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**Revision of the Palearctic species of the
genus *Ochthebius* Leach
VI. the *marinus* group
(Hydraenidae, Coleoptera)**

by M.A. Jäch

Abstract: Twenty-five species of the *marinus* group of *Ochthebius* s.str. are treated. Lectotypes are designated for *alutaceus* Reitter, *costatellus* Reitter, *crimae* Kuwert, *deletus* Rey, *fallaciosus* Ganglbauer, *glabratus* Kuwert, *guerryi* Schatzmayr, *kaszabi* Janssens, *kuwertii* Reitter, *laevigatus* Sharp, *latiusculus* Sahlberg, *mongolensis* Janssens, *muelleri* Ganglbauer, *niloticus* Sharp, *pallidipennis* Castelnau, *peisonis* Ganglbauer, *subaeneus* Janssens and *subpictus* Wollaston. New synonymies: *O. auropal-lens* (= *kermanicus* Ferro n.syn.), *O. costatellus* (= *kaszabi* n.syn.), *O. erzerumi* Kuwert (= *aladagensis* Ferro n.syn.), *O. evanescens* Sahlberg (= *laevigatus* Sharp n.syn.), *O. jansseni* Ferro (= *desertorum* Ienistea n.syn.), *O. lividipennis* Peyron (= *guerryi* n.syn. = *sahlbergi* Zaitzev n.syn.), *O. subpictus subpictus* (= *latiusculus* n.syn.), *O. subpictus deletus* Rey (= *muelleri* n.syn.) and *O. viridis* Peyron (= *graecus* Ienistea n.syn.). *Ochthebius deletus* is regarded as a subspecies of *O. subpictus*. *Ochthebius vi-ridis* is regarded as a complex of at least 2 (probably 3) different species. Five new species are described: *O. arabicus* n.sp., *O. bellstedti* n.sp., *O. delhiensis* n.sp., *O. masatakasatoi* n.sp. and *O. virens* n.sp. The male copulatory organs of all species except *O. fissicollis* Janssens are illustrated. Distribution maps are provided.

Key words: Coleoptera-Hydraenidae-*Ochthebius-marinus* group-taxonomic revision-Palearctic.

The species treated herein as members of the *marinus* group were formerly regarded as the subgenus *Ochthebius* s.str., which now has to include more species groups than only the *marinus* group as the characters hitherto used for subgeneric separation have proved to be inadequate (JÄCH, 1989b). The genus *Ochthebius* was described by LEACH 1815, who did not designate a type species. The first designations by BRULLE (1835) and subsequent authors are quite confusing and they are in contradiction to the intention of Leach (see HANSEN, 1989). The designation by KNISCH (1924) is a contradiction in terms. Thus a proposal was made by HANSEN (1989) to conserve *Elophorus marinus* Paykull, 1798, as the nominal type species of the genus *Ochthebius* Leach, 1815, and to suppress all designations of type species for the nominal genus *Ochthebius* prior to that by ORCHYMONT (1942).

At present I am not able to prove that the *marinus* group is a monophyletic unit. All apotypic (thus phylogenetically «relevant») characters are more or less variable. Some of these characters are constant in a number of species within the group –but then suddenly change between closely related forms (e.g. the pronotal foveae are confluent in all species treated herein, but in *romanicus* –a species obviously closely

related with *pusillus* –these fovae are clearly separated; thus I did not include *romanicus* in this revision) or between different populations of one species or even within one population (e.g. colouration of elytra, body size, secondary sexual characters, excision of labrum, shape, punctuation and chagration of pronotum, development of pronotal foveae, chagration and pilosity of elytra, aedeagal structures). Development of morphological trends may alter certain morphological structures, which are stable in most species, very quickly within a few (still closely related) species. Some of these morphological trends (morphoclines) seem to have developed independently several times (e.g. development of labral excisions, development of postocular pronotal projections, duplication of elytral punctures,...).

This variability basically affects the taxonomic research in two ways: 1) A general characterization of a number of (variable) species is more or less impossible, thus a general key to the species cannot be provided. Only populations can be compared with each other, but even these are often not constant (e.g. pronotal punctuation of *auropallens* or *kuwertii*). 2) It is very difficult to find clues to the phylogenetic grouping of the species. Hence the grouping in the revision presented here is thought of as a working unit, not as a phylogenetic survey.

Aedeagus: Main piece usually long and slender, dorsal side evenly curved in most of the species, but sinuous in a few species (e.g. *costatellus*, *lividipennis*, *virens*); lateral sides straight in most species, but sinuous in *costatellus*, *lenensis* and *virens*; phallobasis more or less symmetrical; subapical bristles present, but very short and inconspicuous. Distal lobes simple but variably shaped, usually flat or cylindrical; lateral membrane and micropores present. Parameres more or less symmetrical, usually inserted near basal third, right one usually very slightly longer than left one; apex enlarged; apical setae moderately long. The aedeagi of 25 species are illustrated.

Sexual dimorphism: 1) Proximal protarsal segments slightly dilated (at least in most species). 2) Differences in last abdominal sclerites as usual in the genus. 3) Elytral apices of female usually slightly more acuminate and explanate margin of elytra usually very slightly wider; occasionally elytra of female slightly more reticulate. 4) Modification of mandibles and labrum: outer edge of mandibles of male fringed with blunt bristles in at least 11 species (*arabicus*, *auropallens*, *delhienis*, *evanescens*, *kuwertii*, *lividepennis*, *masatakasatoi*, *meridionalis*, *minabensis*, *peisonis*, *subpictus*). Anteromedial area of labrum of male upturned to form a distinct «tooth» of variable size in at least 12 species

(*arabicus*, *auropallens*, *bactrianus*, *delhiensis*, *lividipennis*, *masatakasatoi*, *meridionalis*, *minabensis*, *peisonis*, *pusillus*, *subpictus*, *viridis*). The tooth can be very small and inconspicuous or even missing in the same species (e.g. *bactrianus*, *meridionalis*, *viridis*) or large and prominent (e.g. *delhiensis*). The tooth can be entire (*meridionalis*) or distinctly excised (*lividipennis*, *delhiensis*,...); excision always covered by a transparent membrane. In some species (*kuwert*, *lividipennis*, *pusillus*) the female labrum is usually slightly wider than the male labrum.

Geography: The species group is distributed throughout the Palearctic region. Only one species (*masatakasatoi* n.sp.) is known from the Oriental region (Thailand). Several species occur in the New World (*biincisus* group and *borealis* subgroup sensu PERKINS, 1980).

Ecology: The members of this group are primarily stagnant water species, most of them with halophilous tendencies. Hence most species are found in coastal salt marshes or in arid environments.

Altogether 25 species are included in this paper, 5 of which are new to science. Colouration very variable: yellow, brown, dark brown or black, some species with metallic reflections. Labrum truncate, slightly emarginate or slightly excised, but never deeply excised. Pronotal foveae confluent. Elytral striae regular. Metasternum usually pubescent, occasionally glabrous. Some of the species are very variable (*evanescens*, *subpictus*, *viridis*). *Ochthebius viridis* consists of at least 2 (probably 3) different species.

1. *arabicus* n.sp.
2. *auropallens* Fairmaire
(= *kermanicus* Ferro n.syn.)
3. *bactrianus* Janssens
4. *bellstedti* n.sp.
5. *costatellus* Reitter
(= *kaszabi* Janssens n.syn.)
6. *delhiensis* n.sp.
7. *erzerumi* Kuwert
(= *aladagensis* Ferro n.syn.)
8. *evanescens* Sahlberg
(= *alutaceus* Reitter)
(= *glabratus* Kuwert)
(= *laevigatus* Sharp n.syn.)
9. *fissicollis* Janssens - species minus cognita
10. *janssensi* Ferro

- (= *desertorum* Ienistea n.syn.)
11. *kuwertii* Reitter
 12. *lenensis* Poppius
 13. *lividipennis* Peyron
 - (= *guerryi* Schatzmayr n.syn.)
 - (= *niloticus* Sharp)
 - (= *sahlbergi* Zaitzev replacement name n.syn.)
 - (= *rugulosus* Sahlberg homonym)
 14. *marinus* (Paykull)
 15. *masatakasatoi* n.sp.
 16. *meridionalis* Rey
 - (= *crimae* Kuwert)
 - (= *pallidipennis* Castelnau homonym)
 - (= ?*subabruptus* Rey ?n.syn.)
 17. *minabensis* Ferro
 18. *mongolensis* Janssens
 19. *peisonis* Ganglbauer
 20. *pusillus* Stephens
 21. *subaeneus* Janssens
 22. *subpictus subpictus* Wollaston
 - (= *latiusculus* Sahlberg n.syn.)
 - subpictus deletus* Rey stat.nov.
 - (= *muelleri* Ganglbauer n.syn.)
 23. *virens* n.sp.
 - 24-25 *viridis* Peyron - species complex
 - (= *fallaciosus* Ganglbauer)
 - (= *graecus* Ienistea n.syn.)
 - (= *obscurus* Rey homonym)

Acknowledgement and abbreviations: The material used for this study was borrowed from the following institutions and private collections (abbreviations are used to refer to collections in the text):

BML = British Museum (Natural History), London (R. Aldridge)
 CAL = Coll. Balfour-Browne, Coll. Angus, London
 CBHB = Coll. Balke & Hendrich, Berlin
 CDS = Coll. Diaz, Santiago de Compostela
 CFA = Coll. Foster, Ayr
 CFB = Coll. Fery, Berlin
 CHD = Coll. Hebauer, Deggendorf

- CMT = Coll. Mencl, Tynec
 CPL = Coll. Pretner, Ljubljana (B. Drovenik)
 CSW = Coll. Suppantšitsch, Wien
 CVH = Coll. Vondel, H.I. Ambacht
 FMC = Field Museum of Natural History, Chicago (H. Nelson)
 HUB = Museum der Alexander Humboldt Universität, Berlin (F. Hieke)
 ISNB = Institut National des Sciences Naturelles, Bruxelles (L. Baert, K. Desender))
 MFT = Museum Frey, Tutzing (H. Wesiak)
 MGL = Musée Guimet d'Histoire Naturelle, Lyon (J. Clary)
 MHNG = Muséum d'Histoire Naturelle, Genève (I. Löbl)
 MHNP = Muséum d'Histoire Naturelle, Paris (Y. Cambefort)
 MNS = Staatliches Museum für Naturkunde, Stuttgart (W. Schawaller)
 MTD = Museum für Tierkunde, Dresden (R. Krause)
 NMB = Naturhistorisches Museum, Basel (M. Brancucci)
 NMP = Národní Museum v. Praze (J. Jelinek)
 NMW = Naturhistorisches Museum, Wien
 SIW = Smithsonian Institution, Washington (P. Spangler)
 TAU = Tel Aviv University (A. Freidberg)
 TMB = Természettudományi Múzeum, Budapest (O. Merkl, G. Szél)
 TLFİ = Tiroler Landesmuseum Ferdinandeum, Innsbruck (G. Tarmann, M. Kahlen)
 WUN = Women's University, Nagoya (M. Satô)
 ZMH = Universitetets Zoologiska Museum, Helsingfors (H. Silfverberg)

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Scale next to figures represents 0.1 mm.

Ochthebius arabicus n.sp.

Figs. 4,29.

Diagnosis: 1.8-1.9 mm long. Head and pronotum dark brown to black, with faint metallic lustre. Pronotal margins, elytra and body appendages yellowish, elytra darkened along striae and with one or more small brown patches. Labrum entire in female, anteromedial area strongly upturned and slightly emarginate in male, emargination covered by a semitransparent membrane; mandibles of male with conspi-

cuously strong bristles along the outer edge. Pronotum quite long, disc almost impunctate, depressions slightly microreticulate; anterior foveae small and shallow, confluent; posterior foveae larger, longitudinal, confluent at their bases; median line more or less absent; lateral depressions deflexed. Elytra with 5 distinct rows of punctures between suture and shoulder; punctures distinctly impressed but not very densely arranged; striae not impressed; intervals flat; apices rounded in male, acuminate in female; elytral margin very narrow in male, slightly wider in female.

Aedeagus (Fig. 4): vaguely resembling *meridionalis*, *erzerumi* and *janssensi*. Differs from *meridionalis* by the apically arcuate distal lobe, which is less strongly dilated than in the two other mentioned species, but wider than in *marinus*.

Ochthebius arabicus differs from Saudi Arabian specimens of *meridionalis* by the somewhat smoother surface of pronotum and elytra and by the longer pronotum, from Israeli material mainly by the longer pronotum.

Etymology: Named in reference to the type locality.

Type locality: Shallow waterpools of high salinity near Khaybar, 25°42'/39°12', 680 m, Medina Province, Saudi Arabia.

Holotype ♂ (NMB): «Khaybar 26.IV. / KAU-NHMB 1979 Exp. N Hedjaz». Paratypes: 2 exs. with identical label data (NMB, NMW).

Distribution (Fig. 29): Known only from the type locality.

Ochthebius auropallens Fairmaire

Figs. 15, 28.

Ochthebius auropallens FAIRMAIRE 1879: 180. – KNISCH, 1924. – ORCHYMONT, 1925, 1935, 1943. – NORMAND, 1933. – CHIESA, 1959. – J. BALFOUR-BROWNE, 1978. – PIRISINU, 1981.

Ochthebius kermanicus FERRO 1984b: 64 (= **n.syn.**).

Type locality: Biskra, Algeria.

Type material: Two specimens (♂ + ♀): «Biskra R. Oberthür; 1875» (MHNP), which obviously belong to the type series of *auropallens*, have been examined by ORCHYMONT (1935), who also illustrated the aedeagus (1935, 1943). The number of syntypes is not known.

Synonyms: I have seen the holotype of *kermanicus* (type locality: Minab, southern Iran), which is deposited in the NMP. One female paratype is deposited in the CFL.

Diagnosis: This species is almost indistinguishable from *subpictus*. External characters are as variable as in *subpictus*. The pronotal disc can be smooth, chagreened or distinctly punctured, even within the

same population (northern Negev, Israel). Burr pronotal disc usually smooth and glabrous, with foveae almost obsolete. Anteromedial area of male labrum upturned to form a small tooth (sometimes slightly excised and covered by a transparent membrane), mandibles with strong bristles. Differs from *meridionalis* generally by the wider and less glabrous pronotum.

Aedeagus (Fig. 15): Proximal lobe like in *subpictus*. Shape of distal lobe more triangular than quadrate. Ventral side of distal lobe only gently curved (convexity further distad), but sides of distal lobe less parallel than in *meridionalis*. Main piece larger and more evenly curved than in *viridis* 2, apex straight.

Ecology: In contrast to *subpictus*, *auropallens* seems to prefer fresh water.

