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# Revision of the Palearctic species of the genus *Ochthebius* LEACH XXV The superspecies *O. (s.str.) viridis* PEYRON and its allies (Coleoptera: Hydraenidae)

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## Abstract

The *Ochthebius* (s.str.) *viridis* PEYRON, 1858 species complex (Coleoptera: Hydraenidae) is revised taxonomically. *Ochthebius viridis* is considered as a superspecies, which includes two semispecies: *O. viridis viridis* and *O. v. fallaciosus* GANGLBAUER, 1901. The two semispecies more or less replace each other geographically, occurring sympatrically in northeastern Italy, along the western coast of the Balcan Peninsula, and in the English Channel area (France and southern UK). While there is morphological evidence of hybridization in northeastern Italy and along the western coast of the Balcan Peninsula, the two semispecies obviously do not hybridize in the English Channel area.

Two new species are described: *O. arefniae* [Iran], *O. bernhardi* [Ponto-Mediterranean]. *Ochthebius obscurus* REY, 1885 (= *O. viridis* sp. 2 sensu JÄCH 1992) is considered as valid species. Because of homonymy, the name *O. obscurus* has to be replaced with its oldest synonym *O. viridescens* IENIȘTEA, 1988 (syn.n.). *Ochthebius fallacioviridis* IENIȘTEA, 1988, *O. obscurometallescens* IENIȘTEA, 1988, *O. pseudoviridis* IENIȘTEA, 1988, and *O. subviridis* IENIȘTEA, 1988 are proposed as new synonyms of *O. viridis fallaciosus*. *Ochthebius viridis* is recorded from Bosnia-Herzegovina and from Montenegro for the first time. One male from Saudi Arabia possibly represents another undescribed species.

**Key words:** Coleoptera, Hydraenidae, *Ochthebius viridis* complex, superspecies, semispecies, taxonomy, new species.

## Introduction

The Palearctic species of the *Ochthebius marinus* group were revised taxonomically by JÄCH (1992), who realized that *Ochthebius viridis* PEYRON, 1858 s.l. represents in fact a complex of several different species.

One of the major problems concerning the nomenclature of *Ochthebius viridis* and its allies was caused by the fact that the only syntype of *O. viridis* known to exist could not be examined despite of various efforts (see JÄCH 1992: 128).

The problems were further enhanced by IENIȘTEA (1988), who had published “provisional descriptions” of numerous new species of *Ochthebius* LEACH, at least ten of which were attributable to the *O. viridis* complex: *O. albanicus*, *O. affer*, *O. fallacioviridis*, *O. graecus*, *O. obscurometallescens*, *O. perviridis*, *O. pseudoviridis*, *O. sicilianus*, *O. subviridis*, and *O. viridescens*.

Eventually, the availability and taxonomy of Ieniștea’s species names has been a matter of debate for decades (see JÄCH 1989, 2004, HANSEN 1998), impeding a thorough taxonomic revision of the *O. viridis* complex. Accordingly, JÄCH (1992) left the *Ochthebius viridis* complex more or less unrevised. Only one species within this complex, provisionally named “*O. viridis* sp. 2”, was splitt off, but no distinct name was applied to it. Since then, the name “*O. viridis* sp. 2” (sensu JÄCH 1992) has been used in various works dealing with the ecology of *Ochthebius* (e.g. SÁNCHEZ-FERNÁNDEZ et al. 2004, ABELLÁN et al. 2004, 2006, GARRIDO & MUNILLA 2007).

At long last the syntype of *O. viridis*, deposited in the American University of Beirut, was sent to the senior author for examination in early 2008. Although this specimen turned out to be a partly mutilated female, its specific identity could be determined.

After years of discussions the availability of Ieniștea's bewildering names has finally been clarified by the hydraenidological community. Of the ten species pertaining to the *O. viridis* complex, four (*Ochthebius albanicus*, *O. affter*, *O. perviridis*<sup>1</sup>, and *O. sicilianus*) are now regarded as nomina nuda (acc. to provisions of ICZN, see e.g. HANSEN 1998: 125).

A more detailed taxonomic and nomenclatural review of the *Ochthebius viridis* complex can therefore be presented herein. Following examination of type specimens, it turned out that five of the remaining six valid names introduced by IENIȘTEA (1988) are to be regarded as junior synonyms of *O. viridis*, while the sixth is a junior synonym of *O. obscurus* REY, 1885.

Morphological studies revealed that *Ochthebius viridis* is in fact a classical example of a superspecies (as defined by MAYR 1963), to our knowledge the first one recognized in the family Hydraenidae. Apart from *O. viridis* (with its two semispecies *O. viridis viridis* and *O. v. fallaciosus* GANGLBAUER, 1901) and *O. viridis* sp. 2 (sensu JÄCH 1992), two additional species, both new to science, belong to the *Ochthebius viridis* species complex.

### Material & Methods

The material used for this study is deposited in the following collections (abbreviations are used to refer to these collections in the text):

|      |                                                                                |
|------|--------------------------------------------------------------------------------|
| AUB  | American University of Beirut, Lebanon                                         |
| CAL  | Coll. Balfour-Browne, Coll. Angus, London, UK                                  |
| CBG  | Coll. Bellstedt, Gotha, Germany                                                |
| CDM  | Coll. Delgado, Murcia, Spain                                                   |
| CES  | Coll. Elder, Sainte Marie-du-Mont, France                                      |
| CHR  | Coll. Hebauer, Rain, Germany                                                   |
| CKB  | Coll. Kodada, Bratislava, Slovakia                                             |
| CMMA | Coll. Mifsud, Malta                                                            |
| CNU  | Coll. Nilsson, Umeå, Sweden                                                    |
| CRW  | Coll. Ruta, Wrocław, Poland                                                    |
| CSG  | Coll. Sáinz-Cantero, Granada, Spain                                            |
| CSM  | Coll. Schembri, Malta                                                          |
| CSWN | Coll. Schuh, Wiener Neustadt, Austria                                          |
| CVL  | Coll. Valladares, León, Spain                                                  |
| DEI  | Deutsches Entomologisches Institut, Müncheberg [formerly: Eberswalde], Germany |
| ISNB | Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgium         |
| MHNG | Muséum d'Histoire naturelle, Genève, Switzerland                               |
| MHNL | Muséum d'Histoire Naturelle, Lyon, France                                      |
| MZF  | Museo Zoologico de "La Specola", Firenze, Italy                                |
| NMB  | Naturhistorisches Museum, Basel, Switzerland                                   |
| NMW  | Naturhistorisches Museum Wien, Austria                                         |
| SNMB | Slovenské Národné Múzeum, Bratislava, Slovakia                                 |

PL: projected length of aedeagal main piece (sensu JÄCH 1998a).

The references cited under each nominal species are certainly not complete. Please refer to KNISCH (1924) for early references.

<sup>1</sup> *Ochthebius perviridis* was not listed in HANSEN (1998), because he obviously regarded it as a misspelling of the name *O. pseudoviridis*.



Fig. 1: *Ochthebius bernhardi*, habitus, paratype from Lower Austria, Tulln, Grafenwörth.

***Ochthebius viridis* species complex**

Morphologically, *O. viridis* and its allies constitute a closely related complex of small (1.3–1.9 mm long) dark coloured (brown to black) species, often with a metallic tinge on head and pronotum; anterior labral margin entire; metaventrite pubescent. Secondary sexual dimorphism: anterior margin of male labrum medially slightly upturned, forming a tiny unpaired, medially sometimes translucent denticle, which may be very small, occasionally missing in some individuals; male protarsi very slightly expanded basally, with small adhesive setae on ventral side; female elytra usually more densely shagreened, lateral gutter slightly wider medially, apices often more acuminate than in males; abdominal tergite X of female fringed with more or less conspicuous bristles.

**Check list of the *Ochthebius viridis* complex**

|                                                                                                                                                                                                                                                              |                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| <i>Ochthebius arefniae</i> sp.n.                                                                                                                                                                                                                             | Iran                       |
| <i>Ochthebius bernhardi</i> sp.n.                                                                                                                                                                                                                            | Ponto-Mediterranean        |
| <i>Ochthebius viridescens</i> IENIŞTEA, 1988 syn.n.<br><i>O. obscurus</i> Rey, 1885 (homonym)                                                                                                                                                                | Mediterranean              |
| <i>Ochthebius viridis fallaciosus</i> GANGLBAUER, 1901<br><i>O. fallacioides</i> IENIŞTEA, 1988 syn.n.<br><i>O. obscurometallescens</i> IENIŞTEA, 1988 syn.n.<br><i>O. pseudoviridis</i> IENIŞTEA, 1988 syn.n.<br><i>O. subviridis</i> IENIŞTEA, 1988 syn.n. | Atlantic-Westmediterranean |
| <i>Ochthebius viridis viridis</i> PEYRON, 1858<br><i>O. graecus</i> IENIŞTEA, 1988                                                                                                                                                                           | Eurosiberian (relictary)   |

***Ochthebius* (s.str.) *arefniae* sp.n.**

TYPE LOCALITY: Pool with high reed at Haft-Barm [“Seven Lakes”], 75 km WNW Shiraz, 2000 m, Fars, southern Iran.

TYPE MATERIAL: **Holotype** ♂ (NMW): “IRAN: Fars, 21.9.1997 ca. 75km WNW Shiraz Haft-Barm, 2000m leg. Schödl (26a)”. **Paratypes**: 16 exs. (CDM, NMW), same locality data as holotype; 1 ♂, 1 ♀ (NMW), same locality data as holotype, except “(26b)”; 1 ♂, 1 ♀ (NMW): “IRAN: Fars, 22.9.1997 90 km NW Shiraz, 2200 m 6 km N Dalin, Cheshmeh Saran leg. Schödl (30)”.

The label notations “26a” and “26b” refer to different pools.

**DIAGNOSIS:** Length (abdomen not included): 1.3–1.6 mm. Head and pronotum dark brown to black, with greenish or cupreous metallic reflections; elytra usually brownish. Male with labral denticle, which is sometimes very small and hardly perceptible. Pronotal foveae shallowly impressed, distinctly microreticulate; disc usually glabrous, rarely more comprehensively microreticulate, superficially punctate. Elytral punctures not very deeply impressed, intervals shagreened; extension of apices variable in both sexes.

**Aedeagus** (Figs. 2, 7a): PL of main piece: 0.27–0.30 mm. Distal lobe flattened, moderately wide, recurved; dorsal margin of distal lobe rather straight in lateral view, ventral margin strongly convex; apical hyaline region opening dorsally or dorso-cranially, most specimens with a short and well sclerotized curved ridge on right side.

**DIFFERENTIAL DIAGNOSIS:** Externally, *Ochthebius arefniae* can hardly be distinguished from the other species of the *O. viridis* complex. The distal lobe of the aedeagus differs from all other species in the hyaline distal part of the distal lobe being clearly located dorsally or dorso-

cranially. In addition, there is a short and well sclerotized preapical ridge in the ventral part of the distal lobe, at least in most specimens examined.

DISTRIBUTION (Fig. 10): So far known only from southern Iran.

ETYMOLOGY: Named for Arefnia Azadeh (1979–2004), promising Iranian Coleopterist, who unfortunately passed away so early.

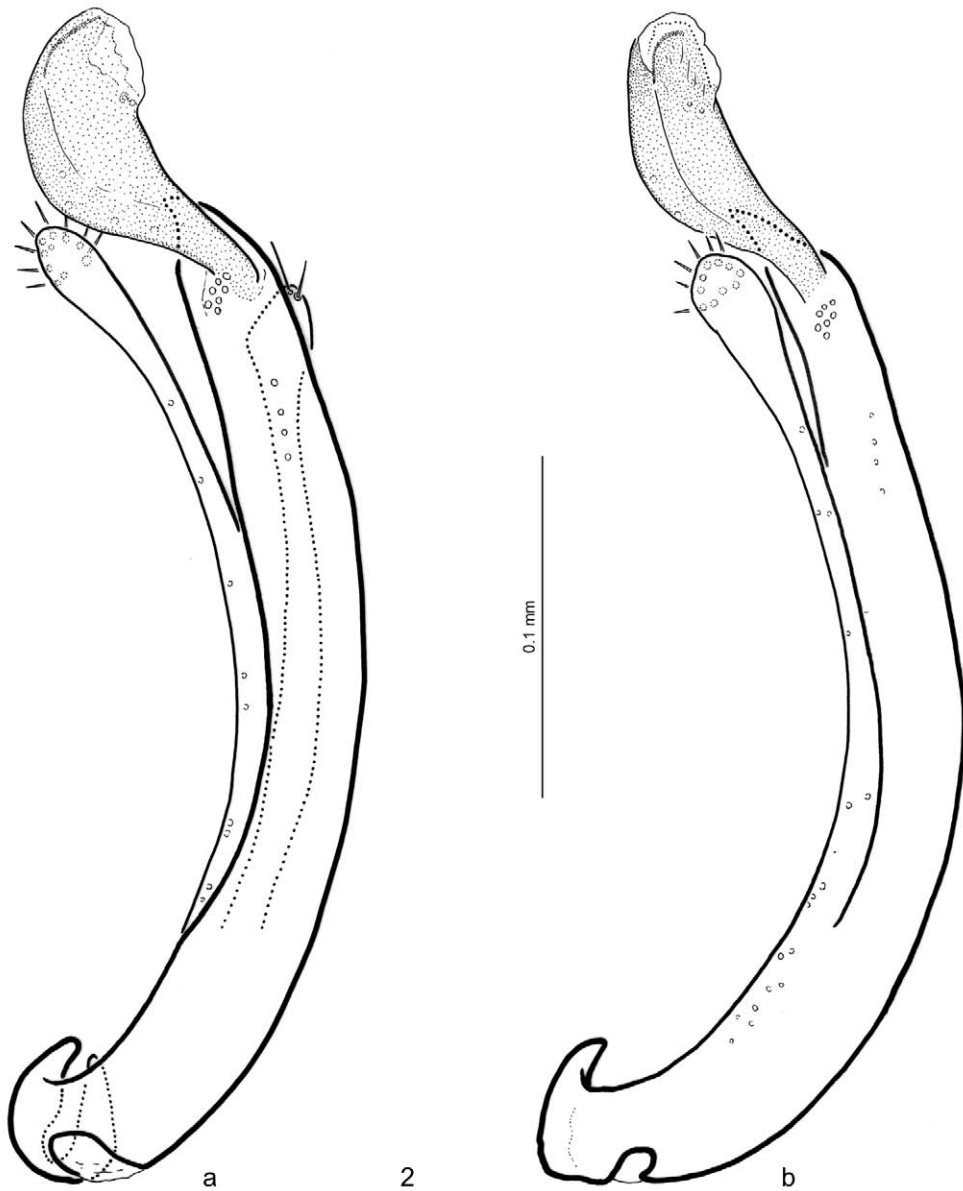


Fig. 2: Aedeagus of *Ochthebius arefniae* sp.n., paratype; a) dorsolateral view, showing maximum outlines of distal lobe, b) strictly lateral view.

