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Revision of the Palearctic species of the genus *Ochthebius* LEACH XXVII. Revisional notes on the *O.* (s.str.) *foveolatus* subgroup (Coleoptera: Hydraenidae)

J.A. DELGADO & M.A. JÄCH

Abstract

Ochthebius mediterraneus sensu JÄCH (1991) (Coleoptera: Hydraenidae) is split up into three distinct species: *Ochthebius mediterraneus* (IENIŞTEA, 1988) [west Mediterranean], *O. magnannulatus* sp.n. [east Mediterranean] and *O. parvannulatus* sp.n. [east Mediterranean]. *Ochthebius pakistanicus* sp.n. [Pakistan] is described. *Ochthebius emilianus* (IENIŞTEA, 1988) is synonymized with *O. mediterraneus*, and *O. balcanicus* (IENIŞTEA, 1988) is synonymized with *O. elburzi* FERRO, 1987. *Ochthebius mediterraneus* is recorded from Croatia for the first time; the genus *Ochthebius* LEACH (*O. indicus* (IENIŞTEA, 1988)) is recorded from Bhutan for the first time. *Ochthebius medius* is formally elevated to species rank.

Key words: Coleoptera, Hydraenidae, *Ochthebius foveolatus* subgroup, *Ochthebius mediterraneus* complex, taxonomy, new species.

Introduction

The *Ochthebius* (s.str.) *foveolatus* subgroup was revised by JÄCH (1991). No new species has been described since then.

Based on additional material, which became available after 1991, we are now able to present some faunistic and taxonomic updates (incl. descriptions of three new species and two new synonymies), and a noteworthy case of aedeagal variability.

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):

CAL	Coll. Balfour-Browne, Coll. Angus, London, UK
CDM	Coll. Delgado, Murcia, Spain
CKE	Coll. Yablokoff-Khnzorian, Erevan, Armenia (M. Kalashian)
CSH	Coll. Skale, Hof/Saale, Germany
CTB	Coll. Touaylia, Bizerte, Tunisia
DEI	Deutsches Entomologisches Institut, Müncheberg, Germany (L. Behne, L. Zerche)
ISNB	Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgium (P. Limbourg)
NHML	The Natural History Museum, London, UK [British Museum (Natural History)] (R. Booth)
NMW	Naturhistorisches Museum Wien, Austria

PL: projected length of aedeagus (sensu JÄCH 1998a).

Specimens collected by the second author in Bhutan are property of the National Environment Commission of the Royal Government of Bhutan.

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Fig. 1: *Ochthebius indicus*, photographs of aedeagi, showing populational differences in orientation of distal lobe: a) North India, Uttaranchal, River Saryu, b) Western Nepal, Pokhara Valley, c) Bhutan, Sarpang.

Ochthebius (s.str.) *foveolatus* subgroup

In most species of the *Ochthebius* (s.str.) *foveolatus* subgroup (sensu JÄCH 1991), the aedeagal distal lobe is usually small and consists of two branches: 1) a short, more or less globular branch on the right side, usually composed of a conspicuous, well sclerotized ring and a membraneous translucent distal portion (orifice of ejaculatory duct); 2) second branch well sclerotized, usually flattened and elongate, on left side. In several species the orientation of these two branches is dorsal and ventral, rather than right and left. Several species are more or less undistinguishable externally and often very similar genitalically.

Ochthebius (s.str.) *elburzi* FERRO, 1987

Ochthebius pedicularius "Forme B": ORCHYMONT 1942: 11.
Ochthebius elburzi FERRO 1987: 257. – HANSEN 1998. – JÄCH 2004.
Hymenodes balcanicus IENIŞTEA 1988: 222 (**syn.n.**).
Ochthebius balcanicus: JÄCH 1989, 1991. – HANSEN 1998. – JÄCH & AVTZIS 1999. – JÄCH 2004.