Additional material examined: SPAIN: ALMERIA: Rio Jauto, sw Vera, 100 m, 29.V.1967, Bacchus & Levey (CAL); MURCIA: Rio Argos, 21.II.1982 (Univ. of Murcia); Rambla del Moro, 27.II.1988, Delgado (NMW); ALICANTE: Elche, Strobl (NMW). MOROCCO: Marrakesh, Thery (MHNP); 21 km ne Casablanca, 2.VI.1974, B. Malkin (NMW, FMC); Outet el Hadj (MHNP). ALGERIA: Biskra, 28.II.1934, Balfour-Browne (CAL, NMW); Biskra, 6.IV.1912, Heymons (HUB); Siddi bel Abbes (MTD). TUNISIA: Tunis, IV.1926, Gauthier (MHNP). ISRAEL: NORTHERN NEGEV: Nahal Harod, Hefzi Bah Br., 1892/2157, – 80 m, 14.V.1979, Ortal (NMW, TAU). IRAQ: Musaiyib, Hilla, 30.VIII.1983 (NMW); Abu Ghraib, V.1980, Dobertiz (HUB).

Distribution (Fig. 28): Southern Mediterranean from Spain to Iraq.

Ochthebius bactrianus Janssens

Figs. 12, 29.

Ochthebius bactrianus JANSSENS 1962: 2. – JANSSENS, 1974.

Type locality: Northeastern Afghanistan.

Type material: I could not find the holotype in the TMB, where it should be deposited. Three paratypes are housed in the TMB, one in the NMW and one in the MFT.

Diagnosis: A dark species (almost black, with a slight metallic tinge), 1.6-1.8 mm long; anteromedial area of labrum of male very slightly upturned, mandibles of male without conspicuous bristles; pronotum with distinct foveae, entirely chagrinated or chagrination confined to depressions; elytra long, punctures superficial, but densely arranged, intervals not very convex. Very similar to *subaeneus*, *costatellus* and *viridis*, which differ mainly by the more deeply impressed elytral striae. Siberian specimens of *lenensis* are larger (1.8-2.0 mm long) with more distinctly impressed elytral striae; males of the 4 latter species without labral or mandibular sexual characters. Specimens of *viridis* 1 from eastern Turkey (Lake Van) are very similar and differ only by the

slightly smaller size (1.5-1.7 mm) by different body proportions (shorter elytra) and by slightly deeper impressed elytral striae.

Aedeagus (Fig. 12): Very similar to *meridionalis*, but apex of proximal lobe not straight, curved ventrad (lateral aspect) and laterad (ventral aspect). Distal lobe slightly wider and longer than in *meridionalis*, slightly convex.

Distribution (Fig. 29): Known only from the type locality.

Ochthebius bellstedti n.sp.

Diagnosis: 1.7-1.8 mm long. Head and pronotum dark brown to black, with metallic lustre. Pronotal margins, elytra and body appendages yellowish, elytra occasionally darkened along striae and with a small brown middle patch. Labrum simple, mandibles of male without stiff bristles along their outer edge. Disc of pronotum moderately densely punctured, all depressions microreticulate; anterior foveae small and round, confluent; posterior foveae larger, oblique, broadly confluent, their outer margins abrupt; median line present, but interrupted by the foveae; posterolateral angles with distinct impressions. Elytra with 5 distinct rows of punctures between suture and shoulder; punctures distinctly impressed and densely arranged; each puncture usually with an adpressed whitish hair, only some of these hairs are erect and considerably long; intervals slightly rounded; one specimen with a very faintly developed additional row of punctures between the second and the third, the fourth and fifth and between the sixth and seventh striae; elytral margin very narrow. Female unknown.

Aedeagus (Fig. 8): main piece long and straight, apically curved; distal lobe very small and slender, slightly recurved.

Ochthebius minabensis differs mainly by its smoother appearance, by the less densely punctured elytra and by the modified male labrum. I have examined a few males of *meridionalis* from the type locality Ashkhabad. They differ from *bellstedti* by the wider and less convex pronotum, by the almost impunctate glabrous pronotal disc and by the modified male mandibles and labrum. *Ochthebius erzerumi* and *janssensi* differ mainly by the larger size (2.0-2.2 mm) and by the wider pronotum (lateral depressions less strongly deflexed). Caucasian specimens of *marinus* differ by the brown elytra and the distinctly wider pronotum, while specimens from Mongolia have brown or yellow elytra and only a very slightly wider pronotum. Males of *lividipennis* from Turkey differ generally by the usually slightly darker, sometimes shorter and always more ovoid and less convex elytra and by the modified labrum and

mandibles. *Ochthebius bactrianus* differs immediately by the dark colouration and by the less distinctly impressed elytral punctures.

Type locality: Ditch (on road) near the ruins of Anau, Ashkhabad, Turkmeniya, Soviet Union.

Holotype ♂ (NMW): «SU, Mittelasien 17.10.1981, temp. Gewässer Aschhabad, leg. Joost». Paratypes: 2 males with similar label data in NMW and CBG; 2 males: «Transcaspien Golodnaja-Step. VII.1901 Heymons & Samter S.» (HUB).

Etymology: Named for my friend Ronald Bellstedt, in recognition of his contributions to the knowledge of aquatic insects.

Distribution (Fig. 28): Known only from the type locality.

***Ochthebius costatellus* Reitter**

Figs. 22, 29.

Ochthebius costatellus REITTER 1897:210. – KNISCH, 1924. – ORCHYMONT, 1935, 1943, – JANSSENS, 1967 (= *lenensis*), 1971.

Ochthebius kaszabi JANSSENS 1967: 56 (= **n.syn.**). – JANSSENS, 1971. – PERKINS, 1980.

Type locality: Changai mountains, Mongolia.

Type material: Lectotype ♂ (pres.des.): «Nordl. Mongolei. Changai / coll. Reitter / *O. costatellus* m. 1897» (TMB). The number of syntypes is not known.

Synonyms: As JANSSENS (1967) fixed no holotype for *O. kaszabi* in the original description I designate a lectotype: «MONGOLIA: Central aimak Kerulen, 45 km O. v. Somon Bajangelder, 1340 m Exp. Dr. Z. KASZAB, 1965 / Nr. 307 27.VII.1965 / Prép. Micr. No 6645.4»; deposited in the TMB (aedeagus on microslide). I have seen 9 paralectotypes (stations 303, 307, 479), which are deposited in the TMB (6 exs.), MFT (1 ♂ + 1 ♀) and NMW (1 ♀). According to the original description there should be 18 syntypes.

Diagnosis: A dark and slightly metallic species with deeply impressed elytral striae and strongly convex intervals (at least in Mongolian material), which distinguishes it from any other northeast Palearctic species. Males without labral or mandibular sexual characters.

Aedeagus (Fig. 22): quite devious, main piece strongly sinuous (ventral and lateral aspect), distal lobe long, sinuous, inserted far from the apex: *Ochthebius virens* and one species (yet undescribed) from the Soviet Far East have similar aedeagi (see figs. 20, 21), which seem to stand at the beginning of the same morphocline.

Additional material examined: SOVIET UNION: SIBERIA: Yakutsk, Chuchur Muran, 1.VII.1970, leg. Angus (CAL); Lena river, 140 km upstream from Yakutsk 29.VI.1970 (CAL).

Distribution (Fig. 29): Northeastern Palearctic and northern Nearctic.

Ochthebius delhiensis n.sp.

Figs. 6, 29.

Diagnosis: 1.7 mm long. Head black, disc of pronotum dark brown, sides of pronotum paler brown, elytra yellowish, elytral punctures slightly darkened; head and pronotal disc with slight metallic reflections. Mandibles fringed with strong bristles; labrum narrow and long, front margin with a conspicuous, notched «tooth»; notch covered by a transparent membrane. Pronotal disc convex, smooth and almost impunctate, thus very shining; median line very shallow, admedian foveae very superficial, almost reduced; sides deflexed, evenly convergent. Elytra regularly striate-punctate; 5 rows of punctures between suture and shoulder; punctures moderately deeply impressed and moderately densely arranged; intervals very slightly convex; margin very narrow.

Aedeagus (Fig. 6): Similar to *Ochthebius masatakasatoi*. Main piece slightly longer, more evenly curved; the distal lobe is longer and less strongly curved than in *masatakasatoi*.

Ochthebius delhiensis immediately differs from *minabensis* by the obsolete pronotal foveae and from *masatakasatoi* by the smooth and almost impunctate pronotal disc and by the unicoloured elytra.

Type locality: Nilothi, Delhi, India.

Type material: Holotype ♂ (BML): «INDIA: Delhi, nr. Nilothi, 29.XII.1959. / P.O.Ritcher. B.M. 1963-710».

Etymology: Named in reference to the type locality.

Distribution (Fig. 29): Known only from the type locality.

Ochthebius erzerumi Kuwert

Figs. 1, 28.

Ochthebius erzerumi KUWERT 1887:397. – KNISCH, 1924.

Ochthebius aladagensis FERRO 1984b: 62 (= n.syn.). – FERRO, 1986.

Type locality: Erzerum, Turkey.

Type material: The holotype ♂ (by monotypy) of *erzerumi*: «Erzerum / Erzerumi / Coll.Reitter / Monotypus 1887 *Ochthebius Erzerumi* Kuwert» is deposited in the TMB.

Synonyms: I have examined the holotype ♂ of *O. aladagensis* (type locality: Kizilviran [=Kizilören], w Konya, Turkey), deposited in the NMP.

Diagnosis: Very similar to *janssensi* (for distinction refer under the latter). Labrum and mandibles of male not modified. Differs from *meri-*

dionalis by the larger size (82.1-2.5 mm) and by the more distinctly punctured pronotal disc.

Ochthebius kuwerti differs mainly by the very slightly excised labrum; elytra sometimes unicoloured, mandibles of male fringed with bristles; lateral margins of the posterior foveae not as abrupt and well defined as in *janssensi* and *erzerumi*. *Ochthebius lividipennis* differs by the smaller size, the shorter elytra, the narrow labrum, the narrow pronotum and by the modified male labrum and mandibles. Mongolian and Siberian specimens of *marinus* differ mainly by the smaller size and by the narrower and more convex pronotum. Caucasian specimens of *marinus* are very similar in general appearance, but are slightly smaller and unicoloured brown.

Aedeagus (Fig. 1).

Additional material examined: TURKEY: ANKARA: Tuz gölü, 21.V.1985, Jäch (NMW); VAN: Van gölü, 7.VI.1987, Jäch (NMW); SIVAS: Kizilirmak nr Zara, 11.VI.1989, Jäch (NMW); SOVIET UNION: SIBERIA: Novosibirsk oblast, Karasuk, 27.V.1970, Angus (CAL, NMW); Novosibirsk, 27.V.1982, Angus (CAL); KAZAKHSTAN: Karkaralinsk 19.VIII.1972, Konev (CAL, NMW).
Distribution (Fig. 28): Turkey to Siberia.

***Ochthebius evanescens* Sahlberg**

Figs. 14, 29.

Ochthebius evanescens SAHLBERG 1875: 208. – KNISCH, 1924. – CHIESA, 1959. – JANSSENS, 1967, 1971. – IENISTEA, 1968b, 1978, 1988. – GEORGUIEV, 1971. – BANGSHOLT & al., 1979. – FERRO, 1984a. – HANSEN, 1987. – SILFVERBERG, 1987.

Ochthebius alutaceus REITTER 1885:361. - KNISCH, 1924.

Ochthebius laevigatus SHARP 1887:170 (=n.syn.). – KNISCH, 1924. – ORCHY-MONT, 1933. – IENISTEA, 1978.

Ochthebius glabratus KUWERT 1887:398 (386). – KNISCH, 1924. – CHIESA, 1959. – ENDRÖDY, 1967. – IENISTEA, 1968b, 1978. – GEORGUIEV, 1971.

Type locality: Karelian coast at 64°40' (near «Tschuja»), Soviet Union.

Type material: The ZMH contains one male from the type locality: «J. Sahlbg. / Tschuja / 1407 / J. Balfour-Browne vid. IV 1973 / Lectotype», which was designated as lectotype by SILFVERBERG (1987). The number of syntypes is not known («... several specimens...»). The number «1407» refers to Sahlberg's diary and indicates that the specimen was collected on the beaches near Tschuja on July 27th 1869.

Synonyms: Lectotype ♂ (pres.des.) of *O. alutaceus*: «Lenkoran Leder (Reitter). / *alutaceus* m. Rtrr.» (TMB). Two paralectotypes with similar labels in the TMB and one in the MHNP (Kuwert collection).

Lectotype ♂ (pres.des.) of *O. laevigatus*: «*Ochthebius laevigatus*

Sharp Type Orenburg / MUSEUM PARIS 1906 Coll. Léon Fairmaire», deposited in the MHNP. Two paralectotypes with similar labels in the DEI. The Sharp collection (BML) contains one ♀ of *evanescens* which might be a syntype of *Ochthebius laevigatus*: «*Ochthebius laevigatus* Type D.S. Jargari Central Asia Faust. / Type / Sharp Coll 1905-313». The number of syntypes of *laevigatus* is not known.

Lectotype ♂ (pres.des.) of *O. glabratus*: «Serbia / *glabratus* Seydlitz» and 3 paralectotypes (all mounted on one pin) in the MHNP (Kuwert collection). The number of syntypes is not known.

Diagnosis: 1.4-1.7 mm long. Mandibles of male occasionally with blunt bristles. Front margin of labrum truncate, unmodified in male. A very variable (dark, metallic) species, closely resembling *Ochthebius viridis*. Usually distinguished from the latter by the superficial or even completely obsolete elytral punctures, by the longer and usually reticulated elytra and by the glabrous middle of the metasternum. Elytral punctures rarely distinct as in *viridis* (Istria).

Aedeagus (Fig. 14): Main piece short and evenly curved; distal lobe characteristic, flat or slightly undulated, somewhat variable.

Additional material examined: ITALY: FRIULI VENEZIA GIULIA: Grado, leg. Bernhauer (NMW). YUGOSLAVIA: «Carniol.» (DEI); SLOVENIJA: Capodistria [= Koper], leg. Ferrari (DEI). CROATIA: Brazza [= Brac] (NMW). ROMANIA: Vizakna [= Salzburg], n Sibiu, 22.V.1910, Pinker (NMW). SOVIET UNION: UKRAINE: Saporoske nr Altagir, VI.1986 (CBG, NMW); SIBERIA: Karasuk, Novosibirsk Oblast, 27.V.1970, Angus (CAL, NMW). Distribution (Fig. 29): Euro-siberian.

Ochthebius fissicollis Janssens-species minus cognita Fig. 28.

Ochthebius fissicollis JANSSENS 1969: 303.

Type locality: Badhyuz, Eroilanduz, Turkmeniya, Soviet Union.

Type material: I did not see any of the two syntypes (♂ + ♀), which are not in the ISNB (K. Desender, pers. comm.). The material was probably sent back to S.M. Khnzorian, who collected it.

Diagnosis: The description of JANSSENS (1969) is not very accurate, nor is the depiction of the aedeagus, which resembles *meridionalis* or *bactrianus*. According to the description *fissicollis* differs from the two mentioned species by the labrum being «légèrement échancré».

Distribution (Fig. 28): Known only from the type locality.

Ochthebius jansseni Ferro Figs. 2, 28.

Ochthebius jansseni FERRO 1983a:78.

Ochthebius desertorum IENISTEA 1988:231 (=n.syn.). – JÄCH, 1989a.

Type locality: Sufian, 30 km w Tabriz, northeastern Iran.

Type material: I have examined the male holotype, which is deposited in the NMP. Nine paratypes are deposited in the NMP and CFL.