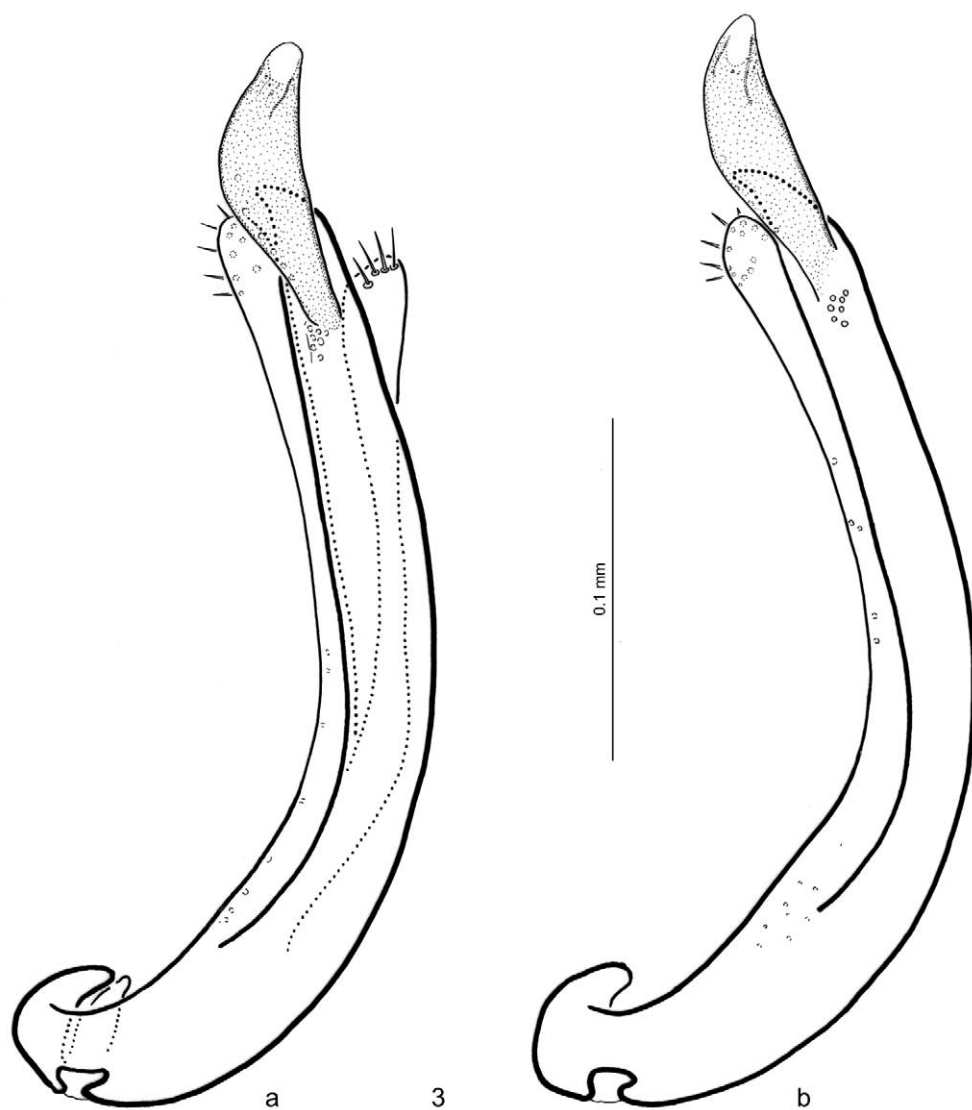


Fig. 3: Aedeagus of *Ochthebius bernhardi* sp.n., paratype from Zurndorf, Burgenland, Austria; a) dorsolateral view, showing maximum outlines of distal lobe, b) strictly lateral view.

***Ochthebius* (s.str.) *bernhardi* sp.n.**

For references of *O. bernhardi* published under the name *O. viridis*, see below under *O. viridis*.

TYPE LOCALITY: Canal ("Mühlbach"), ca. 3 m wide, not permanently flowing, richly vegetated (e.g. *Lemna* sp., *Butomus umbellatus*), surroundings: meadows and bushes; close to Nature Reserve Marchauen; ca. 1 km W Marchegg; District of Gänserndorf; eastern Lower Austria, eastern Austria; ca. 140 m a.s.l.; Coordinates: 16°53'44"E / 48°16'38"N.



TYPE MATERIAL: **Holotype** ♂ (NMW): “A. inf.: Marchegg Mühlbach 17.7.1996 leg. M. Jäch”.

**Paratypes**: 3 ♀♀ (NMW), same label data as holotype.

- A U S T R I A**: **LOWER AUSTRIA**: 1 ♀ (NMW): “Steinegg A.[ustria] inf.[erior] Bernh.[auer]”, “Collect. Minarz”; 1 ♀ (NMW): “Hadersf.[eld; District Tulln]”; 1 ♂ (NMW): “A - NÖ: Bez.[irk] [district] Tulln Kamp 2km SSW Grafenwörth 15°46'10"E 48°23'29"N 12.6.2000 leg. Jäch (1)”; 1 ♀ (NMW): “A.inf.29.7.1986 Herrnbaumgarten b.[ei] [at] Poysdorf, Jäch”; 1 ♂ (NMW): “A. inf.: Bez. Gänserndorf Stempfelbach 48°12'13"N / 16°55'13"E / 140m leg. Dietrich (3) 24.VII.2000”; 1 ♀ (NMW): “Baumgarten,A.i. 1.10.[19]61 leg.E.Gotz”; 1 ♀ (NMW): “Bisamberg”; “A. NO.: Bez.[irk = district] St. Pölten ca 2.5 km SW Spratzern 12.5.2001, 340m, leg. M. Jäch”; 1 ♀ (NMW): “AUSTRIA inf. 1995 Gramatneusiedl Umg.[ebung = surrounding] Feldweg[path on field] Spurrinne[wheeltrack] leg. Schödl 3.VI (2)”; 2 ♀♀ (NMW): “Bad Vöslau, Nieder-Donau [Lower Austria]”; 1 ♂ (NMW): “A[ustria], N[iederösterreich], Bez.[irk] Bruck/L.[eitha] ‘Biotop’ [Tümpel] S Prellenkirchen leg H. Shaverdo 6.10.2001”; 1 ♀ (NMW): “A, NÖ, Bez. Bruck/Leitha Leitha b. Bruck (1) 150m 16°48'12"E / 40°01'48"N, leg. A. Komarek 10 9 2000”; WIEN: 1 ♂ (NMW): “Wien Prater”; 1 ♂, 1 ♀ (NMW): “Gglb.[Ganglbauer] 1886 Wien”; 1 ♀ (NMW): “Umg. Wien L. Strauss”; **BURGENLAND**: 2 ♂♂, 4 ♀♀ (CDM, NMW): “Burgenland 18.6. Wismuthinsel [Wiesmath] 1986 Zurndorf leg.Jäch”; 1 ♀ (NMW): “A - BGLD: Bez. Neusiedl/See Leitha-Altarm bei Zurndorf 17°01'56"E 47°58'36"N 140 m, 27.8.2000 leg. A. & V. Komarek (1)”; 1 ♂ (NMW): “Zurndorf, Bgld.[Burgenland] H. Franz” (printed), “Burgenland Zurndorf FranzVII.1922” (handwritten); 2 ♀♀ (NMW): “Ganglbauer Neusiedl. S.”; 1 ♀ (NMW): “Neusiedler-See Burgenland” (Coll. Grundmann); 1 ♀ (NMW): “Ganglb.[auer] [18]89 Neusiedl.-see”; 1 ♀ (NMW): “Neusiedler see, Holdhaus”; 1 ♂, 1 ♀ (NMW): “Austria Bgld[Burgenland] Neus.[iedler] see Purbach 10.7.[19]84” (leg. Jäch, handwritten); 2 exs. (NMW): “Neusied.[ler] See, Pinker 2.X.[19]04” (handwritten); 1 ♂ (NMW): “Neusiedl am See Bu[r]genland, 20. 5.1936.”; 10 exs. (DEI): “Neusiedl – See Coll.A.Kniž”, and various determination labels; 2 exs. (DEI): “Hungaria Neusiedl. S. MA; A. KNIŽ”, and two determination labels; 1 ♂, 1 ♀ (NMW): “Reiser31.5. [19]57 b.[ei] Weiden Bgl.[Burgenland]”; 1 ♀ (NMW): “Burgenl.[and]2.4.[19]68 Seewinkel leg.Wewalka”; 1 ♀ (NMW): “Seewinkel (1) Zicksee, St. Andrä leg. Schödl”; 1 ♀ (NMW): “BGLD: Bez. Neusiedl/See Frauenkirchen Schottergrube, ca.125m 29.VII.08, leg.Madl”, “16°56'00"E/47°51'05"N Richtung Mönchhof”.
- C Z E C H R E P U B L I C**: **SOUTH MORAVIA**: 1 ♂ (NMW): “CZ- Mor.[avia] mer.[idionalis] (7266), Mikulov Sedlec 7.-8.5. 1999, 175 m D.S.Boukal leg.”, “Slanisko Nat. Res. salt marsh nr[near] Nesyt pond exposed shallow ditches dense subm.[erse] veg.[etation] / litter”; 2 ♂♂ (NMW): “VĚSTONICE 2. VII. 1952”.
- S L O V A K I A**: 1 ex. (CKB): Čičov, 28.IX.1985, leg. J. Kodada; 1 ex. (CKB): Čičov, 9.V.1988, leg. J. Kodada; 1 ex. (CKB): Kopáč, 9.IX.1983, leg. J. Kodada; 1 ex. (CKB): Latorica (Leles), VI.1989, leg. J. Kodada; 1 ex. (CKB): Štúrovo, VIII. 1989, leg. J. Kodada; 2 exs. (CKB): Kamenica n. Hronom, 15.VI.1990, leg. J. Kodada.
- H U N G A R Y**: 1 ♀ (NMW): “Hu.[ngaria]Occ.[idental]is Vörs Kisbalaton,1950”, “Gyékyestő 1950.XI.19”, “Vörsi árok, árvíz-futtatott”, “leg.Dr.Kaszab &Dr.L.Kovács”; 2 ♂♂ (NMW): “UNGARN: Acárd[Agárd] Velence - See 10.-13.8.1995 leg. P. Sehnal”; 2 ♂♂, 1 ♀ (NMW): “Hungaria Kalocsa”; 2 ♂♂, 2 ♀♀ (ISNB): “Kalocsa, Speiser[collector]” (handwritten); 1 ♂, 5 ♀♀ (NMW): “Speiser[collector] Kalocsa”; 4 ♂♂ (NMW): “Kalocsa” (handwritten), “collectio Kaufmann” (handwritten); 1 ♀ (NMW): “Kalocsa, Ungarn” (handwritten) (Coll. Grundmann); 3 ♂♂, 2 ♀♀ (NMW): “Hu. Keiebia[Kelebia] Halastavak”, “1962.X.18 Endrödy-Y.[ounga] [collector]”; 2 ♂♂ (NMW): “Mittel-Ungarn[Central Hungary]” (Coll. Grundmann).
- S E R B I A**: 2 ♀♀ (NMW): “FRUSKA GORA”, “Paganetti”.
- R O M A N I A**: 1 ♂, 1 ♀ (NMW): “15.v. 1959 Măcin Dobrogea”, “Rumänien”, “leg. et det., M.AI.Ieniștea” (all labels handwritten); 1 ♂ (NMW): “6.VI.1959 Babadag”, “Rumänien”.
- R U S S I A**: 2 ♂♂ (NMW): **VOLGOGRADSKAYA OBLAST**: 2 ♂♂ (NMW): “RU: Volgograd Oblast Elton River Khara Tyapaevskiy reservoir 05.2001 leg. Bergsten & Nilsson”; 2 ♂♂ (NMW): “RU: Volgograd Oblast NW of Trekhostrovskaya wheeltracks in steppe 1.5.2002 leg. A. Nilsson (No. 5)”; **ASTRACHANSKAYA OBLAST**: “SU, Astrachan Wolgadelta b[near] Olja R. Bellstedt” (upside), “9. VIII. 1989 leg. H.-J. ALTNER Salzpflütze[salt puddle]” (underside) (partly handwritten, label of second specimen with same text but different arrangement).
- G R E E C E**: **THRAKI**: 1 ♂ (NMW): “GR-THRAKI 26. 7. [19]88 Vistonis See[lake] leg.M.Jäch (22)”; 4 ♂♂, 3 ♀♀ (NMW): “GR-THRAKI 26. 7. [19]88 Ebrosebene leg. M.Jäch (23)”; 1 ♂ (NMW): “Griechenland[Greece] 1991, Ebrosebene[Ebros Plain] (2), leg. Jäch 16.v.”; 1 ♂ (NMW): “GRIECHENLAND 1991 Ebrosebene (2) leg.Schödl 16.v.”; 8 exs. (DEI): “Macedonia Vardarebene Schatzmayr Coll.O.Leonhard”, and various other labels; 2 ♂♂, 1 ♀ (SNMB): “Vardarebene Salonich[Thessaloniki] A.Schatzmayr”; 1 ♀ (ISNB): “Vardarebene Salonich A.Schatzmayr”, “72”; 3 exs. (DEI): “Salonich” (handwritten), “Schatz mayr” (handwritten), “Coll. v. Heyden”; 2 exs. (DEI): “G r a e c i a: Saloniki 2. 4. 22 W.Liebmann” (partly handwritten), “Coll. W.Liebmann Arnstadt”; **AEGEAN ISLANDS**: 1 ♀ (ISNB): “EVVIA Dokos Etang[pool] 27.v. 1930 d’Orchym.[ont]”; 1 ♀ (NMW): “GR. Kos, 16.9.2000 ca. 6km SE Kós, 30m track to Embrós Thermá leg. Jäch (16)”.
- T U R K E Y**: **AEGEAN and MEDITERRANEAN REGION**: 1 ♂ (NMW): “TR-IZMIR 22.7.[19]90 E.[ast]Seferihisar leg.Schödl (5)”; 1 ♀ (NMW): “TR-IZMIR 22.7.[19]90 W.[est]Selcuk leg.Schödl (6)”; 1 ♀ (ISNB): “Asia Minor Occid. Burnova 60 m. st [sample station] 91 16.v.[19]31 (Orch.[ymont])” (handwritten), “Met. pub.” (hand-