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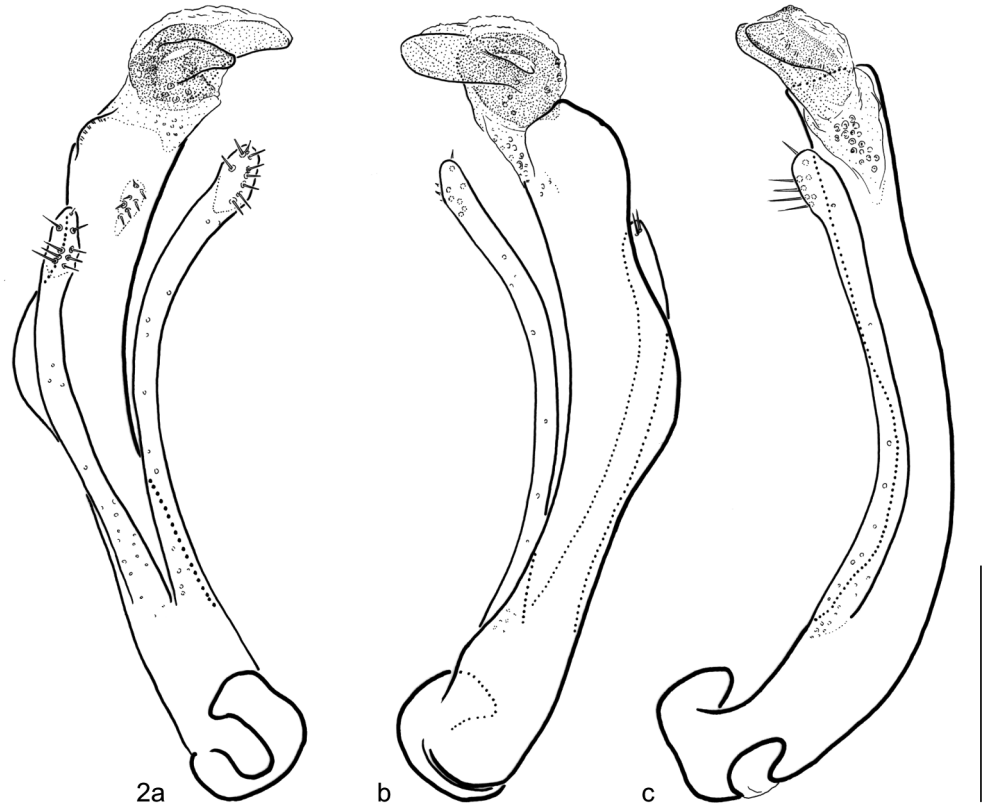

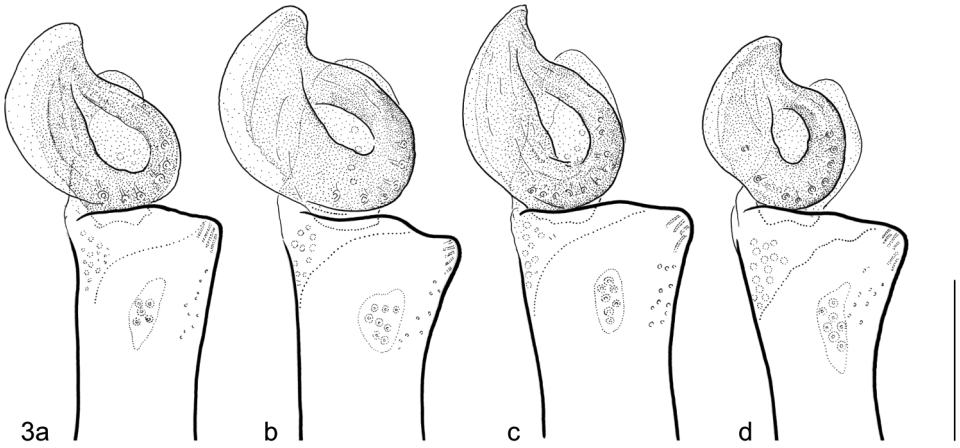

Figs. 2–3: *Ochthebius indicus*: 2) aedeagus, Sarpang (Bhutan), a) ventral view, b) dorso-lateral view, c) lateral view; scale: 0.10 mm; 3) aedeagal apices, dorsal view: a) Haridwar (Uttaranchal, India), b) Chidika (Western Nepal), c) Lamosangu (Central Nepal), d) Sarpang (Bhutan); scale: 0.05 mm.