Synonyms: The male holotype of *O. desertorum* (type locality: 3 km n Somon Uenc, w Ulan Bator, 1400 m, Mongolia) is deposited in the TMB.

Diagnosis: This species is very similar to *O. erzerumi* and might even be a synonym of the latter. I found no constant external morphological differences. A tooth-like projection at the caudal end of the lateral fossula may be developed in both species. Pronotal width and convexity as well as the density of the elytral punctuation are variable.

Aedeagus (fig. 2): main piece long and straight, evenly curved; distal lobe dilated ventrally, apically attenuate. The few aedeagi of *janssensi* which I have examined are slightly smaller than those of *erzerumi*, with shorter distal lobes.

Additional material examined: MONGOLIA: Uvs aimak, Somon Baruunturuun, 1280 m, 25.VI.1968, Kaszab (NMW, TMB).

Distribution (Fig. 28): Iran, Mongolia.

Ochthebius kuwerti Reitter

Figs. 3, 28

Ochthebius kuwerti REITTER 1897: 209. – KNISCH, 1924. – ORCHYMONT, 1935, 1943. – JANSSENS, 1967, 1968, 1971.

Type locality: Ulan Bator [= Urga], Mongolia.

Type material: Lectotype ♂ (pres. des.): «Kuwerti m. 1897 – Urga / Coll. Reitter» (TMB). One paralectotype is deposited in the same institution and one in the MTD. The number of syntypes is not known. Several specimens «Mongolia bor. Reitter», which are probably syntypical are deposited in various collections (NMW, MHNP, CPL, DEI).

Diagnosis: This large species (2.0-2.2 mm long) is quite distinctive though variable. It is recognized by its very wide and flat pronotum and especially by the shallow pronotal foveae; mandibles of male modified; labrum very slightly emarginate (especially in female), not «toothed» in male, slightly wider in female; lateral margins of the posterior foveae not as abrupt and well defined as in *erzerumi* and *janssensi*, which are otherwise similar in size, shape and colouration. The pronotal surface varies from densely punctured and smooth to almost impunctate and shining. Elytra can be yellow with dark stripes, yellow with brown patches of variables size or unicoloured brown.

Aedeagus (Fig. 3): Main piece very long and slender, gently and evenly curved; distal lobe large and flat, ventral side strongly convex.

Additional material examined: MONGOLIA: Changai, Leder (NMW, TMB).

Distribution (Fig. 28): Known only from Mongolia.

Ochthebius lenensis Poppius

Figs. 19, 28.

Ochthebius lenensis POPPIUS 1907: 10. – KNISCH, 1924. – F. BALFOUR-BROWNE, 1938, 1958, 1962. – ORCHYMONT, 1933, 1943. – IENISTEA, 1978, – BANGSHOLT et al., 1979. – HANSEN, 1987. – SILFVERBERG, 1987. – FOSTER, 1988, 1990. – FRIDAY, 1988.

Type locality: Ytyk-haja, ca. 60 km from Yakutsk, Siberia, Soviet Union.

Type material: Lectotype ♀ (des. by SILFVERBERG, 1987): «Ytyk-haja / Lena med. / B. Poppius / *Ochthebius lenensis* B. Poppius det. Type / Mus. Zool. H. fors. Spec. typ. No. 1891 / *Ochthebius lenensis* Popp.» (ZMH). Two paralectotypes (one from Ytyk-haja and one from Jakutsk) are deposited in the same institution. The paralectotype from Ytyk-haja is *O. marinus* (J. Balfour-Browne det., 1973). The whereabouts of the remaining two syntypes (one from Ust-Kut and one from Jakutsk) are unknown.

Diagnosis: 1.8-2.0 mm long. Labrum and mandibles of male not modified. Very similar to *marinus* with which it is found to live consociate in Siberia. It usually differs by the darker colouration (elytra always dark brown to almost black) and by the much finer pronotal cha-grination. But morphological overlap exists. Unicoloured brown females are probably difficult to distinguish. I was not able to find constant morphological distinguishing features to separate *lenensis* from *subaeneus*. The sides of the pronotum seem to be less strongly deflexed and the elytra seem to be shorter in *subaeneus*. The latter is slightly smaller (1.7-1.8 mm). *Ochthebius costatellus* differs by the convex elytral intervals and *O. mongolensis* differs by the smaller size and by the distinctly punctured pronotum

Aedeagus (Fig. 19): easily recognized by the humpbacked main piece; distal lobe flat, ventral side convex.

Additional material examined: GREAT BRITAIN: SCOTLAND: Beaully Firth, 3.VII.1986, Foster (CFA, NMW). NORWAY: Tromsø, 1907. Münster (NMW, DEI). SOVIET UNION: SIBERIA: Yakutsk, Chuchur Muran, 1.VII.1970, Angus (CAL, NMW), Yakutsk, Viluiskiy trakt to 55 km w of town, 2.-5.VII.1970, Angus (CAL); Yakutsk, 25.VI.1983, Pietrzeniuk (HUB); Amga, Amga-Verkhnyaya Amga, 21.VI.1983, Pietrzeniuk (HUB).

Distribution (Fig. 28): Northern Palearctic.

Ochthebius lividipennis Peyron

Figs. 18, 26.

Ochthebius lividipennis PEYRON 1885:405. – KNISCH, 1924. – NORMAND, 1933. – ORCHYMONT, 1925, 1927, 1943. – JANSSENS, 1959, 1960, 1962, 1963. – CHIESA, 1958, 1959. – IENISTEA, 1968b, 1978. – FRANZ, 1970. – LOHSE, 1971. – ALFIERI, 1976. – PIRISINU, 1981. – FERRO, 1983b, 1984c. – BELLSTEDT & MERKL, 1987. – CARL, 1989.

Ochthebius rugulosus SALHBERG 1900: 197 (= primary homonym of *O. rugulosus* WOLLASTON 1857). – KNISCH, 1924. – SILFVERBERG, 1987.

Ochthebius niloticus SHARP 1904: 9. – KNISCH, 1924. – ORCHYMONT, 1943.

Ochthebius sahlbergi ZAITZEV 1908: 344 (= replacement name for *rugulosus* SAHLBERG) (= **n.syn.**). – KNISCH, 1924. – ORCHYMONT, 1940 a. – SILFVERBERG, 1987.

Ochthebius guerryi SCHATZMAYR 1909: 43 (= **n.syn.**). – KNISCH, 1924 – ORCHYMONT, 1940a.

Type locality: Tarsus, southern Turkey.

Type material: According to HORN & KAHLE (1937) the collection of Edmond Peyron was acquired by the American University in Beirut (Lebanon) and by Maurice Pic. I found no types of *lividipennis* in the Pic collection (MHNP), but I found 2 specimens of *lividipennis* from Egypt labeled «ex coll. Peyron». In a letter of January 27th, 1989 Prof. Aref Dia informed me that he has seen 2 specimens of *lividipennis* (probably syntypes) in the American University, Beirut. Despite considerable efforts, I was unable to examine these specimens.

Synonyms: I have examined the holotype ♀ of *O. sahlbergi* (type locality: Corfu, Greece), deposited in the ZMH. It has a very strongly punctured pronotum and very strongly reticulated elytra. But I have little doubt that this rugulose female belongs to *lividipennis*.

Three (teneral) syntypes (1 ♂ + 2 ♀) of *Ochthebius niloticus* (type locality: Cairo) are deposited in the BML: «*Ochthebius niloticus* D.S. Types White Nil / Type / Sharp Coll 1905-313.» They are mounted on one cardboard. The male is herewith designated as lectotype.

Lectotype ♂ (pres.des.) of *O. guerryi*: «Vardarebene Salonch A. Schatzmayr / 25 / *Guerryi* Schatzm. typ.» (DEI – Heyden collection). Five additional syntypes with identical locality labels are deposited in the NMW and TMB. These paralectotypes belong to *O. meridionalis* and *O. lividipennis*.

Diagnosis: This species is very similar to *meridionalis* and generally differs from it by a number of characters although there is morphological overlap in some of the distinguishing features. I have mainly compared populations from Egypt and from Central and southeastern Europe.

lividipennis

Labrum usually slightly excised and narrower
(compare: *pusillus - viridis*)

Front margin of male labrum with a tooth-like, notched projection; notch covered by a membrane
(compare: *pusillus - viridis*)

Pronotal disc usually distinctly punctured

Elytra usually brown; unicoloured; only rarely with darker longitudinal stripes (Islahiye, Turkey; NMW)

meridionalis

Labrum usually entire and slightly wider (especially in male)

Front margin of male labrum with a simple «tooth»

Pronotal disc usually smooth and impunctate (especially in Austrian material)

Elytra usually yellow, frequently with a brown median hazy patch and with dark longitudinal stripes along the rows of punctures.

Very rarely the labral «tooth» of *meridionalis* males is notched (Corfu; NMW). I have seen a few specimens of *lividipennis* with glabrous and impunctate pronotal disc (Kalocsa, Hungary – FMC and Kars, Turkey – NMW). Elytra of *lividipennis* females are slightly acuminate, they vary from smooth to strongly rugulose.

Aedeagus (fig. 18): Main piece quite characteristic, not evenly curved, with a conspicuous dorsal convexity in the distal half. Distal lobe more or less cylindrical.

Additional material examined: HUNGARY: Kelebia, Halavastak, 18.X.1962, Endrödy-Younga (NMW, TMB); Matra Mts., Parád, Pisztrangos, 9.VI.1979, Uhlig (HUB); Kalocsa (FMC). CZECHOSLOVAKIA: SLOVAKIA: Ladmovce, 19.VI.1975, Mencl (CMT). ROMANIA: N. Bogsan [= Bocsa], Merkl (NMW); Dobrogea, Ghecet, 15.V.1959, Ienistea (NMW, MHNG); Constanta, 24.VI.1963, Ienistea (TMB). BULGARIA: Maglige, 1912, Hilf (DEI). POLAND: «Marienau», Letzner (DEI). ITALY: BOLOGNA: Imola (DEI); «EMILIA»: X.1905, Fiori (HUB, TLF). YUGOSLAVIA: CROATIA: Brod, 1944, Pretner (CPL); Osijek, Eckerlein (NMW), SERBIA: Pozarevac, Hilf (NMW); Fruska Gora, Paragovo, IV.1930, Pretner (CPL); Sremcica Reka, Sumadija, 4.VIII.1960, Pretner (CPL); GREECE: Corfu, Sahlberg (NMW, ZMH, DEI). TURKEY: KIRKLARELI: 20 km e Kirklareli, 28.VII.1988, Jäch (NMW); 40 km e Edirne, 28.VII.1988, Jäch (NMW); IZMIR: Efes, 23.IV.1969, Wewalka (NMW); ANTALYA: Manavgat,

5.V.1969, Wewalka (NMW), MERSIN: Erdemli, 30.VIII.1981, Jäch (NMW); Namrun, 28.VIII.1981, Preuler & Jäch (NMW); ADANA: S. Adana, 1.VIII.1990, Schödl (NMW); NIDGE: Ciftehan, 3.IX.1981, Jäch (NMW); HATAY: Yayladagi, 22.V.1987, Jäch (NMW), SIVAS: Kizilirmak nr Zara, 11.VI.1989, Jäch (NMW), GAZIANTEP: S Islahiye, 26.V.1987, Jäch (NMW); W. Kilis, 26.V.1987, Jäch (NMW); 60 km W Kilis, 26.V.1987, Jäch (NMW); URFA: 5 km N Halfeti, 27.V.1987, Jäch (NMW); DIYARBAKIR: 5 km E Bismil, 29.V.1987, Jäch (NMW); KARS: E Tuzluca, 7.VI.1989, Jäch (NMW); Igdır, 7.VI.1989, Jäch (NMW). EGYPT: Cairo, meadi, 24.VII.1933, Wittmer (CPL); Cairo, Salhberg (NMW). ISRAEL: Mt. Hermon, 26.VIII.1985, Jäch (NMW); Golan, Sha'al, 3.VIII.1985, Jäch (NMW); Hula, 20.III.1985, Jäch (NMW); Bteha, Ein Aqeb, 7.IV.1986, Jäch (NMW); Bteha, Majerasee, 7.IV.1986, Jäch (NMW); Hazbani stn. 2, 31.VII.1985, Jäch (NMW); Golan, Nahal Meitsar, 31.III.1989, Jäch (NMW); Golan, Sourman pool, 3.VIII.1985, Jäch (NMW); Galilee, Berekhat Dirhana, 9.VIII.1985, Jäch (NMW); Nahal Tavor, rain ditch, 11.IV.1986, Jäch (NMW); en Shehumit, 6.IV.1986, leg. Jäch (NMW); shores of Lake Kinneret, 12.IV.1986, Jäch (NMW); Jordan River, Almagor Bridge (NMW); Mt. Carmel, 1526/2196, 21.IV.1986, Jäch (NMW); coastal plain: Ga'ash pool, 18.IV.1986, Jäch (NMW); coastal plain: Brekhat Ya'ar (Hadera), 21.IV.1986, Jäch (NMW). IRAQ: Abu Ghraib, V.1980, Dobertiz (HUB). SOVIET UNION: AZERBAJDZHAN: Lenkoran, Leder (Reitter) (MTD, TMB).

Distribution (Fig. 26): Eastern Mediterranean. The specimens reported from Afghanistan by JANSSENS (1962) are probably *minabensis*.

Ochthebius marinus (Paykull)

Figs. 5, 29.

Ochthebius marinus PAYKULL 1798: 245 (described as *Elophorus*). – KNISCH, 1924. – LINDBERG, 1931. – NORMAND, 1933. – ORCHYMONT, 1933, 1937, 1943. – HORION, 1949. – F. BALFOUR-BROWNE, 1958. – CHIESA, 1959. – ANGUS, 1964. – BRAKMAN, 1966. – ENDRÖDY, 1967, – JANSSENS, 1967, 1968, 1969, 1971, – IENISTEA, 1968b, 1978. – FRANZ, 1970. – FICHTNER, 1971, 1972, 1984. – GEORGUIEV, 1971. – LOHSE, 1971. – GRAMMA & KIREJTSCHUK, 1975. – BURAKOWSKY et al., 1976. – NILSSON, 1979. – BANGSHOLT et al., 1979. – BERCIO & FOLWACZNY, 1979. – PERKINS, 1980. – NIEUKERKEN, 1982. – BELLSTEDT, 1982, 1985. – FERRO, 1983b. – MOL, 1984. – EYRE & FOSTER, 1984. – LUCHT, 1987. – HANSEN, 1987, 1989. – DRAKE, 1988. – FRIDAY, 1988. – FOSTER, 1990.

Type locality: «Habitat ad littora maris in Bahusia inter confervas.», Bohus, Sweden.

Type material: I have not seen the types of *Elophorus marinus*, which-according to HORN & KAHLE (1937: 203) – should be deposited in the Riksmuseum, Stockholm.

Diagnosis: Labrum and mandibles of male not modified; colouration of elytra variable: yellow or yellow with dark stripes, yellow with brownish spots of variable size or unicoloured brown. Differs from European specimens of *meridionalis* usually by the more distinctly punctured pronotal disc and from *lividipennis* mainly by the larger size,

the wider pronotum and by the longer elytra. For distinction of *marinus* from *erzerumi*, *janssensii*, *lenensis* and *kuwertii* refer to the comments under these species.