written); 1 ♂, 1 ♀ (ISNB): "Asia Minor Ismir[Izmir] 40 m, st. [sample station] 90, 16.v.[19]31 Orch. [ymont]"; 1 ♀ (NMW): "TR – AYDIN 29.V.1991 Millet leg. Schödl (57)"; 1 ♀ (NMW): "TURKEY: Dalyan 25.5.1992 28°39'E 36°48'N leg. Malicky"; 1 ♀ (ISNB): "As. min. Lycia: Elmali, Source 1220 m. st.[ation] 331, 27, 8-VI-[19]33 (Orchym.[ont])"; 1 ♀ (ISNB): "As. Min. Lycia: Finike maré cage. 1 m st [sample station] 322, 24-VI-[19]33 (Orchymont)", "Metast. pubes."; 1 ♀ (ISNB): "Lycia: Düdenköi affl. [tributary] Karagol 1000m st [sample station] 339, 29.vi.[19]33 (Orchym.[ont])" (handwritten); 1 ♂ (ISNB): "Asia Minor Occid., Bordan 600 m. st [sample station] 107, 27.v.[19]31 (Orchy.[mont])".

I S R A E L: 1 ♀ (ISNB) "Sarona[Sharonai]", "J. Sahlb.", "Boppe coll. Viridis"; 10 ♂♂, 14 ♀♀ (NMW): "Israel 15.8.[19]85 Neshet Quarry n.[orth of] Haifa Jäch" (handwritten); 1 ♂, 3 ♀♀ (NMW): "N-Israel 20.3.[19]85 leg. Jäch Hula Reserve" (handwritten); 2 ♂♂ (NMW): "ISRAEL 13.4. HULA Res. leg. Jäch 1986"; 2 ♂♂, 1 ♀ (NMW): "Israel 30.7.[19]85, nw. Huqq Bteha / Jäch" (handwritten); 3 ♂♂, 9 ♀♀ (NMW): "Israel 30.7.[19]85, En Aqavia Bteha / Jäch" (handwritten); 1 ♂ (NMW): "Israel 30.8.[19]85 Majrase III Bteha / Jäch" (handwritten); 1 ♀ (NMW): "ISRAEL 7.4. Bteha EinAqeb leg. Jäch 1986"; 1 ♀ (NMW): "ISRAEL 12.4. Samakh Mdg.[mouth], leg.Jäch 1986"; 3 ♂♂, 8 ♀♀ (NMW): "ISRAEL 19.7.[19]85 N.[ahal]Tabor leg. Jäch" (handwritten); 1 ♀ (NMW): "Israel 27.8.[19]85 En Yezer leg. Jäch" (handwritten).

#### ADDITIONAL MATERIAL:

R U S S I A: VORONEZHSKAYA OBLAST: 1 ♀ (NMW): "Voronezh reg., 5km NW Pavlovsk, near Kirpichy, Spring N2, leg. Prokin 24.07.2003"; VOLGOGRADSKAYA OBLAST: 2 exs. (CNU, in alcohol): Lake Tsatsa, small steppe ponds, 7.V.2002, leg. A. Nilsson; 4 exs. (CNU, in alcohol): NW of Trekhostrovskaya, wheeltracks in steppe, 1.V.2002 leg. A. Nilsson; 4 ♀♀ (ISNB): "Sarepta[near Volgograd]" (handwritten), "met. pubesc.".

DIAGNOSIS: Habitus as in Fig. 1. Length (abdomen not included): 1.3–1.6 mm, rarely 1.7 mm (few specimens from Central Europe). Head and pronotum dark brown to black, with greenish or cupreous metallic reflections; elytra usually dark brown. Male with very small labral denticle. Pronotal foveae very shallowly impressed, distinctly microreticulate; disc usually comprehensively microreticulate and very superficially punctate; very rarely with glabrous disc and distinct punctation. Elytral punctures moderately deeply impressed, intervals superficially shagreened; apices variably strongly produced.

Aedeagus (Figs. 3, 7b): PL of main piece: 0.25–0.28 mm. Distal lobe small, rather slender. Dorsal margin almost straight (lateral view), ventral margin evenly, more or less strongly convex; apex produced into a short tube.

DIFFERENTIAL DIAGNOSIS: The distinctly microreticulate and hardly punctate pronotum usually serves as a reliable distinguishing character. However, specimens with moderately strongly punctate, glabrous pronotal disc are rarely encountered (few specimens from Austria and Russia). Therefore, the distal lobe of the aedeagus must be examined to enable save identification.

DISTRIBUTION (Fig. 10): Austria to southern Russia, western Turkey and northern Israel (Galilee and Coastal Plain).

ETYMOLOGY: Named for Bernhard Jäch, first born son of the senior author.

#### *Ochthebius (s.str.) viridescens* IENIŞTEA, 1988

*Ochthebius obscurus* REY 1885: 23 (primary junior homonym of *O. obscurus* DALLA TORRE, 1877 and *O. obscurus* SHARP, 1882). – GANGLBAUER 1901, 1904. – KNISCH 1924. – JÄCH 1992. – HANSEN 1998. – JÄCH 2004.

*Ochthebius viridescens* IENIŞTEA 1988: 230 (**syn.n.**). – BORDONI et al. 2006. – HANSEN 1998. – JÄCH 2004.

"*Ochthebius viridis* sp. 2" (sensu JÄCH 1992): RIBERA & AGUILERA 1995, 1996. – ACEITUNO-CASTRO & SÁINZ-CANTERO 1996. – RIBERA & AGUILERA 1996. – RIBERA et al. 1996a, 1996b. – DELGADO & SOLER 1997. – MILLÁN et al. 1997. – MORENO et al. 1997. – SÁINZ-CANTERO & ACEITUNO-CASTRO 1997. – JÄCH et al. 1999. – BURAKOWSKI et al. 2000. – MILLÁN & AGUILERA 2000. – BENNAS et al. 2001. – MILLÁN et al. 2001a, 2001b, 2002. – VALLADARES & GARRIDO 2001. – VALLADARES et al. 2002. – SÁNCHEZ-FERNÁNDEZ et al. 2003, 2004. – CHAVANON et al. 2004. – ABELLÁN et al. 2004, 2006. – MIFSUD et al. 2004. – VALLADARES & MIGUÉLEZ 2006.

For further references referring to *O. viridescens* published under the name *O. viridis*, see below under *O. viridis*.

TYPE LOCALITY: Pyrénées-Orientales, southern France.



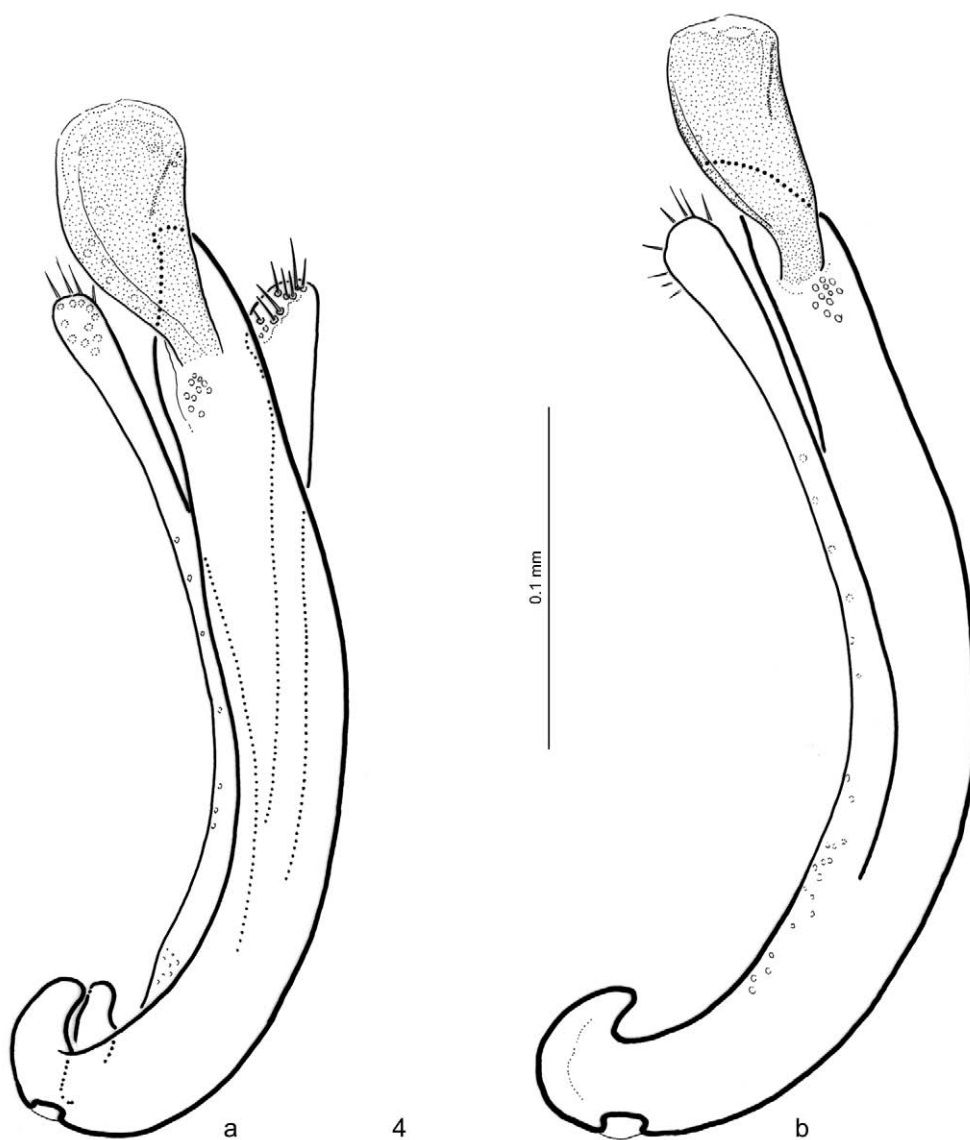


Fig. 4: Aedeagus of *Ochthebius viridescens* from Baix Empordà, Catalunya, Spain; a) dorsolateral view, showing maximum outlines of distal lobe, b) strictly lateral view.

TYPE MATERIAL: **Lectotype** ♂ (MHNL), by present designation. This specimen is provided with a small round light blue label, indicating its provenance: Pyrénées Orientales. **Paralectotypes**: There are four paralectotypes deposited in the MHNL. 1 ♂ (France, Roussillon, Pyrénées-Orientales); 2 ♀♀ (France, Provence); 1 ♀ ("var.", France, Languedoc). Their specific identity has not been examined.

NOMENCLATURE: The name *Ochthebius obscurus* REY, 1885 is a junior primary homonym of *O. obscurus* DALLA TORRE, 1877 and *O. obscurus* SHARP, 1882. According to ICZN (Art. 52.4, Art. 23.3.5) the name of a junior homonym has to be replaced by its oldest available synonym.

SYNONYMY: *Ochthebius viridescens*: **Holotype** ♂ (NMW): "Is.Capraja[Capraia Island, Toscana, Italy] alloStagnone VIII-[18]99 Doria - Gestro" (handwritten), "Museo Civ. Genova", "*Ochthebius viridescens* Ien. Holotypus ~~LEG.~~ DET.M.ALIENIȘTEA" (partly handwritten). **Paratypes**: 1 ♂ (NMW): "U. Lostia Sardinia" (handwritten), "*viridis*" (handwritten) "Collectio Kaufmann", "*Ochthebius viridescens* Ien. Paratypus ~~LEG.~~ DET.M.ALIENIȘTEA". According to the original description there should be additional paratypes in coll. Ieniștea (Bukarest, Romania).

The holotype and the paratype examined are conspecific with the lectotype of *O. obscurus*.