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SYNONYMY: Despite our enquiries, we were not able to examine the holotype of *O. elburzi*, deposited in the private collection of G. Ferro (Lancenigo, Italy). Based on the study of numerous specimens (deposited in NMW) from northern Iran and the Balkan Peninsula, we are nonetheless convinced that *Ochthebius balcanicus* is a junior synonym of *O. elburzi*.

DISTRIBUTION: Albania, Greece, Turkey, Iran.

Ochthebius (s.str.) *indicus* (IENIŞTEA, 1988)

Ochthebius pedicularius "Forme E": ORCHYMONT 1942: 13.
Hymenodes indicus IENIŞTEA 1988: 223.
Ochthebius indicus: JÄCH 1989, 1991. – HANSEN 1998. – JÄCH & SHARMA 1998. – JÄCH 2004.

MATERIAL EXAMINED:

I N D I A: UTTARANCHAL: 1 ♂, 2 ♀♀ (NMW): River Sukma, flowing in gravel bed of ca. 100 m width, with several furcations (up to 20 m wide), right tributary of River Ganga, through degraded forest and populated areas, ca. 5 km S Raiwala [village], ca. 10 km N Haridwar [town], ca. 340 m a.s.l., 30°03'23"N/78°12'54"E, Dehradun District, 9.XI.2006, leg. M.A. Jäch (loc. 4); 2 ♂♂ (NMW): River Saryu, ca. 20–30 m wide, partly with larger boulders, at Falda [village], ca. 15 km north of Bageshwar [town], 1005 m a.s.l., 29°55'11"N/79°52'08"E, Bageshwar District, 14.XI.2006, leg. M.A. Jäch (loc. 19).

N E P A L: MID WESTERN NEPAL: 2 exs. (NMW): Jhupra Khola, Surkhet, Samoujighat, 19.XII.1993, leg. S. Sharma (loc. 48); 1 ♀ (NMW): Toli Khola, Surkhet, Jhilmile, 20.XII.1993, leg. S. Sharma (loc. 50); 1 ♂ (NMW): Arung Khola, Pyuthan, Devisthan, 25.XII.1993, leg. S. Sharma (loc. 53); 1 ♀ (NMW): Jhimruk Nadi, Pyuthan, Kwadi, 750 m a.s.l., 25.XII.1993, leg. S. Sharma (loc. 59); WESTERN NEPAL: 3 exs. (NMW): Saure Khola, Argha Kachi, Chidika, 17.I.1994, leg. S. Sharma (loc. 73); 1 ♂ (NMW): Annapurna Region, tributary of Madi Khola, Kwinkal, 500 m a.s.l., 15.V.1996, leg. O. Jäger; 6 exs. (NMW): Pokhara Valley, 22.II.1981, leg. M.A. Jäch (loc. N21); 6 exs. (NMW): Bijaipur Khola, Sunpadeli, E Pokhara, 850 m a.s.l., 16.V.1996, leg. O. Jäger; 1 ♀ (NMW): Dumre, Gorkha, 17.VI.1997, leg. O. Jäger; CENTRAL NEPAL: 2 ♂♂, 2 ♀♀ (NMW): Lamosangu, 5.II.1981, leg. M.A. Jäch (loc. N5); 2 ♂♂ (NMW): Hetauda, 17.II.1981, leg. M.A. Jäch (loc. N18).

B H U T A N: 1 ♂, 3 ♀♀ (NMW): gravel bank, Bhur Khola [river], ca. 30 m wide, 11 km NW of Sarpang, Sarpang Prov., ca. 350 m a.s.l., 26°55'23"N/90°23'51"E, 27.XI.2005, leg. M.A. Jäch (loc. 30).