Aedeagus (Fig. 5): main piece long and slender, straight; distal lobe very slender, recurved.

Additional material examined: NETHERLANDS: Amsterdam (NMW); Halsteren (NMW); Oostvoorne, 26.VII.1986, Vondel (CVH, NMW). FRANCE: CALVADOS: Trouville, 1897, Fauvel (NMW); FINISTERE: Morlaix, Hervé (NMW); Roscoff (NMW); AUDE: Carcassonne (MTD); SAVOIE: Crevin, coll. Maerkl (MHNG). SPAIN: «Andalucia» (NMW); ALBACETE: Rambla de la Sierra, 17.VII.1988, Delgado (NMW); CADIZ: Algeciras (HUB). GERMANY (West): SCHLESWIG-HOLSTEIN: Fehmarn, Gammendorf, 24.VIII.1975 Ullrich (MHNG); Sylt, 17.IV.1902, Ohaus (DEI); Büsum, 1921 (HUB); NIEDERSACHSEN: Norderney (MHNG); Juist, 18.V.1921, Alfken (NMW); Borkum, Schneider (NMW); Langoog (MTD); Ostfriesland, Spiekeroob, 30.V.1943, Keratens (NMW); HESSEN: Bad Hersfeld, 31.VII.1978, Folwaczny (NMW, coll. Kirschenhofer, Wien); Bad Hersfeld, Heringen, 1988, E. Müller (CHD) – BAVARIA? label mistake (DEI). GERMANY (East): ROSTOCK: Rügen, Göhren, Feige (HUB); Zingst (HUB); Zinnowitz, 17.VIII.1915, Künnenmann (DEI); Lubmin, 1912, Böhme (HUB, MTD); MAGDEBURG: Hecklingen nr. Stassfurt, 29.VIII.1986, Behne (HUB, NMW); Sülldorf, 4.X.1908 (HUB); HALLE: Artern, 9.VII.1955, Dieckmann (DEI); Numburg-Kelbra, 12.VIII.1955, Dieckmann (DEI); Esperstedt, 11.VIII.1955, Dieckmann (DEI, HUB); ERFURT: Stotternheim, 6.VIII.1955, Dieckmann (DEI). DENMARK: Roskilde, 13.VII.1970, Wewalka (NMW); Valby, nr. Cobenhavn (DEI). SWEDEN: Göteborg (HUB); Malmö (HUB); Jokkmokk, Leonhard (DEI). POLAND: Liegnitz [= Legenica], Letzner (DEI). SOVIET UNION: «Caucasus, Aresch» (NMW); SIBERIA: Yakutsk, Chuchur Muran, 1.VII.1970, Angus (CAL, NMW). MONGOLIA: Chovd Aimak, Conochavajch-gol, 29.VI.1982, Altner (CBG, NMW); Uvs aimak, Somon Baruunturuun, 1280 m, 25.VI.1968, Kaszab (NMW, TMB). CHINA: Heilungjiang, Harbin, 5.V.1966, Hammond (BML, NMW).

Distribution (Fig. 29): Holarctic.

Ochthebius masatakasatoi n.sp.

Fig. 7.

Diagnosis: 1.6-1.7 mm long. Head almost black, pronotum dark brown, both with a faint cupreous sheen, legs palpi and elytra yellow, the latter darkened along the striae, a brown median patch is present in some individuals. Anteromedial area of labrum of male slightly upturned to form a very small tooth which can be very slightly notched, labrum of female truncate or slightly emarginate; mandibles of male usually with well developed bristles along their outer edge. Pronotum heart-shaped and evenly convex: admedian foveae shallow, usually not well defined, confluent; punctuation of disc moderately dense, punctures comparatively large; depressions densely punctured, microreticulations reduced. Elytra short and oval, with 5 rows of punctures between suture and humerus; punctures small, densely arranged; lines not

deeply impressed; intervals flat, shining in males, somewhat dull in females; margin very narrow in male, only very slightly wider in female; elytral apex slightly more acuminate in female.

Aedeagus (Fig. 7): main piece long and slender, evenly curved; distal lobe small and slender, strongly recurved.

Ochthebius masatakasatoi n.sp. is the only *Ochthebius* (s. str.) known from the Oriental region and thus not likely to be confounded with any other species.

Type locality: Bang Saen, south of Chon Buri, Thailand.

Holotype ♂ (WUN): «Bangsaen Thailand / Nov. 16, 1968 M. Satô». Paratypes: 31 exs. from the same locality (WUN, NMW, ISNB, ZMH, CAL, SIW).

Etymology: I take pleasure in naming this new species after Prof. Masataka Satô, in recognition of his extensive work on the water beetles of Asia.

Distribution: Known only from the type locality.

***Ochthebius meridionalis* Rey**

Figs. 10, 27.

Ochthebius pallidipennis CASTELNAU 1840: 47 (= primary homonym of *O. pallidipennis* VILLA 1835). – KNISCH, 1924. – ORCHYMONT, 1935, 1937.

Ochthebius meridionalis REY 1885: 21. – KNISCH, 1924. – ORCHYMONT, 1932, 1933, 1935, 1937, 1943. – NORMAND, 1933. – HORION, 1949. – CHIESA, 1959. – JANSSENS, 1962, 1968. – ENDRÖDY, 1967, 1968, 1969. – IENISTEA, 1968b, 1978, 1982. – FRANZ, 1970. – LOHSE, 1971. – GEORGUEV, 1971, – ALFIERI, 1976. – BURAKOWSKI et al., 1976. – PIRISINU, 1981, – FERRO, 1983b. – BELLSTEDT & MERKL, 1987. – LUCHT, 1987. – HEBAUER, 1989.

Ochthebius subabruptus REY 1885: 23 (= ? n.syn.). – KNISCH, 1924.

Ochthebius crimae KUWERT 1887: 385. – KNISCH, 1924. – ORCHYMONT, 1943.

Type locality: Corfu, Greece.

Type material: Lectotype ♂ (pres. des.) of *Ochthebius pallidipennis* Castelnau: «Hist. Coll. Nr. 819306 Corfu, Parreyss / Zool. Mus. Berlin» (HUB). Paralectotypes are deposited in the HUB (5 exs.), NMW (2 exs.), DEI (1 ex.) and MHNP (1 ex.). Number of syntypes unknown. As the name *pallidipennis* was already used by VILLA (1835) for an other species (*O. aeneus* Stephens), the name *pallidipennis* Castelnau has to be replaced by the name of the oldest synonym: *meridionalis* Rey.

Synonyms: The Rey collection (MGL) contains 5 syntypes of *O. meridionalis* from Languedoc (= type locality). I have not yet designated a lectotype.

The Rey collection (MGL) contains one ♀ under the name *subabruptus*, which probably is a syntype (or the holotype). It carries only one

small black round label, which indicates that the specimen was collected in the Provence (type locality: Toulon). This female is quite large and has a densely punctured pronotum. It is probably identical with *meridionalis* (or *marinus*).

Lectotype ♂ (pres.des.) of *O. crimae*: «Lenkoran Leder (Reitter) / Ex.Musaeo A.Kuwert 1894», deposited in the MHNP. Three paralectotypes from the same locality (MHNP, NMW), one ♀ from the Crimea (MHNP) and one ♀ from the Caucasus (MHNP). Number of syntypes unknown.

Diagnosis: Variable species. Mandibles and labrum of male modified. Labral «tooth» usually simple, not notched. Pronotal disc usually convex and smooth to very smooth and shining, elytra usually yellow with brown longitudinal stripes and with at least one small indistinct median brownish spot.

Specimens from Saudi Arabia are quite devious: mandibular bristles reduced, pronotal disc distinctly punctured (!).

Aedeagus (see Fig.10): Main piece long and slender, straight, less sinuous than in *subpictus*. Distal lobe usually long and cylindrical, only rarely (specimens from Spain and Tunisia) wider and flattened. But never as wide as in *subpictus* and usually not as wide as in *auropallens*. Curvature of main piece and distal lobe variable.

Additional material examined: GREAT BRITAIN: England (NMW) – label mistake?

FRANCE: BOUCHES DU RHONE: Vaccarès, 19.IV.1964, Steffen (MHNG); Camargue, 9.IX.1971, Wewalka (NMW). AUSTRIA: WIEN: Lobau, Grossenzersdorfer Arm, 1984, Jäch (NMW); NIEDERÖSTERREICH: Kritzendorf, 1.IV.1895 (NMW); Bad Vöslau (NMW); Tulln, 24.VI.1971, Lechner (NMW); Kaltenleutgeben, Holdhaus (NMW); Gars, Minarz (NMW); BURGENLAND: Podersdorf, VII.1928, Prock (NMW); Purbach, 10.VII.1984, Jäch (NMW); Illmitz, V.1931, Prock (NMW); Neusiedler See, Ganglbauer (NMW); Stundlacke, nr Apetlon, 14.VI.1990, Jäch (NMW); pool at Rosalia, nr Apetlon, 14.VI.1990, Jäch (NMW); TIROL: Innsbruck, Nordkette, Arzler Scharte, 24.IX.1956 (NMW). SPAIN: BARCELONA: Sitges, 25.X.1922, Liebmann (DEI); HUELVA: Coto Donana, 16.VI.1967, Malkin (FMC); CADIZ: (NMW); SEVILLA: (DEI). ITALY: Emilia, 1896, Fiori (HUB). YUGOSLAVIA: SERBIA: Fruska Gora (CPL). GREECE: Corfu, Paganetti (NMW); Saloniki (NMW); Lake Vistonis, 26.VII.1988, Jäch (NMW); ne Alexandroupolis, 27.VII.1988, Jäch (NMW); Thassos, Aliki, 12.VII.1976, Fery (CFB). HUNGARY: Temetveny (NMW); Kelecsenyi, Tavnok (NMW); Kistelek, 2.X.1962, Stiller (NMW); Tihany, 18.III.1983, Jäch (NMW); Fülöpszallas, Kelemenszek, Kiskunsag Nat.Park, 12.VI.1969, Uhlig (NMW); Bugac nr Kecskemet, Franz (NMW); Kalocsa (FMC). BULGARIA: Rumelia, Burgas, 3.VII.1908, Rambousek (CPL); Rumelia, Varna, VII.1908, Rambousek (CPL); Akutino, VIII.1975, Braasch (HUB). ROMANIA: Dobrogea, 28.VII.1961, Ienistea (MHNG); Agiozea, Constanta, VIII.1943, Ienistea (TMB). MOROCCO: Mogadir, Quedenfeldt (HUB); 21 km ne Casablanca, 2.VI.1974, Malkin (FMC); Tanger (DEI); Fes, 31.III.1935, Oten (MHNP). TUNISIA: Tunis, Sahlberg (NMW, DEI, TMB); Mateur, Sahlberg (TMB); Le Kef,

Normand (MHNP). EGYPT: Cairo (MHNP); Ismailia (MNHP). TURKEY: CO-RUM: Sungurlu, 7.VII.1973, Wewalka (NMW); SAMSUN: E Terme, 27.V.1989, Jäch (NMW); KONYA: Catal Hüyük, 10.VI.1979, Malkin (CMW); BURDUR: Burdur gölü, 25.VII.1990, Schödl (NMW); KARS: Lake Kuyucuk, 7.VI.1989, Jäch (NMW); VAN: Van gölü, 7.VI.1986, Jäch (NMW). ISRAEL: Nahal Daliya, 5.VIII.1985 and 22.IV.1986, Jäch (NMW); Nahal Na'aman, S Akko, 11.VIII.1985, Jäch (NMW). IRAQ: Yusufiya Bagh, 22.VIII.1985, Abdul Ras-soul (NMW). SAUDI ARABIA: 17 km S Khaybar, 680 m, 26.IV.1979 (NMB, NMW). SOVIET UNION: TURKMENIYA: 2 km N Ashkhabad, 15.IX.1976, Hieke (NMW); Ashkhabad, 17.X.1981, Joost (CBG, NMW).
Distribution (Fig.27): Mediterranean

Ochthebius minabensis Ferro

Figs. 17, 28.

Ochthebius minabensis FERRO 1983a: 76.

Type locality: Minab, southern Iran.

Type material: I have examined one male paratype from Bahu-kalat (NMW). The holotype is deposited in the NMP.

Diagnosis: A rather small (1.4 – 1.8 mm long) and very variable species. Labrum very slightly or distinctly excised, anteromedial area (excision) very slightly or distinctly upturned in male (excision covered by a semitransparent membrane). Mandibles of male usually with (not very strong) bristles. Pronotal foveae and median line usually distinctly impressed, intervals smooth and glabrous or distinctly punctured (even in the same population). Elytra yellowish or brownish, occasionally with an indistinct brownish median spot and with punctures darkened; elytral punctures usually distinctly impressed, intervals very slightly convex.

Aedeagus (Fig.17): Main piece long and slender, slightly curved, apex more or less straight, more curved in specimens from Afghanistan; distal lobe usually flat (in dried material it can be coiled up and cylindrical – almost like in *lividipennis*); ventral side convex.

Additional material examined: AFGHANISTAN: Kandahar, 950 m, 13.II.1953, Klapperich (TMB, NMW). PAKISTAN: Karachi, 30.III.1976, Heiss (NMW); Karachi, 16.XII.1951, Clay (BML). INDIA: New Dehli, nr Nilothi, 29.XII.1959, Ritcher (BML, NMW); U.P.: Lachiwala, Dehra Dun, 21.II.1932, Champion (BML).

Distribution (Fig.28): Afghanistan to northwestern India.

Ochthebius mongolensis Janssens

Figs. 13, 29.

Ochthebius mongolensis JANSSENS 1967: 56. – JANSSENS, 1971. – BELLSTEDT, 1985.

Type locality: Chentej aimak, Mongolia.

Type material: As two different localities are mentioned in the original description and Janssens did not fix a holotype, a lectotype designation has become necessary. Lectotype ♂ (pres.des.): «MONGOLIA: Chentej aimak 20 km SW von Somon Norovlin, 900 m Exp. Dr.Z.Kas-zab, 1965 / Nr. 448 19.VIII.1965 / Prép. Micr. No 66314.1 / TYPE»; deposited in the TMB (aedeagus on microslide). Seven paralectotypes are deposited in the TMB, 4 in the NMW and one (♀) in the MFT. According to the original description there should be 21 syntypes. I have not seen the two specimens from the stations 303 and 307 (Central aimak).

Diagnosis: A small species (1.6 – 1.8 mm long). Head black, pronotum and elytra unicoloured dark brown. Labrum very gently emarginate. Mandibles and labrum of male not modified. Easily recognized by the strongly punctured pronotal disc and the deeply impressed elytral punctures. *Ochthebius pusillus* differs by the narrower labrum and by the less densely punctured pronotum. *Ochthebius peisonis* differs by the usually wider and more evenly punctate (disc and sides are densely punctured) pronotum and by the less densely punctured elytra.

Aedeagus (Fig.13): Main piece long and slender, evenly curved; distal lobe more or less flat, shape variable.

Distribution (Fig.29): Mongolia.

Ochthebius peisonis Ganglbauer

Figs. 9, 29.