#### ADDITIONAL MATERIAL EXAMINED:

S P A I N: CASTILLA-LEÓN: 1 ♂ (NMW): "26:SPAIN:SEGOVIA: Cuellar: field pond: 21 April 1985"; 1 ♂, 2 ♀♀ (DEI, NMW): "Palencia Paganetti"; 3 ♂♂, 7 ♀♀ (CVL, in alcohol): "Palencia", "Laguna de la Nava-P E1-0 29.6.[19]92 L.F. Valladares Leg."; 5 ♂♂, 18 ♀♀ (CVL, in alcohol): "Palencia", "La Nava-P, E1-0 22-3-[19]92, L.F. Valladares leg."; 3 ♂♂, 2 ♀♀ (CVL, in alcohol): "Palencia", "La Nava-P, E1-0 27-9-[19]91 L.F. Valladares leg."; 13 ♂♂, 14 ♀♀ (CVL, in alcohol): "Palencia", "Besana-P, 1) 16-2-[19]99 L.F. Valladares leg."; 2 ♂♂, 8 ♀♀ (CVL, in alcohol): "Palencia", "El Deseo-P, v) 18-IX-[19]98, L.F. Valladares leg."; NAVARRA: 1 ♂ (CDM): "España Navarra Pitillas 20.07.[19]92 Barranco del Pozo 2, J.A.Régil leg."; HUESCA: 1 ♂ (CHR): "ESP-Prov. Huesca Huesca env. 24.06.2001 leg. H. Hebauer"; CATALUÑA: 1 ♂ (NMW): "E-Barcelona Baños de la Chiva leg. Garrido 25.6.[19]91" (handwritten); 3 ♂♂ (NMW): "Estany del Matà Girona Castelló d'Emp. 20-6-2001 CATALUNYA Alt Empordà M. Martinoy leg."; 1 ♂, 2 ♀♀ (NMW): "CATALUNYA Baix Empordà M. Martinoy leg.", "Bassa argilera Puig Ventós CRUÏLLES 24 - 10 - [20]01"; 1 ♂ (ISNB): "Cataluña", "metast. pubesc."; CASTILLA-LA MANCHA: 2 ♂♂, 1 ♀ (CDM): "Arroyo salado Riopar, Albacete Spain 15-sep-2005 J.A.Delgado leg."; 1 ♂ (NMW): "1.7.[19]92 (E)Ciudad R. SW Ciudad Real Los Pozuelos d. C. Rinnsal[trickle] Fery leg."; ANDALUCÍA: 1 ♀ (NMW): "ESPANA: Cadiz, 20.10.1998 WNW Zahara de la Sierra, ca. 300m leg. E. Jäch (6 + 6a)"; 2 ♀♀ (NMW): "ESPANA: Cadiz, 21.10.1998, ca. 6 km NE Alcalá de los Gazules, ca. 100m leg. M. Jäch (11)"; 1 ♂, 1 ♀ (NMW): "ESPANA: Cadiz, 22.10.1998, 21km NW Los Barrios ca. 100m leg. M. Jäch (12)"; 1 ♂, 8 ♀♀ (NMW): "ESPANA: Cadiz, 22.10.1998 W Tarifa Estuary of Rio de la Jara leg. M. Jäch (15)"; 2 ♂♂, 2 ♀♀ (CDM): "Salinas de Hortales El Bosque Cádiz 26-5-[19]96 J.A.Delgado leg."; 1 ♂ (CDM): "La Sagra Charca Granada Spain 10-5-[19]96 J.A.Delgado leg."; 1 ♂ (CSG, in alcohol): "Ayo. Pilar de la Dehesa, 40 m, afluente Cartaya-Huelva, E-63 29SPB6330 2-III-96 C.E. Sáinz-Cantero & E.M. Aceituno leg."; 1 ♂ (CSG, in alcohol): "Embalse de la Marisma, 300 m., Huelva: Nerva, E-13, 29SQB1474, 11-X-[19]94 E.M. Aceituno & C.E. Sáinz-Cantero leg."; 1 ♂ (CSG, in alcohol): "Ayo La Parrilla 200 m. Beas-Huelva E-50 29SPB9351 13-IV-95, C.E. Sáinz-Cantero & E.M. Aceituno leg."; 1 ♂ (CSG, in alcohol): "Ribera de Cala, Huelva, Sta. Olalla del cala E-10, UTM: 29SQC4701 10-X-[19]94, J.L. Cortés & C.E. Sáinz-Cantero leg."; 1 ♀ (ISNB): "Hispan. Sa. Cordoba. Arboles, aff. R.g. [affluent de la rive gauche du] R. Guadiato. St. [sample station] 17 450 m. 21.9.[19]35 Orch. [A. D'Orchymont]", "Metas. Pubesc."; MURCIA: 5 ♂♂, 3 ♀♀ (CDM): "Embalse del Quipar Murcia dep. Zoología"; BALEARES: 1 ♀ (NMW): "Ibiza Salinas Balsa 12.VI.[19]83 leg. C. Montes"; 1 ♂ (NMW): "Mallorca 17.VII. Canal de riego leg. C. Montes1983", "+3"; 1 ♀ (NMW): "MENORCA 7.8. Punta d'el [19]83 Alocs, Montes" (handwritten); 1 ♂ (NMW): "MENORCA 3.VIII.[19]83 Barranco de Al-gendar C. Montes"; 1 ♂ (CVL, in alcohol): "Mallorca", "PM 116 (27-5-[19]88)"; 1 ♂, 2 ♀♀ (CVL, in alcohol): "Menorca 11-25 31-5-[19]88"; 1 ♀ (CVL, in alcohol): "Menorca", "M1 (29-2-[19]88)"; 5 ♂♂, 4 ♀♀ (CVL, in alcohol): "Menorca M-30 4-6-[19]88"; 1 ♀ (ISNB): "Albufera Mallorca. Breit".

F R A N C E: LANGUEDOC-ROUSSILLON: 1 ♂ (NMW): "FRANCE B.-du-RH.[Bouches du Rhône] Vaccarès 19.IV.[19]64 J. STEFFEN".

I T A L Y: TOSCANA: 2 ♂♂, 1 ♀ (NMW): "Italien[Italy] Toskana[Toscana] Reg. Grosseto Lago Acquato 28.VII.1992"; 1 ex. (MZP): Piana di Guasticce, 20.IV.1996, leg. Rocchi; LATIUM: 2 ♂♂, 3 ♀♀ (NMW): "Italien, NW-Latium See hinter Dünen an [lake behind dunes at]", "Fiore-Mündg.[mouth] bei[at] Mon-talto mar., 5.VIII. 1991, leg. O.Jäger"; SARDINIA: 3 ♀♀ (NMW): "Sardinien[Sardinia]" (handwritten); SICILY: 1 ♂ (NMW): "I.[Italy]Sizilien(Palermo) Alcamo 29.6.1978 leg. Wewalka"; 3 exs. (DEI): "Catania Rottenberg".

M A L T A: MALTA: 1 ex. (CSM): Ghajn Rihana, 25.VIII.1989, leg. Schembri; 1 ex. (CMMA): Ghajn Rihana, 20.VIII.1989, leg. Schembri; GOZO: 8 exs. (CSWN, NMW): "Maltese Islands: Gozo, 1 km SSW san Lawrenz, Il-Qattara 30.3.2002, leg. Schuh & Mifsud".

M O R O C C O: 1 ♂ (NMW): "Maroc Forêt Mamora Monod 18. III. 1961 Lindberg"; 6 exs. (DEI): "Tanger Rolph".

A L G E R I A: 5 exs. (CES): "O.[ran] BONE 5 1931 Dr.Normand"; 1 ♂ (NMW): "PHILIPPEVILLE[Skikda] ALGÉRIE A. THÉRY"; 1 ♂ (NMW): "Biskra 6.IV.[19]14. R. Heymons S.", "Zool. Mus, Berlin"; 2 ♂♂, 1 ♀ (ISNB): "Biskra, mai 1898, L. Vareilles" (handwritten); 2 ♂♂, 1 ♀ (ISNB): "Biskra" (handwritten), "A. Théry coll. viridis"; 1 ♀ (ISNB): "Téniet-el-Hâad Desbrochers 1889", "W. Obey" (handwritten).

T U N I S I A: 1 ♂, 1 ♀ (CES): “T.[unisia] LE KEF 1 –1948 DR NORMAND”; 1 ♂ (NMW): “TU.[nisia]: CAP BON 5.8.[19]91 13km N M'Bouzelfa leg. Schödl (11)”; 3 ♂♂, 1 ♀ (NMW): “Teboursouk Tunisien (back side of label with B-88)” (handwritten) (Coll. Grundmann).

E G Y P T: 1 ♂ (NMW): “Ägypten[Egypt] E.[end]III.-A.[beginning]V.[19]56 W.Kühnelt”, “KOM OSCHIM 1. 5. 1956”, “FAYUM 1.5.1956”, “Schilf[*Phragmites*], “A24”; 1 ♀ (MHNG): Dahshur, 23 km S Cairo, at light, 29.V.1996, leg. W.G. Ullrich.

I S R A E L: NORTHERN NEGEV: 1 ♂ (NMW): “ISRAEL 29.8.[19]79 Yeruchám BGU 39 Col. 1070” (handwritten); 1 ♀ (NMW): “ISRAEL 5.10.[19]85 Yeruham BGU 288 col. 119702” (handwritten).

DIAGNOSIS: Length (abdomen not included): 1.5–1.8 mm. Dark brown to black, usually with greenish or cupreous metallic reflections on head and pronotum; head often darker than pronotum and elytra. Male with labral denticle, which is sometimes very small and hardly perceptible. Pronotal foveae usually very shallowly impressed, distinctly microreticulate; disc usually glabrous, rarely more comprehensively microreticulate, superficially punctate. Elytral punctures not very deeply impressed, intervals shagreened; extension of apices variable in both sexes.

Aedeagus (Figs. 4, 7c): PL of main piece: 0.29–0.30 mm. Distal lobe wide, parallel-sided in apical half, apically truncate.

The main piece is quite constant as far as its length and curvature are concerned.

DISTRIBUTION (Fig. 11): Iberian Peninsula, south-eastern France, Italy, Malta, North Africa, Israel (northern Negev).

### *Ochthebius* (s.str.) cf. *viridescens* IENIŞTEA, 1988

S A U D I A R A B I A: 1 ♂ (NMB): “Saudi Arabia 1980 W. Büttiker 17.IV” (partly handwritten), “Mt. Asir 2380 m Namas 19°11'N/42°19'E” (handwritten).

This single male from Saudi Arabia differs from the remaining specimens of *O. viridescens* by the distinctly longer main piece (0.33 mm). In addition, the distal lobe is clearly more elongate and slender. It possibly represents an undescribed taxon. Since we have seen only one male, we refrain from a formal description.

### *Ochthebius* (s.str.) *viridis* PEYRON, 1858 Superspecies

The references listed below include publications on *Ochthebius viridis* s.l. In fact, many of these publications refer to various other species of the *O. viridis* complex [names given in square brackets: a = all three species, b = *bernhardi*, vc = *viridescens*, v = *viridis*].

*Ochthebius viridis* PEYRON 1858: 404 [v]. – GANGLBAUER 1901 [a], 1904 [a]. – BREIT 1909 [vc]. – TENENBAUM 1915 [vc]. – KNISCH 1924 [a]. – FUENTE 1925 [vc]. – WINKLER 1925 [a]. – GRIDELLI 1926 [vc]. – ORCHYMONT 1927 [vc], 1935 [vc], 1940 [b, v], 1943 [a]. – BOSCA BERGA 1932 [v]. – F. BALFOUR-BROWNE 1938 [v]. – J. BALFOUR-BROWNE 1939 [b]. – ROUBAL 1941 [b]. – HORION 1949 [a], 1951 [a]. – F. BALFOUR-BROWNE 1958 [v], 1962 [v]. – GUÉORGUIEV 1958 [b, v]. – KOCHER 1958 [vc, v]. – CHIESA 1959 [vc, v]. – BRAKMAN 1966 [v]. – ENDRÖDY-YOUNGA 1967 [b]. – IENIŞTEA 1968a [b, v], 1968b [b, v]. – FRANZ 1970 [b]. – GUÉORGUIEV 1971 [v]. – LOHSE 1971 [b, v]. – FOSTER 1972 [v]. – IENIŞTEA 1974 [b]. – BANGSHOLT 1975 [v]. – ALFIERI 1976 [vc]. – BURAKOWSKI et al. 1976 [v]. – IENIŞTEA 1978 [a]. – J. BALFOUR-BROWNE 1979 [vc, v]. – BANGSHOLT et al. 1979 [v]. – FERRO 1979 [vc, v]. – ENDRÖDI 1981 [b]. – PIRISINU 1981 [vc (aed.ill.), v]. – MONTES et al. 1982 [v]. – NIEUKERKEN 1982 [v]. – FERRO 1983 [b]. – MONTES & RAMÍREZ 1983 [v]. – MOL 1984 [v]. – MOUBAYED 1986 [b, v]. – VALLADARES 1986 [v]. – BELLSTEDT & MERKL 1987 [b]. – GRÄF 1987 [v]. – HANSEN 1987 [v]. – LUCHT 1987 [b, v]. – PONS 1987 [vc]. – FOSTER 1988 [v]. – FRIDAY 1988 [v]. – IENIŞTEA 1988 [b, v]. – VALLADARES 1988 [v]. – JÄCH 1989 [v], 1992 [a], 1994 [b]. – FOSTER 1990 [v]. – GALEWSKI 1990 [a]. – DÍAZ PAZOS 1991 [v]. – GERECKE 1991 [vc, v]. – VALLADARES & MONTES 1991 [vc, v]. – DROST et al. 1992 [v]. – FOSTER et al. 1991 [v], 1992 [v]. – SILFVERBERG 1992 [v]. – DÍAZ & OTERO 1993 [v]. – ŘIHA & JELÍNEK 1993 [b]. – STEENBERGEN 1993 [v]. – GARRIDO et al. 1994a [v], 1994b [vc]. – VALLADARES et al. 1994 [vc]. – ZIEGLER et al. 1994 [v]. – AUDISIO et al. 1995 [vc, v]. – JÄCH & MOOG 1995 [b]. – LUNDBERG 1995 [v]. – ACEITUNO-CASTRO & SÁINZ-CANTERO 1996 [v]. – GARRIDO et al. 1996 [v]. – HAASE 1996 [v]. – HANSEN 1996a [v], 1996b [v]. – MERKL 1996 [v]. – NIEDRINGHAUS 1996 [v]. – RIBERA & AGUILERA 1996 [vc]. – RIBERA et al. 1996a [v], 1996b [v]. – SZÉL 1996 [b]. – ANDERSON et al. 1997 [v]. –

