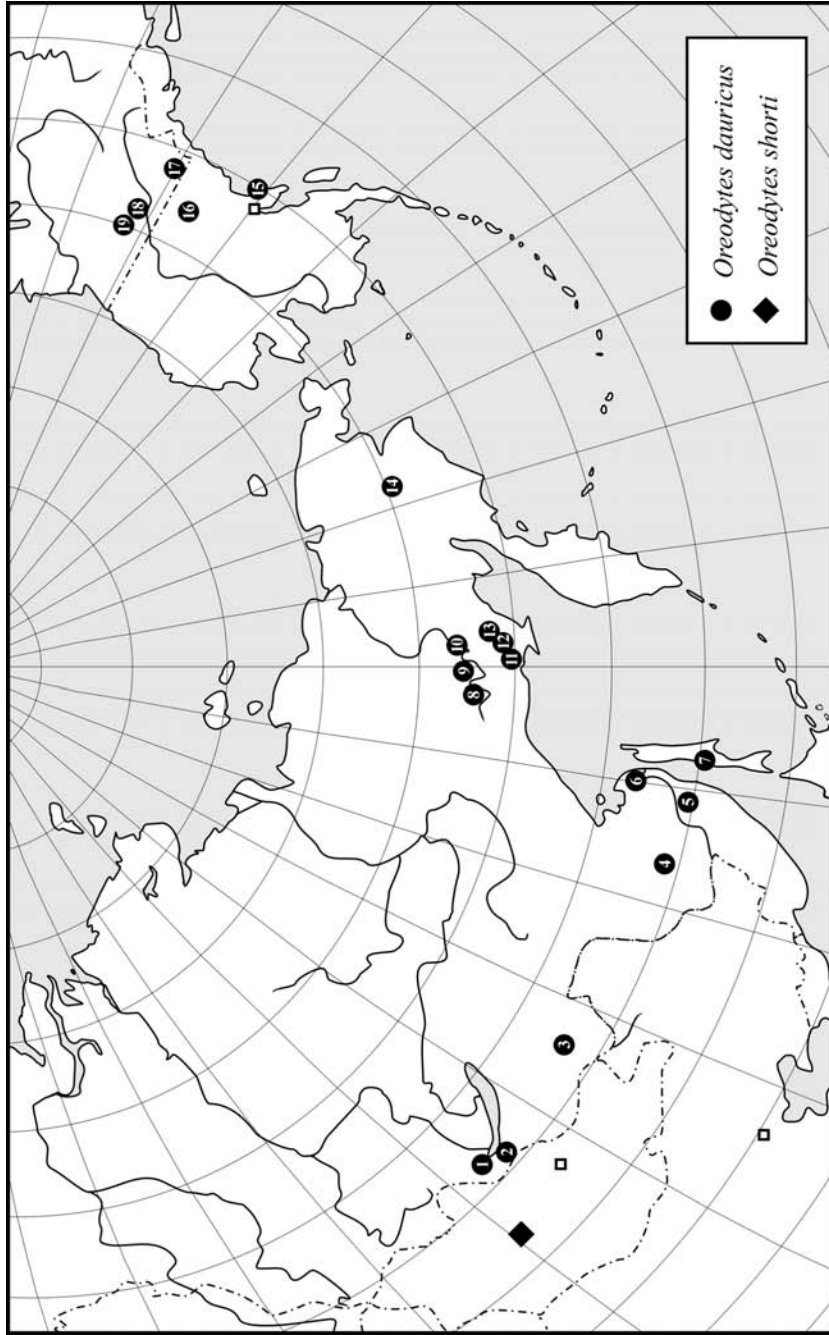


**Figs 1-6:** *Oreodytes dauricus*, habitus: (1) lectotype (male), from "Dauria" {3}, (2) male from Otkosnaya {5}, (3) male from Yukon {19}, (4) female from Antjuk {1}, (5) female from Dusse-Alin' {4}, and (6) female from Yukon {19}.



**Figs 7-8:** *Oreodytes dauricus*: (7) median lobe of aedeagus (a) lateral view, right side, (b) ventral view, (c) lateral view, left side; (8) paramere, external view. **Figs 9-10:** *O. shorti*: (9) median lobe of aedeagus (a) lateral view, right side, (b) ventral view, (c) lateral view, left side; (10) paramere, external view. **Figs 11-12:** *O. dauricus*: right foreleg of (11) male, (12) female. **Figs 13-14:** *O. shorti*: right foreleg of (13) male, (14) female. **Fig. 15-18:** *O. dauricus*: (15) last abdominal sternum of female; (16-17) gonocoxosternum, ventral view, two shape variants; (18) gonocoxae, ventral view.

Fig. 19: Known records of *Oreodytes dauricus* and *O. shorti*; for the locality numbers see text



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