Ochthebius peisonis GANGLBAUER 1901: 320. – KNISCH, 1924. – ORCHYMONT, 1943. – HORION, 1949. – CHIESA, 1959. – ENDRÖDY, 1967. – IENISTEA, 1968a, 1968b, 1978. – JANSSENS, 1968. – FRANZ, 1970. – LOHSE, 1971. – BELLSTEDT & MERKL, 1987. – LUCHT, 1987. – HEBAUER, 1989.

Type locality: Neusiedler See, Burgenland, Austria.

Type material: Lectotype ♂ (pres.des.): «Ganglbauer Neusiedl. S. / peisonis». Lectotype and 6 paralectotypes with identical label data in the NMW.

Diagnosis: 1.7 – 1.9 mm long. Colouration as variable as in *marinus*, only very rarely with longitudinal stripes. Mandibular bristles of male not very strong. Labrum of female very slightly but usually distinctly excised; anteromedial area of labrum of male very slightly excised and slightly upturned. Pronotum quite characteristic: wide; median line

and admedian foveae distinct but not very deeply impressed; intervals of disc and sides of pronotum usually distinctly and densely punctured; chagrinations reduced to impressions.

Aedeagus (Fig.9): Main piece long and slender, evenly curved; distal lobe short and very characteristic: dorsal side deeply emarginate.

Additional material examined: AUSTRIA: BURGENLAND: Purbach, Neusiedler See, 10.VII.1984, Jäch (NMW); pool at Rosalia, nr Apetlon, 14.VI.1990, Jäch (NMW); Apetlon, 27.III.1910, Knisch (NMW, CPL). ROMANIA: Agigea, 4.VIII.1961, Ienistea (MHNG). TURKEY: VAN: Van gölü, 7.VI.1987, Jäch (NMW); BURDUR: Burdur gölü, 25.VII.1990, Schödl (NMW). SOVIET UNION: SIBERIA: Novosibirsk oblast, Karasuk, 27.V.1970, Angus (CAL). Distribution (Fig.29): Euro-siberian.

Ochthebius pusillus Stephens

Figs. 23, 28.

Ochthebius pusillus STEPHENS 1835: 397. – KNISCH, 1924. – NORMAND, 1933. – ORCHYMONT, 1937, 1943. – HORION, 1949. – F. BALFOUR-BROWNE, 1958, 1962. – CHIESA, 1959. – BRAKMAN, 1966. – ENDRÖDY, 1967. – IENISTEA, 1968b, 1978, 1982, 1988. – FRANZ, 1970. – LOHSE, 1971. – GEORGUIEV, 1971. – BURAKOWSKI, 1976. – J. BALFOUR-BROWNE, 1978. – BERCIO & FOLWACZNY, 1979. – HEBAUER, 1980, 1989. – PIRISINU, 1981. – NIEUKERKEN, 1982. – FERRO, 1983b. – MOL, 1984. – LUCHT, 1987. – BELLSTEDT & MERKL, 1987. – HANSEN, 1987. – BUSSLER, 1988. – FRIDAY, 1988. – SHATROVSKY, 1989.

Type locality: London, England.

Type material: Lectotype ♀ (designated by d'ORCHYMONT, 1937): «♀ / Type / BRITAIN Stephens COLL. / TYPE / A. d'Orchymont Rev. *Ochthebius* (s.str.) *pusillus* Stephens» (BML).

Diagnosis: A rather small species (1.4 – 1.7 mm long). Darkbrown to black; not metallic. Labrum and clypeus usually narrower (but not significantly !) than in *viridis*. Anteromedial area of labrum always slightly emarginate, in male usually moderately to strongly upturned and emargination not always clearly recognizeable, excision usually covered by a membrane. Mandibles of male occasionally with stronger bristles (but not as conspicuous as in *meridionalis* or *lividipennis*). Pronotal disc usually smooth and almost impunctate, only rarely densely punctured as in *viridis* var. *fallaciosus*, but usually without any trace of a chagrination. Metasternum with glabrous area.

Aedeagus (Fig.23): Main piece straighter than in *viridis*, apex shorter than in *viridis*; distal lobe long and flat, more or less parallel-sided, with constant shape.

Additional material examined: FRANCE: AIN: Villars les Dombes, 13.IV.1990, Schödl (NMW); DROME: Reitter (TMB). GERMANY: (West): Düsseldorf (HUB). GERMANY (East): ERFURT: Herbstleben, 14.IV.1979, Bellstedt (CBG), NMW); THÜRINGEN: Kalbsrieth, Thieme (HUB); LEIPZIG: Nonnenholz, 16.VI.1945, Dorn (HUB); Lindenthal, 5.VII.1913, Linke (MTD). AUSTRIA: WIEN: coll.

Strauss (NMW); NIEDERÖSTERREICH: Bad Vöslau (NMW); Rabenwald, 28.IX.1924 (NMW); BURGENLAND: Neusiedler See (NMW). ITALY: SÜDTIROL: Bozen, Hauser (NMW); FRIULI VENEZIA GIULIA: S. Giorgio di Nogaro, IV.1914 (CPL); TRIESTE: Zaule, X:1913, Pretner (CPL); Muggia, XII.1923, Pretner (CPL); MODENA: 30.III.1896, Fiori (HUB); PISTOIA: Montale, 2.VIII.1902, Fiori (HUB); BOLOGNA: Imola (DEI); Porretta, 1.VII.1903, Fiori (HUB). YUGOSLAVIA: CROATIA: Brod, 1944, Pretner (CPL, NMW); Zagreb, Pretner (CPL); Istria, Quieto, 31.IV.1933, Springer (CPL); Morovic, Zoufal (NMW); Osijek, 20.VII.1976, Fery (CFB); BOSNIA: Ilidze, Apfelbeck (CPL); SERBIA: Ruma, VIII.1932, Pretner (CPL); Pozarevac E., Hilf (NMW, MTD); CRNA GORA: Castelnuovo [= Herceg Novi], Hummler (NMW, DEI). ALBANIA: Elbasan, 15.IX.1918, Priesner (NMW). GREECE: Corfu, Paganetti (NMW, DEI); MAKEDONIA: 30 km SW Kabala [=Kavalla], 9.VIII.1988, Jäch (NMW); Orfanion, 50 km W Kabala, Jäch (NMW); THRAKI: 3 km S Mikro Derio, 27.VII.1988, Jäch (NMW); Ebro plain, 26.VII.1988, Jäch (NMW); NE Alexandroupolis, 27.VII.1988, Jäch (NMW). TURKEY: KIRKLARELI: 20 km e Kirklareli, 28.VII.1988, Jäch (NMW); 40 km E Edirne, 28.VII.1988, Jäch (NMW); ISTANBUL: Agva, 19.V.1987, Jäch (NMW); KASTAMONU: 30 km N Kastamonu, 25.VI.1989, Jäch (NMW); W Helaldi, 26.VI.1989, Jäch (NMW); SAMSUN: NW Vezirkörprü, 27.V.1989, Jäch (NMW); Carsamba, 27.V.1989, Jäch (NMW); BALIKESIR: Ivrindi, 4.VIII.1988, Jäch (NMW). CZECHOSLOVAKIA: BOHEMIA: Polabi, Bysicky, Hrbacek (MTD); Cechy Bechovice, Hrbacek (MTD); Tynec nad Labem, 21.VIII.1985, Mencl (CMT); MORAVIA: Brod, VII.1927, Prock (NMW); SLOVAKIA: Ladmovce, 9.VIII.1982, Mencl (CMT). POLAND: Krakow, Natterer (NMW); Liegnitz [= Legenica] (DEI); Breslau [= Wroclav], Letzner (DEI). ROMANIA: Turda, Durgau Valley, 4.IX.1959, Ienistea (NMW, MHNG); Kronstadt [= Brasov], Deubel (NMW). BULGARIA: Liljacka Reka, 16.VIII.1963, Pretner (CPL); Ciren, 17.VIII.1963, Pretner (CPL); Maglige, 1912, Hilf (DEI); Sejmen, Marica, 21.III.1909, Rambousek (DEI). SOVIET UNION: MOLDAVIA: Lipkany, 10.V.1918, Springer (CPL); SIBERIA: – one questionable female from Lena river, 140 km upstream from Yakutsk, 29.VI.1970, Angus (CAL). Distribution (Fig.28): Euro-siberian.

Ochthebius subaeneus Janssens

Ochthebius subaeneus JANSSENS 1967:55. –JANSSENS, 1971.

Type locality: Bajanchongor aimak, 4 Km S somon zinst, Mongolia.

Type material: According to the original description there should be 4 or 5 (!) syntypes (all males) from Mongolia: Bajanchongor aimak (stn. 200) and Archangaj aimak (stn.249). But all specimens identified as *subaeneus* by Janssens are *costatellus*, while under *O.kaszabi* there was one male: «MONGOLIA, Bajanchongor aimak, 4 km S von somon Zinst, Tujn gol, 1480 m Exp.Dr.Z.KASZAB, 1964 / Nr.200 26. IV. 1964 / Prép.Micr. No 66210.7 / Paratype», which obviously is one of the syntypes and herewith designated as lectotype. Dr.Merkl could find 2 microslides (66210.2 and 66210.7) in the TMB. The two aedeagi (both from station 200) agree very well with the original description and with specimens collected by Angus in Siberia.

Diagnosis: 1.7 – 1.8 mm long. Unicoloured brown. This species is very similar to *lenensis*. Sides of the pronotum seem to be more deflexed. Elytra slightly shorter. *Ochthebius marinus* is usually not so dark, pronotal chaggrination not so clearly pronounced, larger.

Aedeagus (Fig. 11). Main piece not very long, more or less evenly curved; distal lobe flat, ventrally convex.

Additional material examined:

SOVIET UNION: SIBERIA: Karasuk, Novosibirsk Oblast, 27.V.1970, Angus (CAL, NMW).

Distribution (Fig. 28): Mongolia, Siberia.

Ochthebius subpictus Wollaston.

Figs. 16, 29.

Ochthebius subpictus subpictus WOLLASTON 1857: 29. – KNISCH, 1924. – ORCHYMONT, 1940b, 1943. – IENISTEA, 1978.

Ochthebius subpictus deletus REY 1885: 22 (= **nov. stat.**). – KNISCH, 1924. – ORCHYMONT, 1943. – CHIESA, 1959.

Ochthebius latiusculus SAHLBERG 1900: 196 (= **n.syn.**). – KNISCH, 1924. – ORCHYMONT, 1935, 1943. – SILFVERBERG, 1987.

Ochthebius muelleri GANGLBAUER 1901: 321 (= **n.syn.**). – KNISCH, 1924. – ORCHYMONT, 1932, 1940a, 1943. – CHIESA, 1959. – GEORGUIEV, 1971. – JANSSENS, 1978. – J. BALFOUR-BROWNE, 1978. – IENISTEA, 1978, 1988. – PIRISINU, 1981.

Type locality: Porto Santo, Madeira, Portugal.

Type material: Lectotype ♂ (by present designation): «Madère ex Wollaston Brit.Museum / *Ochthebius subpictus* det.K.Blair / MUSEUM PARIS Coll. P. de Peyerimhoff 1950» (MHNP). Two paralectotypes (probably females) are deposited in the BML. Number of syntypes unknown.

Synonyms: The lectotype ♀ (pres. des.) and one paralectotype of *O.deletus* Rey: «Vendres» are deposited in the MGL.

The lectotype ♂ (pres.des.) of *O.latiusculus*. «Jerico / J.Sahlb. / Spec. typ. / Mus. Zool. H:Fors Spec.typ. No 774 *Ochthebius latiusculus* J.Sb.» is deposited in the ZMH. The female paralectotype from Algeria (Biskra) probably belongs to *auropallens*.

The lectotype ♂ of *O. muelleri* (pres.des.) and four paralectotypes «Müller Nona D. / v. *Mülleri*» are deposited in the NMW. One paralectotype is housed in the CPL.

Diagnosis: Closely related with *auropallens*. Single females probably cannot be distinguished. 1.6 – 2.0 mm long. Head black (metallic), Pronotum brown (with metallic reflections), elytra yellow or brown, frequently with 3, 5 or 7 dark spots. Mandibular bristles of male usually

developed in spp.*subpictus*, absent or feebly developed in ssp.*deletus*. Front margin of labrum of male usually with a very small tooth. Length of labrum variable.

Two subspecies can be distinguished: *subpictus subpictus* (Madeira, Canary Islands, North Africa, Israel) and *subpictus deletus* (France to Greece). Intermediates occur in the Balearic Islands. In the nominate form the pronotum is usually very wide, admedian foveae and median line very shallow, impressions finely microreticulate, intervals shining and impunctate. The ssp.*deletus* with a narrower pronotum, with distinctly impressed foveae and (sometimes very) strongly punctate disc.

Ochthebius subpictus differs from *meridionalis* and *lividipennis* mainly by the smaller size, the shorter and more oval elytra and by the wider pronotum.

Aedeagus (Fig. 16): Proximal lobe long and slender, slightly sinuous. Length of proximal lobe quite variable, distal lobe not very variable, always more or less spatuliform (or even quadrate) and wider than in *europallens* and *meridionalis*, usually with a small and inconspicuous apical notch.

Additional material examined: FRANCE: BOUCHES DU RHONE: Vaccarès, 19.IV.1964, Steffen (MHNG); Camargue, Weygoldt (NMW); HERAULT: Montpellier, Coll.Duchon (TLFI), GARD: Aigues-Mortes, Tisson (TMB). PORTUGAL: Madeira, Porto Santo 27.V.1935, Orchymont (MHNP). SPAIN: BARCELONA: Sitges, 25.X.1922, Liebmann (DEI); MALLORCA: Playa de la Cuarassa, 3.I.1990, Foster (CFA, NMW); Punta llarga, rock pool, 18.VII.1983, Montes (NMW); Canal de riego, 17.VII.1983, Montes (NMW); Fte. de San Juan, 28.VII.1983, Montes (NMW); Albufereta, 17.VII.1983, Montes (NMW); Torrent San Jordi, 18.VII.1983, Montes (NMW); MENORCA: Barranco Macarella, 30.VIII.1983, Montes (NMW); FORMENTERA: Salinas, 11.VII.1983, Montes (NMW); IBIZA: Salinas, nr.airport, 5.VII.1990, Suppantshitsch (CSW); CANARY ISLANDS: Fuerteventura, Polatzek (NMW). ITALY: «EMILIA», Fiori (HUB); TRIESTE: KNISCH (NMW, CPL, DEI, MTD); 6.X.1909, Natterer (NMW); Muggia, V.1927, Pretner (CPL); Monfalcone, 15.II.1948, Springer (CPL); FRIULI VENEZIA GIULIA: Grado, Bernhauer (NMW); Belvedere di Grado, 4.V.1952, Springer (CPL); SARDINIA: Lostia (HUB); Cagliari, Dodero (NMW). YUGOSLAVIA: CROATIA: Arbe [=Rab] (NMW); Velo Blato, Pag, 28.VIII.1981, Hebauer (CHD,NMW); Trogir, 21.II.1947 (CPL). ALBANIA: Tirana (CPL). GREECE: Thesprotia, Igoumenitsa, 5.VI.1977, Wewalka (NMW); Corfu, Paganetti (NMW, CPL); Kephallenia, Paganetti (NMW, CPL, DEI); Lake Vistonis, 26.VII.1988, Jäch (NMW); 10 km N Alexandroupolis, 27.VII.1988, Jäch (NMW); Milos: Achivadolimni, 21.IX.1990, Jäch (NMW); Crete, Paganetti (NMW); Crete: Iraklion, 25.VI.1942, Zimmermann (HUB). CYPRUS: Kyrenia, 9.VI.1939, Lindberg (ZMH). MOROCCO: Rabat, V.1926, Lindberg (MHNP). TUNISIA: Oued Hamonda, 18.IX.1977, Mahunka (TMB). EGYPT: Suez (MHNP). ISRAEL: DEAD SEA AREA: Ein Feshkha, 27.III.1985, Jäch (NMW), En Hakikar, 7.III.1985, Jäch (NMW); En Tamar, 16.III.1985, Jäch

(NMW); N. Zohar, 9.IV.1981, Wewalka (NMW); Sulphuric spring nr Navit, IX.1981, Diementman (NMW); NEGEV: En Zin, 17.VIII.1985, Jäch (NMW); En Aqrabim, 13.XI.1984 (NMW).