CASTRO LUQUE 1997 [vc]. – GALLARDO et al. 1997 [vc]. – MILLÁN et al. 1997 [vc]. – MORENO et al. 1997 [vc]. – NELSON 1997 [v]. – PONEL 1997 [?vc, ?v]. – SÁINZ-CANTERO et al. 1997 [vc, v]. – SÁINZ-CANTERO & ACEITUNO-CASTRO 1997 [vc], 1998 [vc]. – ASHE et al. 1998 [v]. – GEISER 1998 [v]. – HANSEN 1998 [a]. – JÄCH 1998b [b, v]. – NELSON et al. 1998 [v]. – ROCCHI et al. 1998 [?vc]. – CSABAI & SZÉL 1999 [b]. – FERRO 1999 [v]. – HESS et al. 1999 [v]. – JÄCH & AVTZIS 1999 [b, v]. – JÄCH et al. 1999 [vc]. – RIBERA et al. 1999 [vc, v]. – SZÉL 1999 [b]. – TRÁVNÍČEK et al. 1999 [b]. – VALLADARES & GARCÍA-AVILÉS 1999 [vc]. – BURAKOWSKI et al. 2000 [vc, v]. – GÄRDENFORS 2000 [v]. – BENNAS et al. 2001 [vc]. – MILLÁN et al. 2001a [vc], 2001b [vc], 2002 [vc, v]. – VALLADARES & GARRIDO 2001 [vc]. – GALLARDO MAYENCO 2002 [vc]. – SZÉL 2002 [b]. – VALLADARES et al. 2002 [vc]. – CASTRO et al. 2003 [v]. – ELDER 2003 [?v]. – GREENWOOD & WOOD 2003 [v]. – JÄCH & MOOG 2003 [b]. – KODADA et al. 2003 [b]. – CHAVANON et al. 2004 [vc]. – SÁNCHEZ-FERNÁNDEZ et al. 2003 [vc], 2004 [vc]. – ABELLÁN et al. 2004 [vc]. – GARRIDO & SÁINZ-CANTERO CAPARRÓS 2004 [v]. – JÄCH 2004 [a]. – MIFSUD et al. 2004 [vc]. – PRZEWOŻNY 2004 [vc]. – QUENEY 2004 [va, v]. – SILFVERBERG 2004 [v]. – CUPPEN & DROST 2005 [v]. – FOSTER 2005 [v]. – JÄCH et al. 2005 [b]. – MILLÁN et al. 2005 [v]. – ABELLÁN et al. 2006 [vc]. – DENK et al. 2006 [b]. – HENDRICH & MÜLLER 2006 [v]. – VALLADARES & MIGUÉLEZ 2006 [vc]. – GARRIDO & MUNILLA 2007 [v].

*Ochthebius viridis* represents a classical example of a superspecies (sensu MAYR 1963). It includes two semispecies more or less replacing each other geographically: *Ochthebius viridis fallaciosus* and *O. v. viridis*.

Probably, *O. viridis* was once widely distributed in the western Palearctic Region. Eventually, one or several southwest European population(s) became isolated geographically (= *O. viridis fallaciosus*) from the main population. After some time of geographic and genetic isolation *O. viridis fallaciosus* and *O. v. viridis* enlarged their distribution areas and finally met again, namely at two widely separated locations: 1) northeastern Italy and western Balcan Peninsula, and 2) both sides of the English Channel. *Ochthebius viridis fallaciosus* and *O. viridis viridis* obviously are not able to hybridize in the Channel area, where both semispecies now occur sympatrically, without any trace of gene-flow. In contrast, there is sufficient morphological evidence to assume that *O. v. fallaciosus* and *O. v. viridis* hybridize (at least partly) in northern Italy and in the western Balcan Peninsula (see Fig. 13). In at least one locality in the hybridization zone (Zadar, Croatia), both semispecies seem to occur together, based on aedeagal examination (see Fig. 9e).

In the “material examined” section below, specimens from the transition zone are arbitrarily assigned to *Ochthebius v. viridis*, unless their aedeagi are clearly attributable to *O. v. fallaciosus*.

### *Ochthebius viridis fallaciosus* GANGLBAUER, 1901

*Ochthebius viridis fallaciosus* GANGLBAUER 1901: 321. – GANGLBAUER 1904. – KNISCH 1924. – WINKLER 1925. – GRIDELLI 1926. – ORCHYMONT 1929, 1935, 1943. – HORION 1949, 1951. – CHIESA 1959. – IENIȘTEA 1968b, 1978, 1988. – FRANZ 1970. – LOHSE 1971. – GUÉORGUIEV 1971. – BURAKOWSKI et al. 1976. – JÄCH 1992. – HANSEN 1998. – JÄCH 2004.

*Ochthebius fallacioviridis* IENIȘTEA 1988: 231 (**syn.n.**). – JÄCH 1989. – HANSEN 1998. – QUENEY 2004. – JÄCH 2004.

*Ochthebius obscurometallascens* IENIȘTEA 1988: 230 (**syn.n.**). – JÄCH 1989. – HANSEN 1998. – QUENEY 2004. – JÄCH 2004.

*Ochthebius pseudoviridis* IENIȘTEA 1988: 230 (**syn.n.**). – JÄCH 1989. – HANSEN 1998. – JÄCH 2004.

*Ochthebius subviridis* IENIȘTEA 1988: 230 (**syn.n.**). – JÄCH 1989. – HANSEN 1998. – QUENEY 2004. – JÄCH 2004.

TYPE LOCALITY: Zadar, Dalmatia, Croatia.

TYPE MATERIAL: **Lectotype** ♂ (NMW), des. by JÄCH (1992): “Umg. Zara [= Zadar, Croatia] Müller”, “v. fallaciosus”, “Ochth. pseudoviridis ~~LEG.~~ Ien. DET.M.AL.IENIȘTEA” (partly handwritten), “Holotypus”, “Paralectotypus Ochth. fallaciosus Ganglb. det.M.Jäch 1989” (partly handwritten). Aedeagus depicted in Fig. 9c. **Paralectotypes**: 3 ♂♂, 2 ♀♀ (NMW) from the same series as the lectotype; 14 exs. (NMW): “Mus.Genua Viareggio[Toskana, Italy]”, “v. fallaciosus” (handwritten) resp. “Viareggio Dodero Mus.Gen”, “v. fallaciosus”; 1 ♂ (NMW): “Corse”, “Ochth. obscurus” (handwritten), “v. fallac.” (handwritten), “Ochthebius obscurometallascens Ien Holotypus ~~LEG.~~ DET. M.AL.IENIȘTEA” (partly handwritten), “Paralectotypus Ochth. fallaciosus Gglib. det.M.Jäch 1989” (partly handwritten); 1 ♀ (NMW): “Corse”, “obscurus” (handwritten), “v. fallac.” (handwritten), “Ochthebius obscurometallascens Ien. Paratypus ~~LEG.~~ DET. M.AL.IENIȘTEA” (partly handwritten), “Paralectotypus Ochth. fallaciosus Gglib. det.M.Jäch 1989” (partly handwritten).

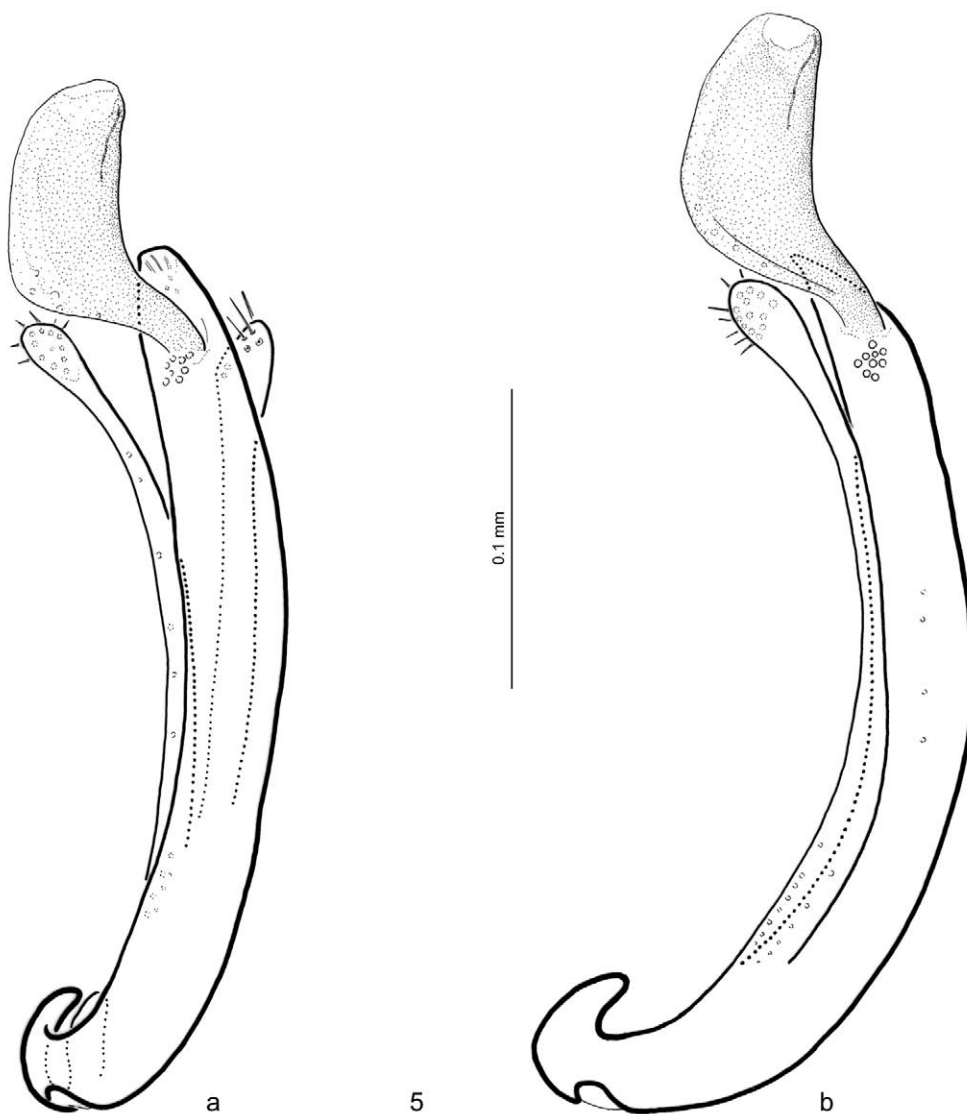


Fig. 5: Aedeagi of *Ochthebius viridis fallaciosus*; a) from Gatteville-le-Phare, Basse Normandie, France, in dorsolateral view, b) from Doñana, Huelva, Spain, in strictly lateral view.

Although the lectotype is from the hybridization zone, we assign it to the Atlantic-Westmediterranean semispecies because of the shape of its aedeagus. The aedeagi of three male paralectotypes from the type locality can be attributed to *O. viridis viridis*, the remaining nine specimens are females. The remaining paralectotypes listed above clearly belong to *O. viridis fallaciosus*.

Additional paralectotypes should be deposited in coll. Ieniștea (Bukarest, Romania) and probably in other museum collections.

SYNONYMY: *Ochthebius fallacioviridis*: **Holotype** ♂ (NMW): “Le Croisic (Loire inf.) Deville”, “Ochth. fallacioviridis LEG. Ien. DET.M.AL.IENIȘTEA” (partly handwritten), “Holotypus” (handwritten). **Paratypes**: 1 ♀ (NMW): “Le Croisic (Loire inf.) Deville”, “Ochth. fallacioviridis ~~LEG.~~ Ien. DET.M.AL.IENIȘTEA” (partly handwritten),



“Paratypus” (handwritten); 1 ♀ (NMW): “Morlaix [Bretagne, NW France] E.Hervé”, “Guillebeau” (handwritten), “Ochthebius obscurus Rey” (handwritten), “obscurus” (handwritten), “Ochth. fallaciiviridis ~~LEG.~~ Ien. DET.M.AL.IENIȘTEA” (partly handwritten), “Paratypus” (handwritten). Additional paratypes should be deposited in coll. Ieniștea (Bukarest, Romania).

The aedeagus of the holotype is damaged, but it can still be assigned to *O. viridis fallaciosus*. The paratypes cannot be identified with certainty, but they probably belong to *O. viridis fallaciosus*.

*Ochthebius obscurometallescens*: **Holotype** ♂ (NMW): “Corse”, “Ochtheb. obscurus” (handwritten), “v. fallac.” (handwritten), “Ochthebius obscurometallescens Ien Holotypus ~~LEG.~~ DET. M.AL.IENIȘTEA” (partly handwritten), “Paralectotypus Ochth. fallaciosus Ggbl. det.M.Jäch 1989” (partly handwritten). **Paratypes**: 1 ♀ (NMW): “Corse”, “obscurus” (handwritten), “v. fallac.” (handwritten), “Ochthebius obscurometallescens Ien. Paratypus ~~LEG.~~ DET. M.AL.IENIȘTEA” (partly handwritten), “Paralectotypus Ochth. fallaciosus Ggbl. det.M.Jäch 1989” (partly handwritten); 1 ♂ (NMW): “Roscoff.[Bretagne, NW France]” (handwritten), “Ochthebius obscurus Muls.” (handwritten), “obscurus” (handwritten), “viridis” (handwritten), “Ochthebius obscurometallescens Ien. Paratypus ~~LEG.~~ DET.M.AL.IENIȘTEA” (handwritten). Additional paratypes should be deposited in coll. Ieniștea (Bukarest, Romania).

All specimens belong to *O. viridis fallaciosus*.

*Ochthebius pseudoviridis*: **Holotype** ♂ (NMW) = lectotype of *O. viridis fallaciosus* (see above). *Ochthebius pseudoviridis* is an objective junior synonym of *O. viridis fallaciosus*. **Paratypes**: According to the original description there are seven paratypes from the type locality in NMW and coll. Ieniștea (Bukarest, Romania). Two of these were traced in the NMW. They are unidentifiable females.