Distribution (Fig. 29): Mediterranean.

Ochthebius virens n.sp.

Figs. 20, 26.

Diagnosis: 1.8 – 1.9 mm long. Dark brown, parts of head and pronotum with faint bluish, greenish and coppery reflections. Labrum long, its front margin entire or slightly emarginate. Mandibles of male unmodified. Pronotum heart shaped and evenly convex, admedian foveae moderately deep, confluent, their lateral margins abrupt, the lateral margins of the anterior and posterior foveae are connected by a sinuate line in 3 of the 5 type specimens, punctuation of disc superficial, moderately dense; depressions densely microreticulated. Elytra oval, with 5 regular rows of punctures between suture and humerus; punctures small, densely arranged; lines moderately deeply impressed; intervals slightly convex, microreticulated and somewhat dull; margin narrow in male, only very slightly wider in female.

Aedeagus (Fig.20): main piece curved, dorsally dilated in middle, distal lobe slightly recurved, apically tapering, inserted before the apex of the main piece. These aedeagal characters suggest that *virens* can be placed phylogenetically at the beginning of a morphocline, in which *Ochthebius costatellus* represents an advanced level.

Ochthebius virens differs from other similarly coloured species (*bactrianus*, *lenensis*, *viridis*) by the well impressed elytral striae and the convex elytral intervals. *Ochthebius costatellus* is very similar, but the few specimens I have seen from Mongolia have a more coarsely granulated and slightly wider pronotum.

Type locality: Mineral spring, ca. 25 km nw of Yüksekova, Hakkari Prov., southeastern Turkey.

Holotype ♂ (NMW): «TR 3.6.1987 Yüksekova Jäch (55)». Paratypes: 2 exs. from the type locality; 2 exs.: «TR 4.6.1987» S Yüksekova Jäch (57)» (NMW).

Distribution (Fig. 26): Southeastern Turkey.

Etymology: *virens* (Lat.) – green. Refers to the beetle's colour.

Ochthebius viridis Peyron species complex

Figs. 24, 26.

Ochthebius viridis PEYRON 1858: 404. – KNISCH, 1924. – GRIDELLI, 1926. – ORCHYMONT, 1927, 1935, 1940a, 1943. – J. BALFOUR-BROWNE, 1939, 1978. – HORION, 1949. – F. BALFOUR-BROWNE, 1958, 1962. – CHIESA, 1959. – BRAKMAN, 1966. – ENDRÖDY, 1967. – IENISTEA, 1968a, 1968b, 1978, 1988. – FRANZ, 1970. – GUEORGIEV, 1971. – LOHSE, 1971. – BANGSHOLT, 1975. – ALFIERI, 1976. –

BANGSHOLT & al., 1979. – FERRO, 1979, 1983b. – PIRISINU, 1981. – NIEUKERKEN, 1982. – Mol, 1984. – VALLADARES, 1986. – MOUBAYED, 1986. – HANSEN, 1987. – BELLSTEDT & MERKL, 1987. – LUCHT, 1987. – GRÄF, 1987. – FOSTER, 1988. – FRIDAY, 1988. – JÄCH, 1989a.

Ochthebius obscurus REY 1885: 23 (=primary homonym of *O. obscurus* DALLA TORRE 1877 and *O. obscurus* SHARP 1882). – KNISCH, 1924. *Ochthebius viridis* var. *fallaciosus* GANGLBAUER 1901: 321. – KNISCH, 1924. – ORCHYMONT, 1929. – HORION, 1949. – CHIESA, 1959. – IENISTEA, 1968b, 1978, 1988. – FRANZ, 1970. – LOHSE, 1971. – GEORGUIEV, 1971. – BURAKOWSKI, 1976.

Ochthebius graecus IENISTEA 1988: 231 (=n.syn.). – JÄCH, 1989a.

Type locality: Tarsus, southern Turkey.

Type material: I found no types of *viridis* in the Pic collection (MHNP). Prof. Aref Dia informed me in a letter of January 27th, 1989 that he has seen one specimen of *viridis* (probably a syntype) in the American University, Beirut. Despite considerable efforts, I was unable to examine this specimen.

Synonyms: Six syntypes of *O. obscurus* Rey (type localities: «Provence, Languedoc, Roussillon, Hautes-Pyrénées.») from various places in southern France are deposited in the MGL. I have not yet designated a lectotype.

Lectotype ♂ (pres.des.) of *O. viridis* var. *fallaciosus* Ganglbauer (= *viridis* 1): «Umg. Zara [=Zadar] Müller / v. *fallaciosus*» (NMW). Twelve paralectotypes from Zadar, 15 paralectotypes from Viareggio and 2 from Corsica are deposited in the same institution.

The holotype of *O. graecus* IENISTEA (= *viridis* 1) is deposited in the NMW.

Diagnosis (conception): This species complex consists of at least 2 variable but different species. As I have not yet seen the type of *viridis* and I have not yet examined the types of *obscurus*, no names shall be assigned here. But as *viridis* 2 has a more southern distribution it seems possible that all described synonyms of *viridis* belong to *viridis* 1.

Both species are black, sometimes with metallic reflections. Labrum always entire, which distinguishes it from *pusillus*. Labrum of male occasionally with a small median tubercle, especially in Mediterranean populations. Mandibles of male without stiff bristles. Pronotum can be densely chagreened or glabrous, smooth or punctured; in certain populations of *viridis* 1 the chagration is confined to the impressions or even totally absent and replaced by a distinct punctuation (Grado, Italy). Thus the species is sometimes very similar to *O. subpicatus* and sometimes very similar to *O. pusillus* (see also ORCHYMONT,

1943). The admedian foveae can be very shallow or even obsolete or deeply impressed and distinct. Due to the external variability of both species no general distinguishing features can be provided.

They are found to live consociate in southern France (Vaccarès): *viridis* 2 with strongly chagreened pronotum and with very shallow foveae, *viridis* 1 with distinct foveae and chagration confined to the depressions and the lateral areas of the pronotum (var. *fallaciosus*).

The var. *fallaciosus* is mainly found in western Europe, northern Central Europe and in northern Italy.

Ochthebius subpictus and *auropallens* differ generally by the wider and flatter pronotum and by the much paler colour of pronotum and elytra, the latter sometimes being maculate. Males of *auropallens* and African males of *subpictus* usually with mandibular bristles. European *subpictus* usually with strongly punctured pronotal disc.

Ochthebius evanescens is a similarly variable species and closely related with *viridis*. There is morphological overlap. Middle of metasternum glabrous. The pronotum of *evanescens* can be strongly chagreened with obsolete impressions or it is glabrous with distinct foveae and the chagration confined to the impressions. Pronotal disc of *evanescens* never as strongly punctured as in European *subpictus* or in «*fallaciosus*». Elytra long and slender, punctures usually superficial or even completely obsolete. Only rarely with distinct rows of punctures (Istria). Such specimens have been determined as *viridis* by Orchymont (DEI).

Labrum and clypeus of *Ochthebius pusillus* are usually narrower (but not significantly!) than in *viridis* (especially in males). Labrum always slightly emarginate in *pusillus*, in male usually upturned and emargination not always clearly recognizable, usually covered by a hyaline membrane. Pronotal disc of *pusillus* usually smooth and almost impunctate, only rarely densely punctuate as in «*fallaciosus*», and usually without any trace of a chagration. Lateral margin of admedian foveae usually abrupt in *pusillus*. Middle of metasternum always glabrous in *pusillus*, pubescent in *viridis*.

Aedeagus (Figs 24, 25): Very variable in *viridis* 1, quite constant in *viridis* 2. Main piece (lateral aspect) curved in basal half, straight in distal half; apex curved. Distal lobe flat; quite constant in *viridis* 2: almost parallel-sided, slightly diverging towards apex, ventral and dorsal margin not significantly curved. Distal lobe of *viridis* 1 is very variable: ventral margin moderately to strongly convex, dorsal margin usually slightly concave; apex usually attenuate. The distal lobes are usually

large in populations from western Europe (Holland, Spain) and Sicily, they are rather small in specimens from Austria, Hungary, Romania and Israel.

The aedeagus of *auropallens* differs always by the stronger and more evenly curved main piece (*viridis* is more strongly curved in the basal half) and by the straight apex. The aedeagus of *evanescens* differs by the characteristic shape of the distal lobe. The main piece of *pusillus* is much straighter than in *viridis*, its apex is much shorter (almost truncate) and the distal lobe has a characteristic and constant shape.

Ecology: According to HANSEN (1987) this species is halobiontic. In Austria I found it exclusively in fresh water which suggests a specific difference within *viridis* 1.

Additional material examined: *viridis* 1: GREAT BRITAIN: Channel Islands: Guernsey, IX.1923, Pickford (BML). NETHERLANDS: Oostvoorne, 26.VII.1986, Vondel (CVH, NMW). BELGIUM: Merlemont (NMW). FRANCE: PAS-DE-CALAIS: Merlimont (NMW); MANCHE: Vauville, 1901, Fauvel (NMW); FINISTERE: Morlaix, Hervé (NMW); Roscoff (NMW); LOIRE-ATLANTIQUE: Le Croisic (NMW); GIRONDE: Bordeaux, V.1943, Ermisch (HUB); GARD: Aigues-Mortes, Tisson (TMB); BOUCHES DU RHONE: Vaccarès, 19.IV.1964, Steffen (MHNG); Camargue, Puel (MTD); ALPES-MARITIMES: Nice (HUB); CORSICA (NMW); Ajaccio (MTD, MHNP); Aleria, coll.Leonhard (DEI). GERMANY (West): NIEDERSACHSEN: Borkum (HUB); SCHLESWIG-HOLSTEIN: Sylt, 2.VII.1914, Ihssen (HUB). GERMANY (East): ROSTOCK: Zingst (HUB); Hiddensee, 16.X.1978, Bellstedt (CBG, NMW); Rügen, Neureddevitz, 14.VIII.1973, Bellstedt (CBG); Zinnowitz, 17.VIII.1915, Künnenmann (DEI, HUB). AUSTRIA: WIEN: Bisamberg (NMW); NIEDERÖSTERREICH: Steinegg (NMW); Bad Vöslau (NMW); Herrnbaumgarten nr Poysdorf, 29.VIII.1986, Jäch (NMW); BURGENLAND: Zurndorf, 18.VI.1986, Jäch (NMW); Purbach, 10.VII.1984, Jäch (NMW); Neusiedl am See, 20.V.1936 (NMW). SPAIN: CORUNA: Betanzos, 19.IV.1974, Otero (CDS, NMW); PALENCIA: Paganetti (NMW, HUB, DEI). ITALY: TRIESTE: Sistiano, 5.VII.1934, Minarz (NMW); FRIULI VENEZIA GIULIA: Grado, Bernhauer (NMW); LUCCA: Viareggio, III.1922 (CPL); Pietrasanta, 7.III.1922 (CPL); LIVORNO: 22.IX.1886 (DEI); ROMA: 15.VIII.1898 (HUB); MURGE: San Basilio, Paganetti (NMW); SICILY: Lago di Lentini, 28.III.1942 (NMW); Alcamo, 29.VI.1978, Wewalka (CWW, NMW); Catania, Rottenberg (DEI). YUGOSLAVIA: SERBIA: Fruska Gora (NMW); CROATIA: Brod, III.1943, Pretner (CPL). ALBANIA: Skutari [=Shkoder] (CPL). GREECE: Thesprotia, Margariti, 10.VI.1977, Wewalka (CWW, NMW), 10 km N Alexandroupolis, 27.VII.1988, Jäch (NMW); Lake Vistonis, 26.VII.1988, Jäch (NMW); Ebros plain, 26.VII.1988, Jäch (NMW), Kefallinia, Nikolaos, 27.IX.1980, Malicky (NMW); Corfu, Sahlberg (NMW, ZMH); Euboea, Oertzen (TMB, HUB). CZECHOSLOVAKIA: SLOVAKIA: Ladmovce, 9.VIII.1982, Mencl (CMT). HUNGARY: Kalocsa (NMW); Vörs, Kisbalaton, 19.XI.1950, Kaszab & Kovacs (TMB, NMW); Kelebia, Halavastak, 18.X.1962, Endrödy (TMB, NMW). POLAND: Breslau [=Wroclav], Letzner (DEI). ROMANIA: Babadag, 6.VI.1959, Ienistea (NMW, MHNG). BULGARIA: Rumelia, Burgas, 3.VII.1908, Rambousek (CPL). TURKEY: KIRKLARELI: 40 km E Edirne, 28.VII.1988, Jäch (NMW); BURSA: Iznik gölü, 31.VII.1988, Jäch (NMW); ANTALYA: Manavgat, 5.V.1969, Wewalka (NMW); Kumluca, 28.VII.1983, Wewalka (NMW); KONYA: Catal Hüyük,