The illustration of the aedeagus (see IENIȘTEA 1988: Fig. 2) does not agree with the aedeagus of the holotype. Obviously, IENIȘTEA (1988) seems to have depicted a specimen of *O. v. viridis* (possibly one of the paratypes of *O. pseudoviridis* in coll. Ieniștea). Furthermore, the caption for Fig. 2 in IENIȘTEA (1988) erroneously reads “*perviridis* Ien. n.sp.” (= nomen nudum) instead of *O. pseudoviridis*.

*Ochthebius subviridis*: **Holotype** ♂ (NMW): “Bellegarde[SE of Nîmes, Gard, southern France] 2-X.1828 J.THEROND<sup>2</sup>” (partly handwritten), “Ochthebius a. fallaciosus” (handwritten), “Ochthebius subviridis Ien. Holotypus ~~LEG.~~ DET.M.AL.IENIȘTEA” (partly handwritten). **Paratypes**: 2 ♀ ♀ (NMW): “Bellegarde 02.X.1828 J.Therond” (handwritten), “Ochthebius subviridis Ien. Paratypus ~~LEG.~~ DET.M.AL.IENIȘTEA” (partly handwritten). Additional paratypes should be deposited in coll. Ieniștea.

The holotype lacks the distal lobe. However, Fig. 4 in IENIȘTEA (1988) closely resembles other specimens from south-eastern France. Therefore we formally synonymize *Ochthebius subviridis* with *O. viridis fallaciosus*.

Note: We have not examined the “type material” of *O. affter* [Morocco] and *O. sicilianus* [Sicily], two nomina nuda created by IENIȘTEA (1988). Suggesting from the illustrations provided by IENIȘTEA (1988) they all belong to *O. viridis fallaciosus*.

#### ADDITIONAL MATERIAL EXAMINED:

UNITED KINGDOM: WALES: 1 ♂ (CAL): “Gower Lane, CR. 29.VII.1940”; 1 ♀ (CAL): “Pont-y-Carw. CR. 21.IX.1940”; 6 ♂ ♂, 3 ♀ ♀ (CAL): “VC41” [Glamorgan near Swansea, South Wales]; 6 exs. (NMW): “UK: Wales Porth-y-garan 27.7.2001 (SH 258 769) leg. J. H. Brutton[Bratton]”; ENGLAND: 2 ♂ ♂, 1 ♀ (CAL): “VC9” [Dorset]; 1 ♂ (CAL): “VC10” [Isle of Wight].

FRANCE: BRETAGNE: 5 exs.: (CES): “Ft de CHARNAC Morbihan 31.III 1975 R Constantin” (handwritten); BASSE NORMANDIE: 3 ♂ ♂ (NMW): “Manche, Le Phare GATEVILLE[Gatteville-le-Phare] 17-X-2002 JF.Elder”; 4 exs. (CES, NMW): “Manche, tourbière St Georges de Bohon 17 - XI - 2003 J.-F. Elder”; 1 ♂ (CES): “MANCHE: BARFLEUR sebtier littoral flaque saumatre 19-7-[19]92,Constantin”; ÎLE-DE-FRANCE: 1 ♂ (ISNB): “Gargan 17.4.[18]98 S.O. F<sup>2</sup> [SW of Forêt de] Bondy” (handwritten), “Met. pubesc.” (handwritten). 2 ♂ ♂ (NMW): “FRANCE B.-du-RH.[Bouches du Rhône] Vaccarès 19.IV.[19]64 J. STEFFEN”, “Ochthebius viridis Peyr. det. M. AL. Ieniștea”; LIMOUSINE: 1 ♂ (CAL): “France Vi, Forêt de Moulière Pinail 8.vii.2000 R.B. Angus”; PYRÉNÉES-ORIENTALES: 5 exs. (CES, NMW): “Pyr. Or. St Cyprien Marais env Mas d’Uston 25-07-2003 JF.Elder”; LANGUEDOC-ROUSSILLON: 4 exs. (SNMB): “Bellegarde 2-X.1828 J.THEROND” (partly handwritten); CORSICA: 13 exs. (CES, NMW): “Corse, Serra di Ferro Etang de Tanchiccia 22-04-2003 JF.Elder”.

<sup>2</sup> Jean Thérond, 1899–1987, born in Nîmes, extensively worked on the beetle fauna of the Camargue and Gard in the 1920s.



- S P A I N: GALICIA: 2 ♂♂, 1 ♀ (NMW): “Padrón S-5 01-07-[19]86”, “leg. E. SOSA”; NAVARRA: 3 ♂♂, 1 ♀ (NMW): “E - Navarra Laguna de las Cañas 21.VI.[19]91, leg. J. Garrido” (handwritten); ANDALUCÍA: 5 ♂♂, 15 ♀♀ (CDM): “Lucio Palacio Doñana Huelva Spain 23-9-[19]71 A.Soler leg.”; 6 ♂♂, 16 ♀♀ (CSG, in alcohol): “Laguna de Moguer Huelva 0 metros 29SQB0013 16-IV-95 J.L. Cortés & C.E. Sáinz-Cantero leg.”; VALENCIA: 1 ♂ (CDM): “Torrente Valencia (Hispania) F. Bosca Berga”.
- I T A L Y: SARDINIA: 2 ♂♂, 3 ♀♀ (NMW): “Oristano Ins.[el] Sardinien” (handwritten) (Coll. Grundmann); 1 ♂ (ISNB): “Golfo Aranci Sard.[inia] A. Doderò”; FRIULI-VENEZIA GIULIA: 8 ♂♂, 18 ♀♀ (NMW): “Grado Bernhauer”; 3 ♀♀ (NMW): “Sistiana.Strand[beach] Seegrass[sea grass],5.VII.[19]34” (handwritten), “Coll. Minarz”; 1 ♀ (NMW): “Sistiana 5 7-[19]34” (handwritten), “Collect. Minarz”; SICILY: 1 ♂ (NMW): “Sicilien [Sicily] Lago di Lentini.28.3.[19]42.”; 1 ♂ (NMW): “I.[taly]Sizilien(Palermo) Alcamo 29.6.1978 leg. Wewalka”; 1 ♀ (NMW): “Sicil.” (handwritten).
- G R E E C E: IONIAN ISLANDS: 1 ♂, 1 ♀ (NMW): “Corfu”, “J.Sahlb.”, “Coll. Hampe”.
- M O R O C C O: 4 ♀♀ (NMW): “Marokko centr. 1994 Azrou, 6.6., 1000m Lac. Affenourir leg. O. Majzlan”; 1 ♂ (NMW): “8 Marruecos[Morocco] 1.iv.[19]97 a 25 km de Aïn-Leuh, Lac Afenourir desvío cta.[detour road n°] 3390”; 1 ♀ (ISNB): “Timahdit [Timahdit]” (handwritten).

DIAGNOSIS: Length: 1.4–1.8 mm (rarely up to 1.9 mm: specimens from Morocco). Dark brown to black, usually with greenish or cupreous metallic reflections on head and pronotum; head often darker than pronotum and elytra. Anterior margin of male labrum usually slightly upturned, often forming a tiny denticle, which is sometimes very small and hardly perceptible or totally absent. Pronotal foveae usually moderately deeply impressed, distinctly microreticulate; disc glabrous or more or less comprehensively microreticulate, usually superficially punctate. Elytral striae superficially to moderately deeply impressed, intervals more or less strongly shagreened.

Aedeagus (Figs. 5, 7d, 8a, 9d): PL of main piece: 0.26–0.31 mm. Distal lobe very variable in size; ventral margin very strongly curved (subangulate) in lateral view; apex truncate.

VARIABILITY: In their external characters, specimens from Grado (Italy) deviate conspicuously from “typical” specimens. In the Grado population the entire pronotum is distinctly punctate, often without any trace of microreticulation; the pronotal foveae are deeply impressed, laterally demarcated by sharply impressed furrows. The labral tooth of the males is usually lacking. Especially these (almost *Ochthebius pusillus*-like) specimens from Grado, together with some other peculiar specimens from Corsica and Dalmatia prompted GANGLBAUER (1901) to describe his “var. fallaciosus”.

While the shape of the aedeagus is generally rather constant in most species of this complex, the aedeagus of *O. viridis fallaciosus* is most variable. There seems to be a clinal gradient from west to east as far as the size of the distal lobe is concerned. Along the western fringe of the distribution, the distal lobe is much larger than in southeastern specimens. The width of the apex of the distal lobe varies as well, being quite distinctly attenuate in specimens from Sardinia. The aedeagal main piece varies as well, being sometimes more angulate, sometimes more regularly curved. Specimens from Morocco and the Pyrenees are characterized by very long distal lobes.

DISTRIBUTION (Figs. 10, 13): Ireland, UK, France (incl. Corsica), Iberian Peninsula, Italy (incl. Sardinia, Sicily), Croatia, Greece (Corfu) and Morocco.

DISCUSSION: The size reduction of the distal lobe from west to east is obviously due the genetic influence from the narrow-lobed nominotypical semispecies. The remarkable morphology of the population from Grado probably can be explained by hybridization.

### *Ochthebius viridis viridis* PEYRON, 1858

*Ochthebius viridis* PEYRON 1858: 404.

*Ochthebius graecus* IENIȘTEA 1988: 231. – JÄCH 1989. – HANSEN 1998. – JÄCH 2004.

TYPE LOCALITY: Tarsus, southern Turkey.

TYPE MATERIAL: **Syntype** ♀ (AUB): “Tarsous[Tarsus, southern Turkey]” (printed), “Syntype ♀ *Ochthebius viridis* PEYRON vid. JÄCH 2008” (handwritten). The right elytron, parts of the legs and the entire abdomen are missing. Number of syntypes unknown.

Due to its pronotal features (type of shagrination and punctuation) this specimen can be identified properly. Because of its poor condition and due to its sex we refrain from a lectotype designation.

SYNONYMY: *Ochthebius graecus*: **Holotype** ♂ (NMW): “Corfu”, “J. Sahlb.”, “Collect. Hauser”, “*Ochthebius graecus* Ien. ~~LEG.~~ DET.M.ALI. IENİŞTEA”, “Holotypus”.

The holotype of *O. graecus* is conspecific with the holotype of *O. viridis*.

Note: We have not examined the “holotype” of *O. albanicus* [Albania], a nomen nudum created by IENİŞTEA (1988). Suggesting from the illustrations provided by IENİŞTEA (1988) it belongs to *O. viridis*.

#### ADDITIONAL MATERIAL EXAMINED:

UNITED KINGDOM: SE ENGLAND: 1 ♂, 1 ♀ (CAL): “Piddinghoe Ex.[East Sussex] 21.III.1938”.

FRANCE: BASSE NORMANDIE: 1 ♂ (NMW): “MANCHE, Beauguillot STE-MARIE-DU-MONT G<sup>d</sup> Etang 23-4-[19]93, J.F.Elder” (partly handwritten); 1 ♂ (NMW): “Ste MARIE du Mt. R. N. Beauguillot J.F.Elder, 6 - 1991”.

BELGIUM: NAMUR: 2 ♂♂, 2 ♀♀ (NMW): “Merlemont Belgien[Belgium]” (handwritten) (coll. Grundmann).

NETHERLANDS: 3 ♂♂, 8 ♀♀ (NMW): “NL 26.7.1986 Oostvoorne leg.B.v.Vondel”; 1 ♂ (NMW): “Oostvoorne duinplas”, “1983.03.19.05 leg.b.j.v.vondel” (handwritten).

GERMANY: MECKLENBURG-VORPOMMERN: 1 ♂ (NMW): “Germ. cent., Insel Hidden- 1978” (partly handwritten), “see, Roschen Salzwiese[salt meadow] R. Bellstedt 16.10.” (partly handwritten); 1 ♂ (NMW): “Zinnowitz 17 VIII Pommern [19]15” (handwritten), “coll. Künnemann”; 1 ex.: (CBG): Rügen, Neu Reddevitz, 14.VIII.1973, leg. Bellstedt.

SLOVENIA: 1 ♀ (NMW): “Pir = ano[Piran]” (handwritten).

CROATIA: 3 ♂♂ (NMW): “Umg. Zara Müller”, “v. fallaciosus” (handwritten), “Paralectotypus Ocht. fallaciosus GGLB. det.M.Jäch 1989” (partly handwritten); 50 exs. (CDM, CSWN, NMW): “KROATIEN: Krk Isl. Ponikve 5 Km N Krk Feuchtgebiet[wetland] 23.7.1997 leg. Schuh & Lang”; 2 ♂♂, 1 ♀ (NMW): “Croatia, Krk, Leg. Komarek Ponikve [artificial lake], 14°33' 58"E/ 45°04'50"N 18 m.a.s.l, 10.5.2002, HR 1”.

BOSNIA – HERZEGOVINA: 1 ♀ (ISNB): “Gabela” (handwritten).

MONTENEGRO: 1 ♀ (DEI): “Castelnuovo[Herceg Novi] Hummler”, “coll.Frank- lin Müller”.

ALBANIA: 2 ♂♂ (NMW): “Albania, Lake Micri Prespa 40°40.41-20°59.38 28 V 2001 Nieuwenhuyzen”; 2 ♀♀ (NMW): “Apfelb.[eck] Alban.[ia] spt.[septentrionalis], IV.V.[19]05”, “Skutari Mesi”; 1 ♂ (NMW): “Skutari Kiri”.