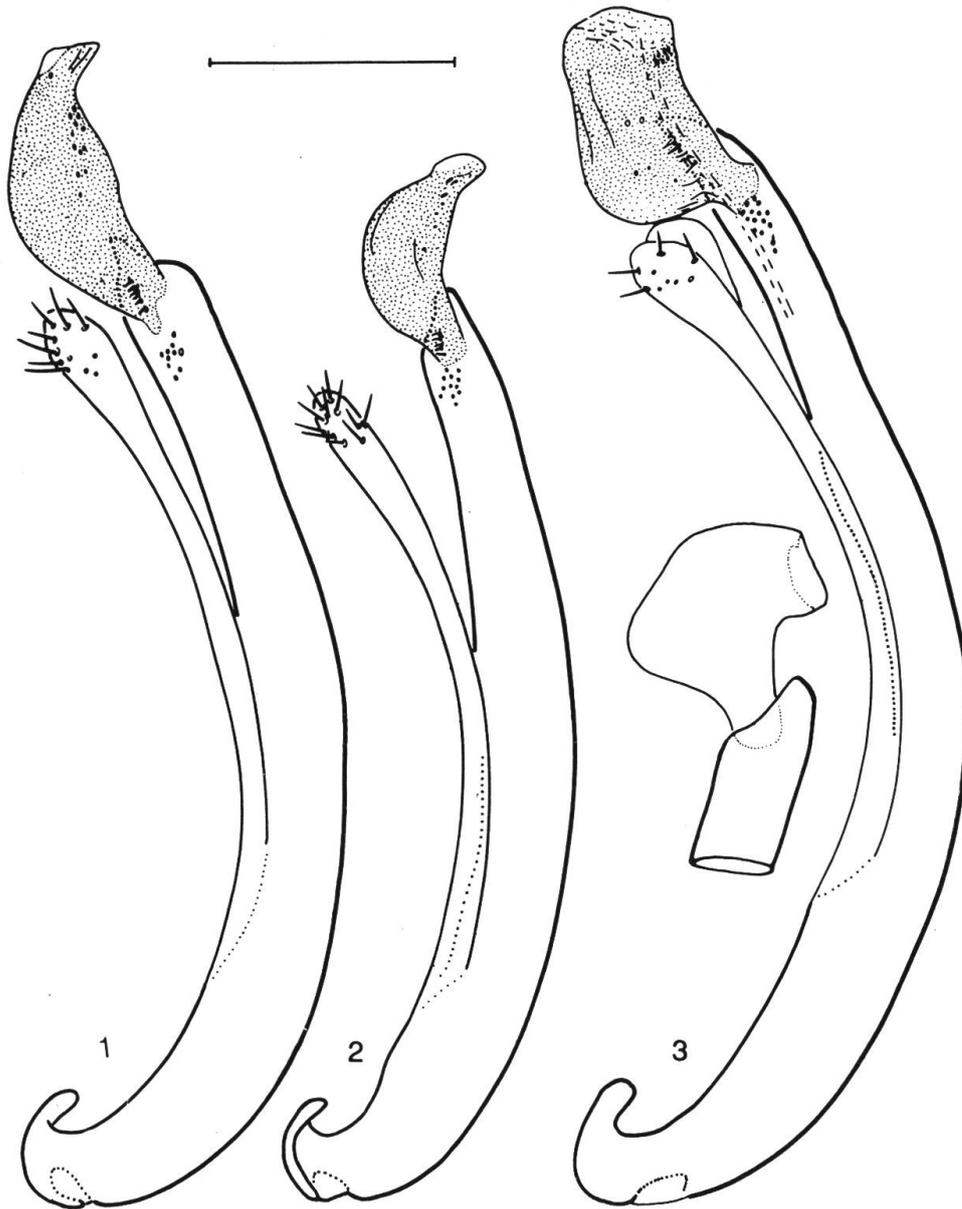
10.VI.1979, Malkin (CMW); MERSIN: Erdemli, 30.VIII.1981, Jäch (NMW); ADANA: S Adana, 1.VIII.1990, Schödl (NMW); SAMSUN: E Terme, 27.V.1989, Jäch (NMW); SIVAS: Kizilirmak nr Zara, 11.VI.1989, Jäch (NMW); DIYARBAKIR: 5 km E Bismil, 29.V.1987, Jäch (NMW); Silvan, 29.V.1987, Jäch (NMW); VAN: Van gölü, 7.VI.1987, Jäch (NMW). ISRAEL: JORDAN VALLEY: Bteha, Majrasee, En Aqavia, Huqoq, 30.VII.1985, Jäch (NMW); En Jezer, Northern shores of L.Kinneret, 27.VIII.1985, Jäch (NMW); Mouth of Samakh river, 12.IV.1986, Jäch (NMW); NORTHERN COASTAL PLAIN: Haifa, quarry, Neshet, 15.VIII.1985, Jäch (NMW); UPPER GALILEE: Hula nature reserve, 20.III.1985 and 13.IV.1986, Jäch (NMW), LOWER GALILEE: Nahal Tavor, 19.VII.1985, Jäch (NMW). SOVIET UNION: RUSSIA. Astrachan, Wolga delta, 9.VIII. 1989, Bellstedt (CBG, NMW), AZERBAJDZHAN: Lenkoran, Leder (Reitter) (MHNP). *viridis* 2: FRANCE: BOUCHES DU RHONE: Vaccarès, 19.IV.1964, Steffen (MHNG). SPAIN: MENORCA: Barranco de Algendar, 3.VIII.1983, Montes (NMW), Punta d'el Alocs, 7.VIII.1983, Montes (NMW); IBIZA: Salinas Balsa, 12.VI.1983, Montes (NMW); MALLORCA: Canal de riego, 17.VII.1983, Montes (NMW). ITALY: SARDINIA: Lostia (NMW); Oristano (NMW); Terranova, Paganetti (CPL, MHNG); ISOLA DI CAPRAIA: VIII.1899 (NMW). MOROCCO: Oued Beht, 31.XII.1961, Mussard (MHNG); Tanger (MTD, MHNG). ALGERIA: Biskra, 10.III.1934, Balfour-Browne (CAL); Biskra (MHNP); Biskra, 6.IV.1914, Heymons (HUB); Algiers, 10.III.1934, Balfour-Browne (CAL); Bone [=Annabah], De Vauloger (MHNP); Philippeville, Thery (MHNP); Blidah (MHNP). TUNISIA: Tebourouk (NMW); Tetouan (MHNP); Tunis, Sahlberg (HUB). EGYPT: Ramleh (HUB); Cairo (MHNP), Ismailia (MHNP), Suez (MHNP). ISRAEL: NORTHERN NEGEV: Yerucham, 29.VIII.1979 (NMW); En Avdat, 29.IV.1982, Besuchet & Löbl (MHNG).

Distribution (Fig. 26): *Viridis* 2 with a Mediterranean type of distribution, but seems confined to North Africa, Italy, southern France, Spain and southern Israel, while *viridis* 1 is widely distributed over Europe and Turkey, but seems to be absent from North Africa. In Spain, southern France, Italy and Israel both species are found.

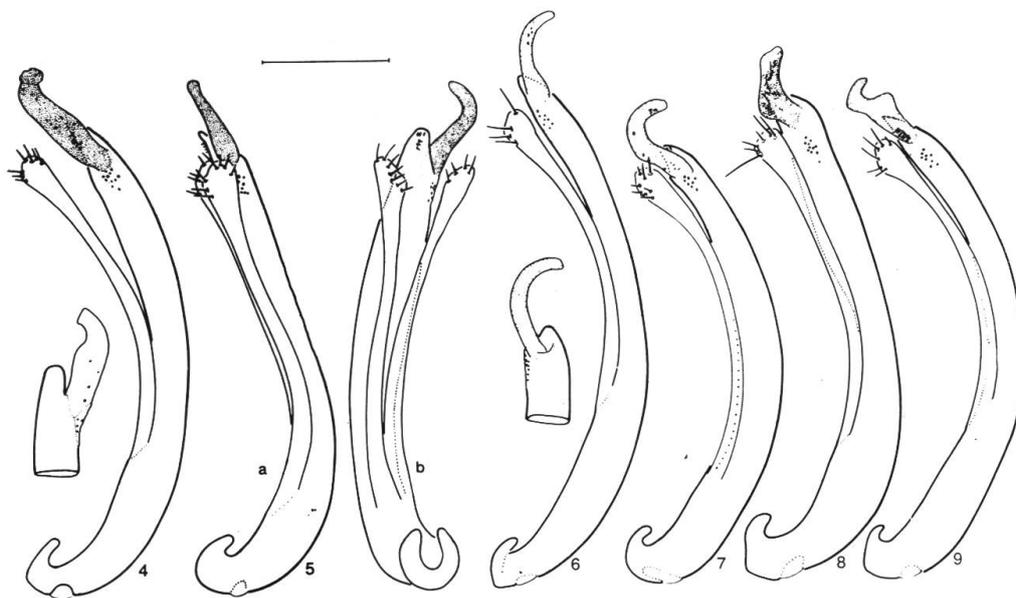
Zusammenfassung

Fündundzwanzig Arten der *Ochthebius marinus* Artengruppe werden behandelt. Lectotypen werden für *alutaceus* Reitter, *costatellus* Reitter, *crimae* Kuwert, *deletus* Rey, *fallaciosus* Ganglbauer, *glabratus* Kuwert, *guerryi* Schatzmayr, *kaszabi* Janssens, *Kuwerti* Reitter, *laevigatus* Sharp, *latiusculus* Sahlberg, *mongolensis* Janssens, *muelleri* Ganglbauer, *niloticus* Sharp, *pallidipennis* Castelnau, *peisonis* Ganglbauer, *subaeneus* Janssens und *subpictus* Wollaston designiert. Folgende neue Synonyme werden vorgestellt. *O. auropallens* (= *kermanicus* Ferro **n.syn.**), *O. costatellus* (= *kaszabi* **n.syn.**), *O. erzerumi* Kuwert (= *aladagensis* Ferro **n.syn.**), *O. evanescens* Sahlberg (= *laevigatus* Sharp **n.syn.**), *O. janssensi* Ferro (= *desertorum* Ienistea **n.syn.**), *O. lividipennis* Peyron (= *guerryi* **n.syn.** = *sahlbergi* Zaitzev **n.syn.**), *O. subpictus subpictus* (= *latiusculus* **n.syn.**), *O. subpictus deletus* Rey (= *muelleri* **n.syn.**) und *O. viridis* Peyron (= *graecus* Ienistea **n.syn.**). *Ochthebius deletus* wird als Unterart von *O. subpictus* betrachtet. *Ochthebius viridis* muss einstweilen als Komplex von mindestens 2 (wahrscheinlich 3) verschiedenen Arten aufgefasst werden. Fünf neue Arten

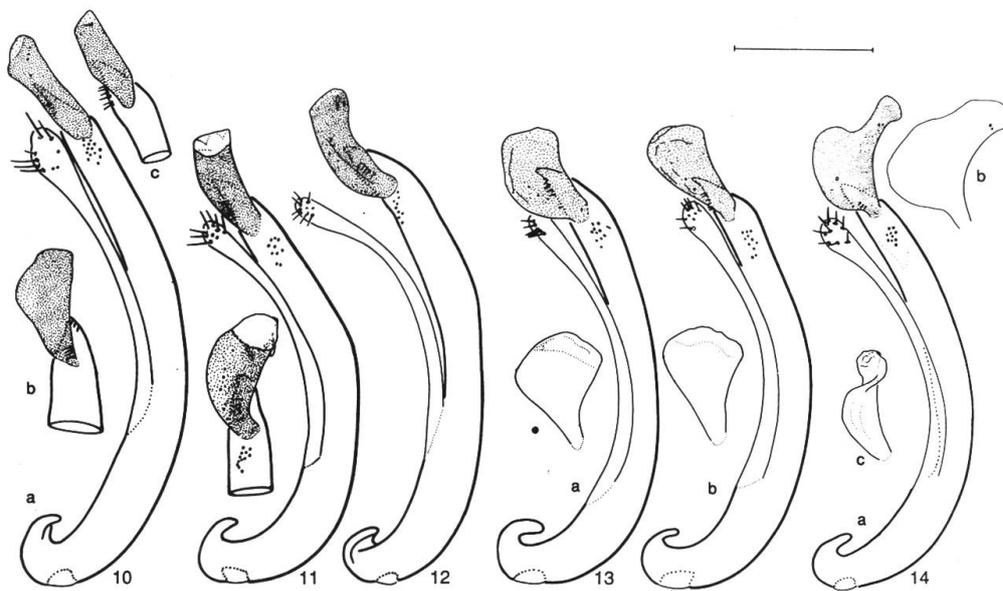
werden beschrieben: *O. arabicus* n.sp., *O. bellstedti* n.sp., *O. delhiensis* n.sp., *O. masatakasatoi* n.sp. und *O. virens* n.sp. Das männliche Genitalorgan aller Arten mit Ausnahme von *O. fissicollis* Janssens werden graphisch dargestellt.



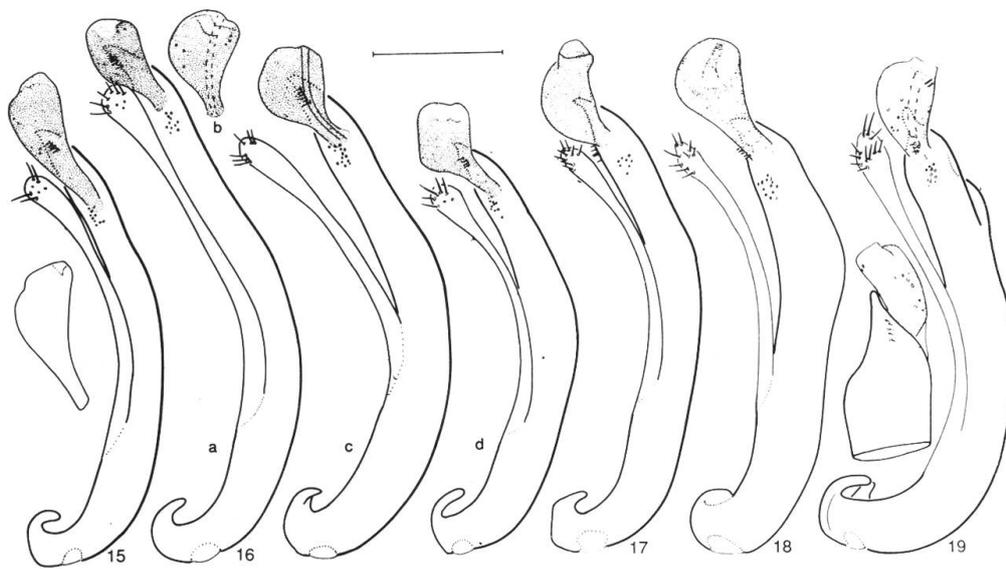
Figs. 1-3: Aedeagus: 1, *O. erzerumi*, dorso-lateral view, distal lobe with maximum outlines, Karasuk (Kazakhstan). 2, *O. janssensi*, lateral view, distal lobe with maximum outlines, Mongolia. 3, *O. kuwertii*, lateral view, Mongolia, inset: distal lobe of same in slightly different (dorso-lateral) aspect, maximum outlines.



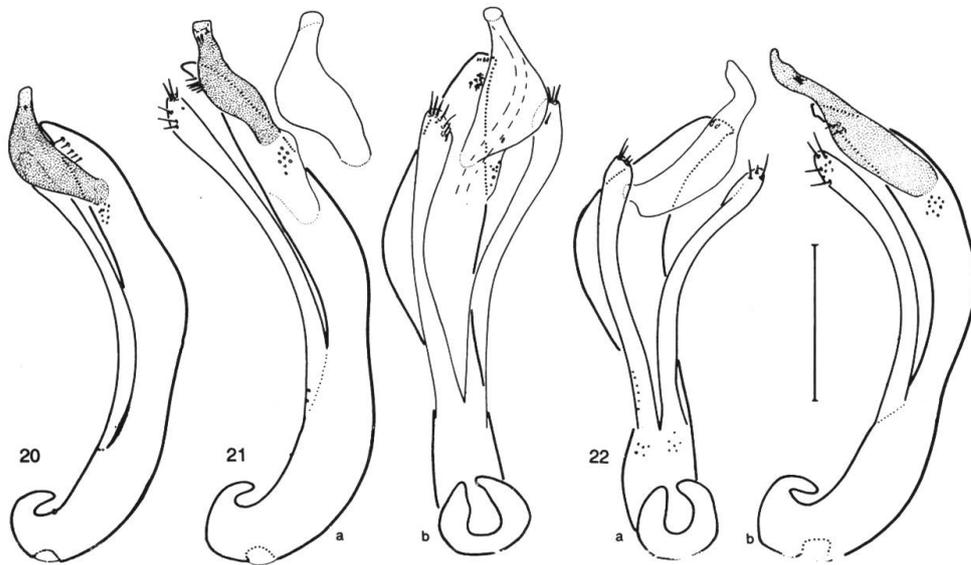
Figs. 4-9: Aedeagus: 4, *O. arabicus* n.sp., lateral view, paratype, inset: distal lobe of same in ventral view, maximum outlines. 5, *O. marinus*, Germany, (a) lateral view, (b) same specimen, ventral view. 6, *O. delhiensis* n.sp., lateral view, holotype, inset: apex of same, dorsal view, distal lobe with maximum outlines. 7, *O. masatakasatoi* n.sp., lateral view, holotype. 8, *O. bellstedti* n.sp., lateral view, holotype. 9, *O. peisonis*, lateral view, Austria. In figs. 7-9 distal lobe with maximum outlines.



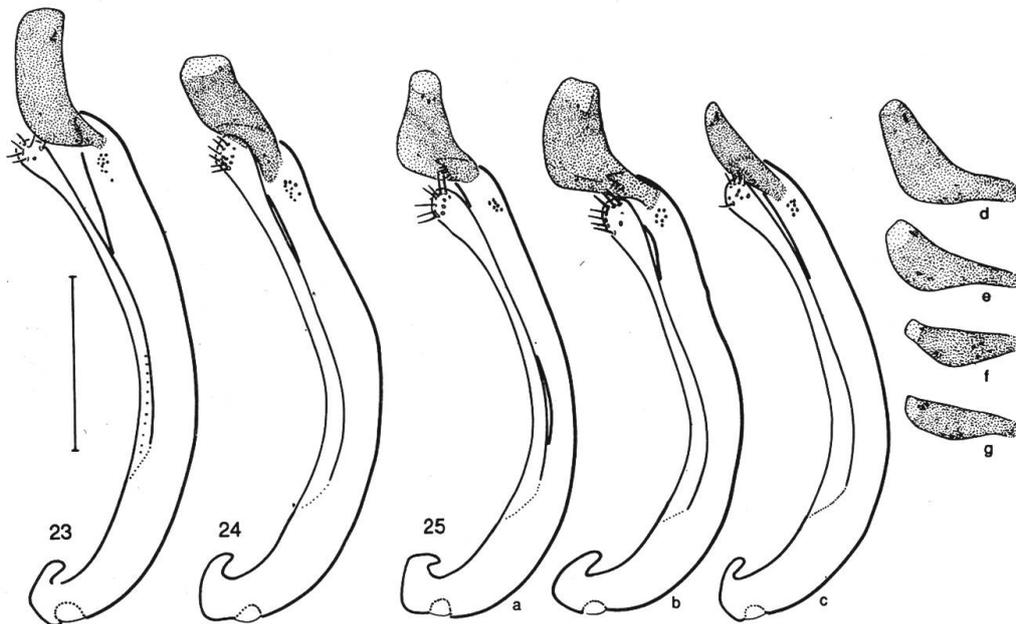
Figs. 10-14: Aedeagus, lateral view: 10, *O. meridionalis*, distal lobe with maximum outlines, (a) Austria, (b) Cadix (Spain), (c) Tunisia. 11, *O. subaeneus*, Karasuk (Siberia), inset: distal lobe with maximum outlines. 12, *O. bactrianus*, paratype, distal lobe with maximum outlines. 13, *O. mongolensis*, (a,b), two different paratypes, insets: distal lobes with maximum outlines. 14, *O. evanescens*, (a) Novosibirsk (Siberia), (b) distal lobe, Serbia, both distal lobes with maximum outlines, (c) distal lobe, ventral view, (Italy), not with maximum outlines.



Figs. 15-19: Aedeagus: 15, *O. auropallens*, lateral view, Israel, inset: distal lobe, Iran, both distal lobes with maximum outlines. 16, *O. subpictus*, lateral view, (a) lectotype (Madeira), (b) distal lobe of same, but with maximum outlines, (c) Israel, (d) Grado (Italy). 17, *O. minabensis*, lateral view, paratype, distal lobe with maximum outlines. 18, *O. lividipennis*, dorso-lateral view, Israel. 19, *O. lenensis*, dorso-lateral view, Scotland, distal lobe with maximum outlines, inset: ventral view of apex of same.



Figs. 20-22: Aedeagus: 20, *O. virens* n.sp., lateral view, holotype, distal lobe with maximum outlines. 21, *O. sp.*, Primorsky Krai (Soviet Far East) (a) lateral view, (b) distal lobe of same, but with maximum outlines, (c) ventral view of same. 22, *O. costatellus*, lectotype, (a) ventral view, (b) lateral view.



Figs. 23-25: Aedeagus, lateral aspect, all distal lobes with maximum outlines: 23, *O. pusillus*, Samsun (Turkey). 24, *O. viridis* sp.2, Tunisia. 25, *O. viridis* sp.1, (a) Viareggio (Italy), (b) Sicily (Italy), (c) Israel, (d) Netherlands, (e) Lake Van (Turkey), (f) Austria, (g) Romania.

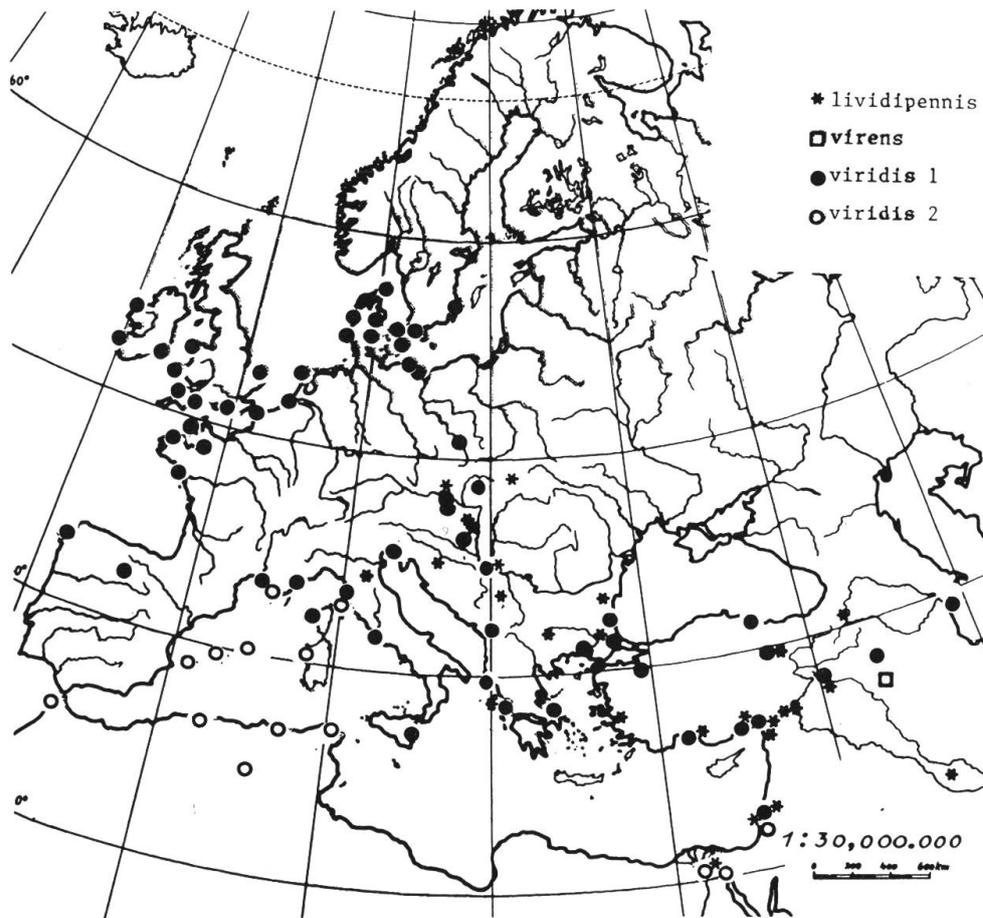


Fig. 26: Geographical distribution of *O. lividipennis*, *O. virens* and *O. viridis*.

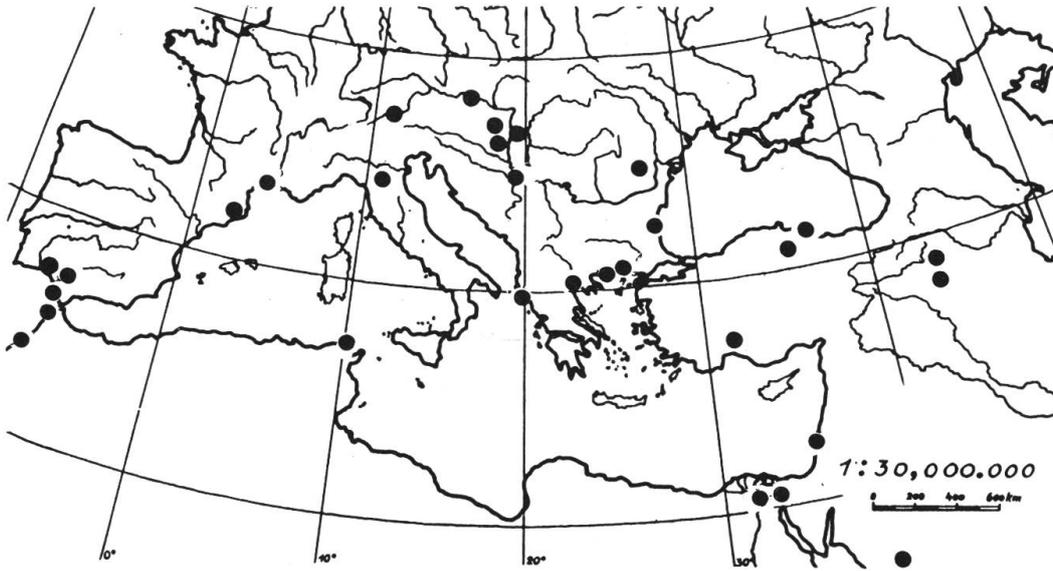


Fig. 27: Geographical distribution of *O. meridionalis*. Turkmenian locality (Ashkhabad) not shown.

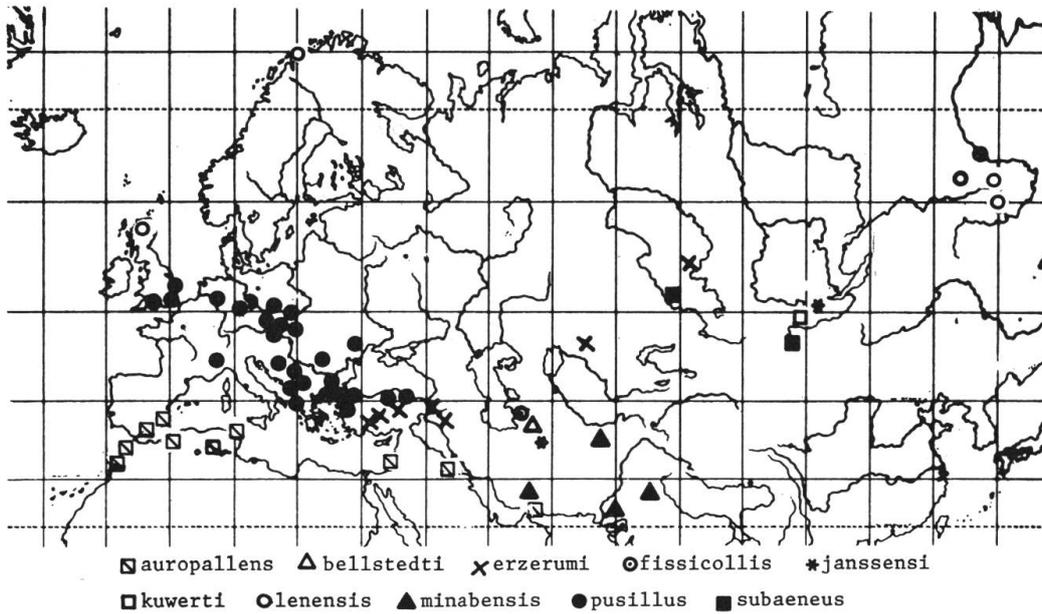


Fig. 28: Geographical distribution of *O. auropallens*, *O. bellstedti*, *O. erzerumi*, *O. fissicollis*, *O. jansseni*, *O. kuwerti*, *O. lenensis*, *O. minabensis*, *O. pusillus*, *O. subaeneus*.

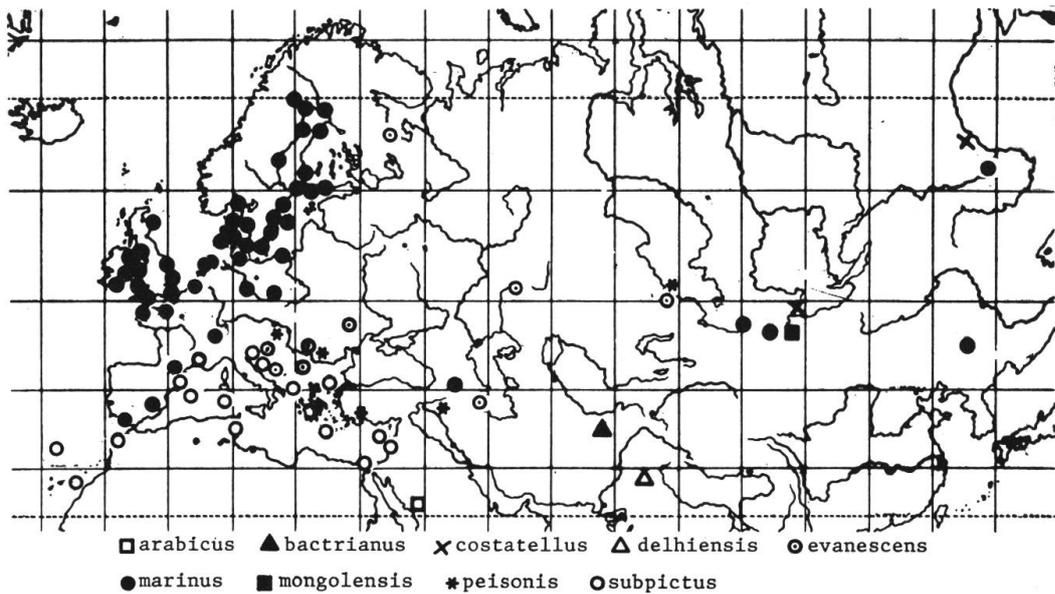


Fig. 29: Geographical distribution of *O. arabicus*, *O. bactrianus*, *O. costatellus*, *O. delhiensis*, *O. evanescens*, *O. marinus*, *O. mongolensis*, *O. peisonis*, *O. subpictus*.

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