GREECE: IONIAN ISLANDS: 1 ♂ (NMW): “GR – Keffalinia (26) Nikolaos 27.9.1980 leg. Malicky”; IPIROS: 1 ♂ (NMW): “Greece, brook near Igoumenitsa 39°32.90-20°14.13, 1 VI 2001 Nieuwenhuyzen”; 5 ♂♂, 5 ♀♀ (NMW): “GR. Thesprotia Margariti 10.6.[19]77 leg.Wewalka”; 12 ♂♂, 16 ♀♀ (NMW): “GR-Thesprotia: 21.4.2000 ca. 10 km E Parga, ca. 200 m 39°16.2'N 20°28.1'E leg. Komarek, Schillhammer et Schönmann (1)”; 1 ♀ (NMW): “GR – Etolia-Akarnania: 24.4.2000 ca. 5 km W Vonitsa 38°54.6'N 20°50.5'E leg. Komarek, Schillhammer et Schönmann (8)”; 1 ♀ (NMW): “GR - Ioannina: 27.4.2000 ESE Ioannina, below Kalaritis 39°33.7'N 21°06.6'E ca. 500 m, leg. Komarek, Schillhammer, Schönmann (19)”; THRAKI: 1 ♂, 2 ♀♀ (NMW): “GR – THRAKI[Thrakia] 27.7.[19]88 ne Alexandr[o]upolis leg.M.Jäch (24)”; 1 ♂ (NMW): “GR – THRAKI 27.7.[19]88 10 km n Alexandr.[ou]polis leg.M.Jäch (25)”; 1 ♀ (NMW): “GR - Samothrake SE Pargos Fonia 16.6.[19]93 leg. M. Jäch (6)”.

TURKEY: THRAKIA: 1 ♀ (NMW): “TR 28.7.1988 40km e Edirne leg.Jäch (28)”; MARMARA REGION: 1 ♂, 1 ♀ (NMW): “NW-ANATOLIEN(44) Iznik See[lake] leg.Jäch 31.7.[19]88”; AEGEAN and MEDITERRANEAN REGION: 1 ♂ (NMW): “TR - MUGLA 27.V.1991 Köyceğiz-Mugla leg. Jäch (49)”; 1 ♂, 2 ♀♀ (NMW): “TR. (Antalya) Olympos bei Kumluca leg.Wewalka 28.7.1983”; 4 ♂♂, 5 ♀♀ (NMW): “Asia min. 5.5.[19]69 Manavgat leg. Wewalka”; 1 ♂ (NMW): “TURCIA m. Prov. Adana Adana 50km S, Umg. Karatas 36°33'27"N, 35°20'15"E 22.V.2002 leg. A.Skale”; 1 ♀ (NMW): “Türkei 1.9.[19]81 Umg. Erdemli leg.M.JächT19”; “Prov. Mersin”; 1 ♂ (NMW): “TR-ADANA 1.8.[19]90 Tuzla/SW.Adana leg.Schödl (18)”; BLACK SEA REGION: 1 ♂, 3 ♀♀ (NMW): “TR-SAMSUN 27.5. ö Terme (17) leg.Jäch 1989”; CENTRAL ANATOLIA: 1 ♂ (NMW): “TR-SIVAS 11.6.[19]89 Kizilirmak/Zara leg.Jäch (79)”; EAST ANATOLIA: 3 ♂♂, 8 ♀♀ (NMW): “TR 29.5.1987 (35) Bismil ö. Diyarbakir, Jäch”; 1 ♂ (NMW): “TR 29.5.1987 (37) Silvan 100Km ö.Diyarbakir, Jäch”; 1 ♂ (NMW): “TR-Dijarbakir[Diyarbakir] 12.6.1989 leg.H.Hebauer”; 16 ♂♂, 23 ♀♀ (CDM, NMW): “TR 7.6.1987 (63) Van see[lake] Ost- ufer[eastern shore], leg.Jäch”.

LEBANON: 3 ♂♂ (CDM, NMW): “Libanon Aammiq marsh 33 44'O-35 47'OE 12 XII 2003 Nieuwenhuijzen”.

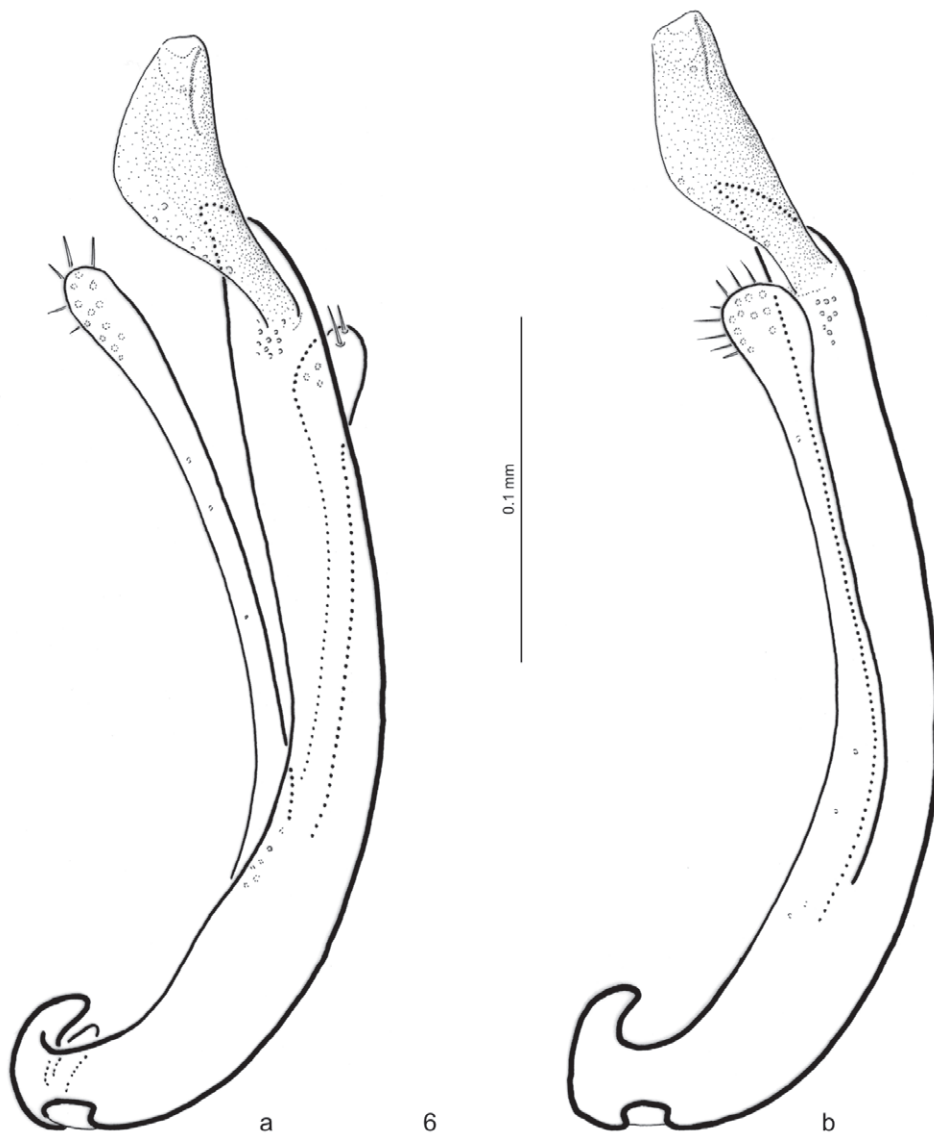


Fig. 6: Aedeagus of *Ochthebius viridis viridis* from Oostvoorne, Netherlands; a) dorsolateral view, showing maximum outlines of distal lobe, b) strictly lateral view.

KAZAKHSTAN: 1 ♂, 3 ♀♀ (CHR): "S. Kazakhstan Esil, 18.5.1992 coll. H. Hebauer", "coll. H. Hebauer"; 13 ♂♂, 18 ♀♀ (CRW, NMW): "S KAZAKHSTAN Qyzlyorda. Obl.[ast], Dzhusaly Karmakchinskii raion 23.7.[20]06, leg. R.Ruta", "bank of Syrdar'ya riv. 45°28'39"N 64°06'16"E"; 1 ♂ (NMW): "KAZAKHSTAN: Aktyubinskaya Obl.[ast], Irgizskii raion, bank of Irgiz riv., 48°39'17"N, 60°49'31"E, 24 VII 2006 leg. Rafal RUTA".  
TADZHIKISTAN: 1 ♂, 1 ♀ (NMW): "Tadzhikistan Tigrowaya Balka 3.VIII.2000 leg. Rybak".

DIAGNOSIS: Length: 1.4–1.8 mm. Externally, *Ochthebius viridis viridis* is almost as variable as *O. v. fallaciosus*. On average, its pronotum is less distinctly microreticulate and more distinctly punctate, and the foveae are more distinctly impressed, which also seems to apply for specimens from the overlap zone in the Channel area.

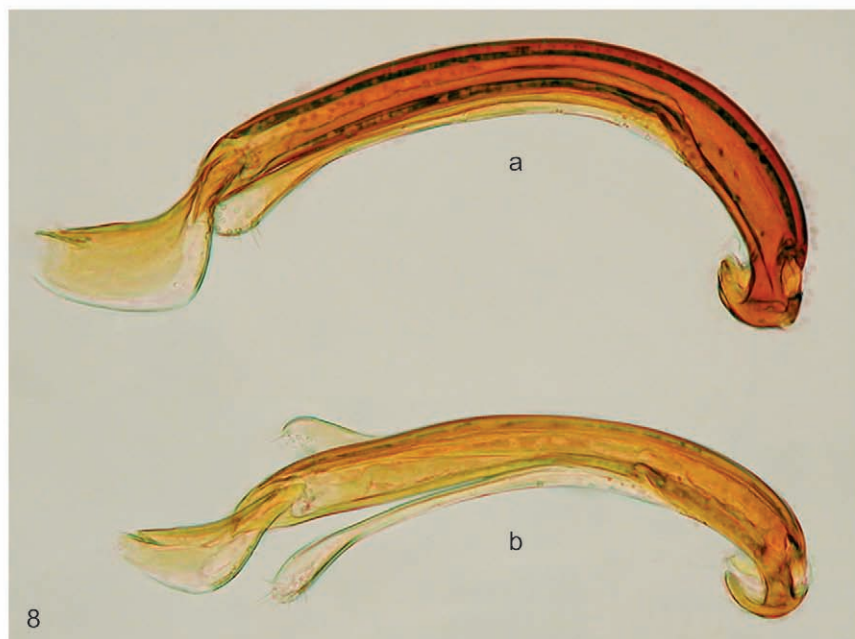
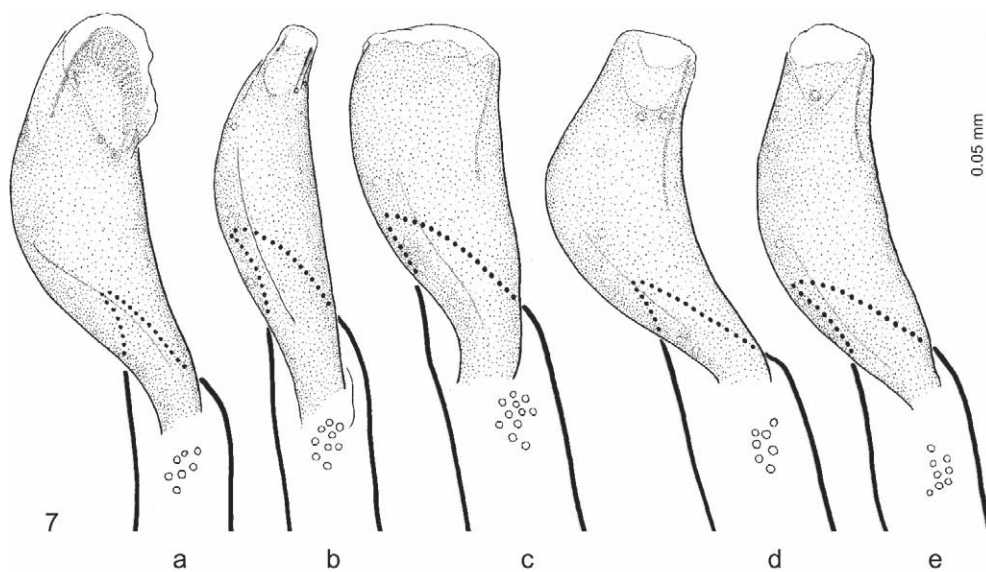


Fig. 7: Apices of aedeagi of a) *Ochthebius arefniae* sp.n., b) *O. bernhardi* sp.n., c) *O. viridescens*, d) *O. viridis fallaciosus*, e) *O. viridis viridis*.

Fig. 8: Photomicrographs of aedeagi of a) *Ochthebius viridis viridis*, from Isle of Wight, UK, b) *O. viridis fallaciosus*, from Brighton, UK.

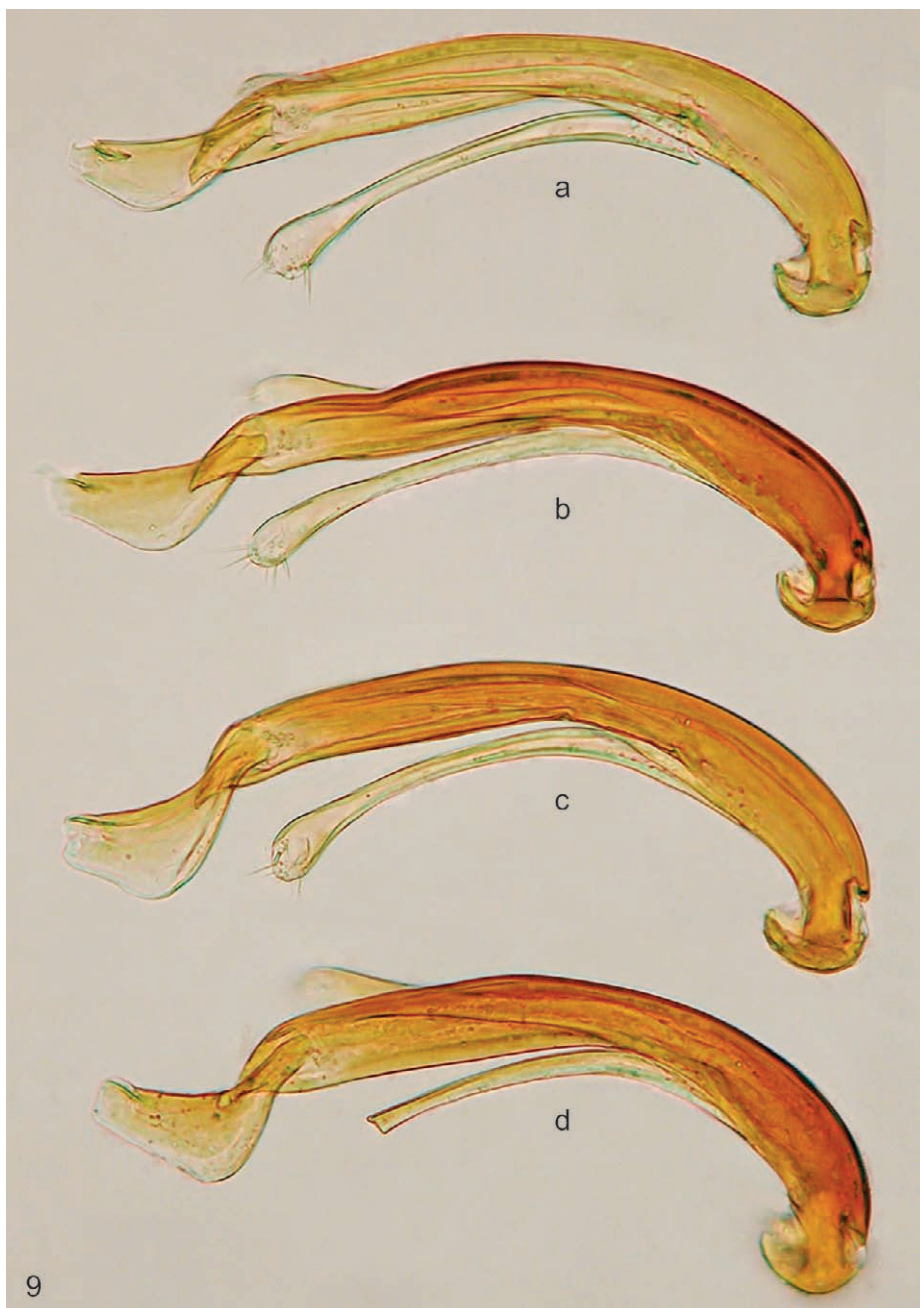
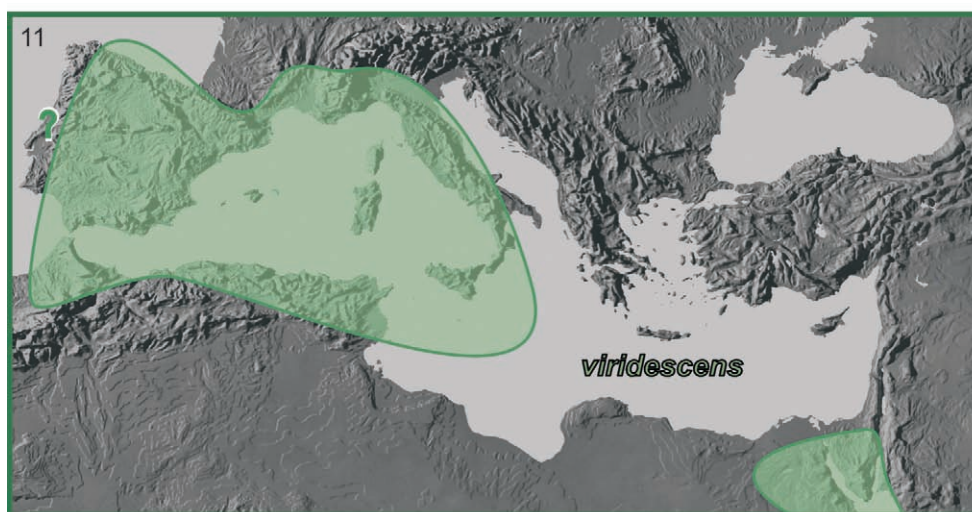
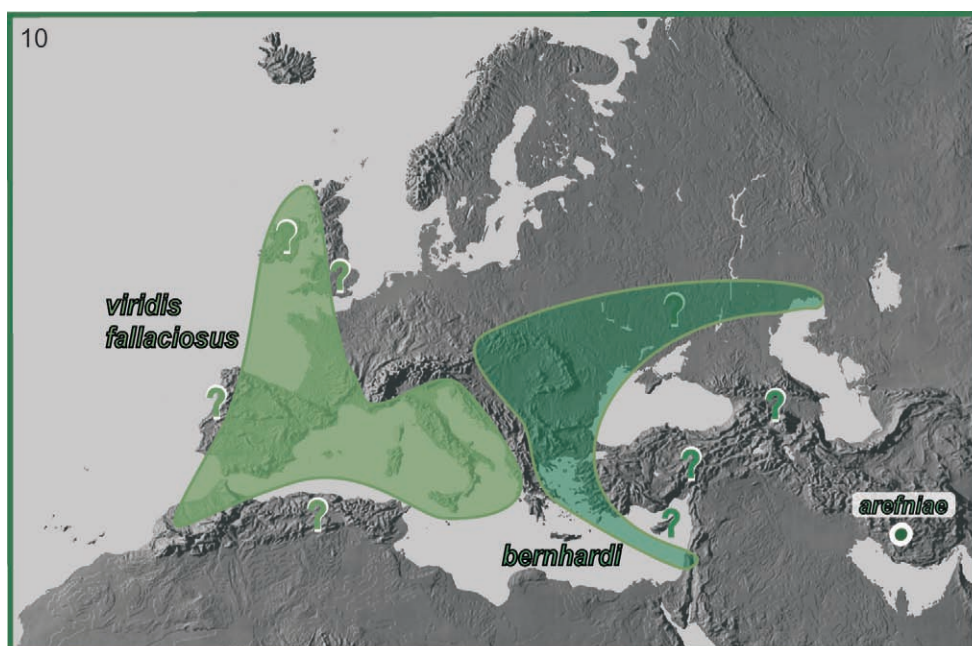
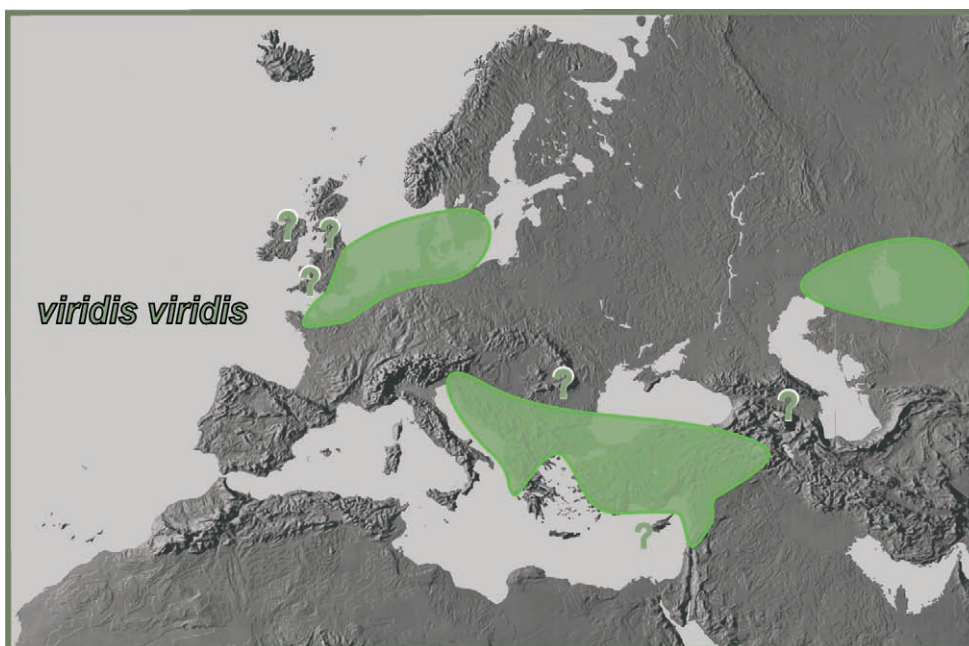


Fig. 9: Photomicrographs of aedeagi of a) *Ochthebius viridis viridis* from Thesprotia, Greece; b) *O. viridis* from the hybridization zone, Corfu, Greece; c–d) *O. viridis fallaciosus*: c) Zadar, Croatia (lectotype of *O. v. fallaciosus*), d) Corsica, France.





Figs. 10–11: Geographical distribution of 10) *Ochthebius arefniae* sp.n., *O. bernhardi* sp.n., *O. viridis fallaciosus*, 11) *O. viridescens*.



Figs. 12: Geographical distribution of *Ochthebius viridis viridis*. Population from Tadjikistan not shown.

Aedeagus (Figs. 6, 7e, 8b, 9a): PL of main piece: 0.23–0.29 mm. Distal lobe elongate and rather narrow, ventral margin moderately curved.

DISTRIBUTION (Figs. 11, 13): Eurosiberian (England, northern France to northern Germany, southern Scandinavia, northern Italy, Balcan Peninsula, Turkey, Lebanon, Kazakhstan and Tadjikistan).

#### Unidentifiable females

F R A N C E: 3 ♀♀ (NMW): “Fauvel 1901 Vauville (Manche)” (handwritten), “viridis Peyr.”, “Vauville (Manche)”; 1 ♀ (NMW): “Merlimont Frankreich” (handwritten) – *O. viridis fallaciosus* or *O. v. viridis*.

I T A L Y: 1 ♀ (NMW): “San Basilio Murgien”, “leg. Paganetti” – *O. viridescens* or *O. viridis*.

#### Discussion

Three of the four species of the complex are rather widely distributed. In south-western Europe and North Africa the distributions of *O. viridescens* and *O. viridis* overlap widely. These two species obviously do not share the same habitat type. *Ochthebius viridis* is usually found near the coast, *O. viridescens* is found in brackish water as well as in inland waters. In eastern Europe and Turkey *O. bernhardi* occurs sympatrically with *O. viridis*, but they have never been found in the same habitat. The latter seems to be more tolerant towards salinity/alkalinity.

In the present revision various questions remain unsolved, e.g. the exact distribution of the two semispecies, *O. viridis fallaciosus* and *O. v. viridis*, in the British Islands.



Figs. 13: Geographical distribution of the superspecies *Ochthebius viridis*. Central Asian populations not entirely shown.





Fig. 14: Type locality of *Ochthebius bernhardi*.

The main question that needs to be resolved is the genetic distance between the populations of *O. viridis viridis*. As far as we are aware at present, there are at least four isolated groups of populations: 1) northwestern Europe, 2) eastern Mediterranean, 3) Kazakhstan, 4) Tadzhikistan. Is crossbreeding possible between all these populations or do they possibly represent different species?

In Table 1 (see below) the records from Slovenia and Bosnia-Herzegovina (hybridization zone of *O. viridis fallaciosus* and *O. v. viridis*) are based on single females. These females are arbitrarily assigned to *Ochthebius viridis viridis*.

The specific identity of the records from Azerbaydzhan, Armenia, Bulgaria, Cyprus, and Portugal remains unclarified.

Specimens recorded from Poland ("Breslau" [Wrocław], deposited in the DEI) under the name *O. viridis* by HORION (1949), JÄCH (1992) and PRZEWOŹNY (2004) in fact belong to *O. viridescens*. According to GALEWSKI (1990) *O. viridis* has not been found in Poland so far. However, the presence of *O. viridescens* in Poland is highly unlikely. Obviously, the "Breslau" specimens have been mislabeled. In the DEI, there are specimens of *O. viridescens* from Catania (Italy), which are provided with the same type of label, which might be the source of this confusion. However, it cannot be excluded that *Ochthebius bernhardi* as well as *O. viridis* do in fact occur in Poland.

Table 1: Revised geographical distribution of the species of the *Ochthebius viridis* complex, based on data published by JÄCH (2004). New country records for *O. viridis* in bold.

| <i>arefniae</i> | <i>bernhardi</i> | <i>viridescens</i> | <i>viridis fallaciosus</i> | <i>viridis viridis</i> |
|-----------------|------------------|--------------------|----------------------------|------------------------|
| EUROPE          |                  |                    |                            |                        |
| AB              | ?                |                    |                            | ?                      |
| AL              | ?                |                    |                            | +                      |
| AR              | ?                |                    |                            | ?                      |
| AU              | +                |                    |                            |                        |
| BE              |                  |                    |                            | +                      |
| <b>BH</b>       |                  |                    |                            | +                      |
| BU              | ?                |                    |                            | ?                      |
| CR              |                  |                    | +                          | +                      |
| CZ              | +                |                    |                            |                        |
| DE              |                  |                    |                            | +                      |
| FR              |                  | +                  | +                          | +                      |
| GB              |                  |                    | +                          | +                      |
| GE              |                  |                    |                            | +                      |
| GR              | +                |                    |                            | +                      |
| HU              | +                |                    |                            |                        |
| IR              |                  |                    | +                          | ?                      |
| IT              |                  | +                  | +                          | +                      |
| MA              |                  | +                  |                            |                        |
| <b>ME</b>       |                  |                    |                            | +                      |
| NL              |                  |                    |                            | +                      |
| [PL]            | ?                |                    |                            | ?                      |
| PT              |                  | ?                  | ?                          |                        |
| RO              | +                |                    |                            | ?                      |
| RU              | +                |                    |                            |                        |
| SK              | +                |                    |                            |                        |
| SL              |                  |                    | ?                          | +                      |
| SP              |                  | +                  | +                          |                        |
| SV              |                  |                    |                            | +                      |
| TR              | ?                |                    |                            | +                      |
| YU              | +                |                    |                            | ?                      |
| NORTH AFRICA    |                  |                    |                            |                        |
| AG              |                  | +                  | ?                          |                        |
| EG              |                  | +                  |                            |                        |
| MO              |                  | +                  | +                          |                        |
| TU              |                  | +                  | ?                          |                        |
| ASIA            |                  |                    |                            |                        |
| CY              | ?                |                    |                            | ?                      |
| IN              | +                |                    |                            |                        |
| IS              | +                | +                  |                            |                        |
| LE              |                  |                    |                            | +                      |
| <b>SA</b>       |                  | ?                  |                            |                        |
| TR              | +                |                    |                            | +                      |



### Acknowledgements

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### References

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