DISCUSSION: Specimens from Nepal differ from the Indian and Bhutanese material in the aedeagal distal lobe, which is in an almost sagittal position, while it is more or less twisted to the left side and thus in a more transverse plane in material from Uttaranchal and Bhutan. Therefore, when viewed laterally, the distal lobe of the Indian/Bhutanese specimens appears distinctly smaller (Fig. 1). However, a closer examination revealed that the distal lobe of all populations is on average, more or less equally large (Figs. 2–3).

Ochthebius indicus has not been recorded from Far Western Nepal, Eastern Nepal, West Bengal, or Sikkim. Therefore we are at present unable to evaluate the taxonomic significance of the orientation of the distal lobe.

DISTRIBUTION: India (Uttaranchal), Nepal, Bhutan: first record of the genus *Ochthebius* LEACH.

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

The publications listed hereunder refer to several species of the *O. mediterraneus* complex [names given in square brackets: m = *magnannulatus*, me = *mediterraneus*, p = *parvannulatus*].
Ochthebius mediterraneus: JÄCH 1991 [m/me/p]. – HANSEN 1998 [m/me/p]. – JÄCH & AVTZIS 1999 [m/p]. – JÄCH 2004 [m/me/p].

TYPE LOCALITY: Stream, 5–10 m wide, partly shaded, ca. 10 km north of Alexandroupolis, department of Évros (Έβρος), Thráki (Θράκη), northeastern Greece.

TYPE MATERIAL: **Holotype** ♂ (NMW): "GR–THRAKI 27.7.[19]88 10 km n[orth] Alexandr.[oupolis] leg.M.Jäch (25)". **Paratypes**: BULGARIA: 1 ♂, 1 ♀ (DEI): "Bulg[aria] Sejmen Marica 21.V. [19]09 Rambousek"; GREECE:

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4 ♂♂, 10 ♀♀ (NMW): same label data as holotype; 1 ♂, 1 ♀ (NMW): "Gr.- Thraki 27.7. 10km n[orth] Alexand. [roupolis] lg.Schödl(25)[19]88"; 1 ♂ (NMW): "GR - Lesbos 9.6.1996 6km W Plomari 20m 500m N Melinda leg. M. Jäch (9)"; TURKEY: 5 ♂♂, 2 ♀♀ (NMW): "NW-ANATOLIEN(43) s Karamürsel leg.Jäch 31.7.[19]88"; 1 ♂ (NMW): "NW-ANATOLIEN(53) Aliova Fl.2.8.[19]88 w.Dursunbey; Jäch"; 1 ♂ (NMW): "TR Prov.Cannakk. [Çanakkale] 5km w Yenice(57) leg.Jäch 4.8.[19]88"; 2 ♂♂ (NMW): "ASIA MINOR occid. Izmir (Işikler) 50m st.[ation]84.14.v.[19]'31 (Orch.[ymont])" (partly handwritten); 1 ♂, 7 ♀♀ (ISNB): "ASIA MINOR occid. Izmir (Işikler) 50 m. st.77 11.v.[19]'31 (Orch.[ymont])" (partly handwritten); 1 ♂, 4 ♀♀ (ISNB): "ASIA MINOR occid. Ekis Dere 250 m. st.97 20.v.[19]'31 (Orch.[ymont])"; 2 ♂♂, 2 ♀♀ (NMW): "TR–MUGLA 22.V.1991 nw Karaçulha, 1300m leg. Jäch (22)"; 1 ♂, 6 ♀♀ (NMW): "TR – MUGLA 22.V.1991 nw Karaçulha, 1300m leg. Schödl (22)"; 2 ♂♂ (NMW): "TR-MUGLA 28.5.[19]91 Zine Fluß leg.Schödl (54)"; 3 ♂♂, 5 ♀♀ (NMW): "TR-SINOP 27.5. Erfelek (12) leg.Jäch 1989"; 5 ♂♂, 7 ♀♀ (NMW): "TR 20.5.1987 Karabogas Fl. 70km w.Ankara leg.M.Jäch (12)"; 4 ♂♂, 2 ♀♀ (NMW): "TR-SIVAS 11.6.[19]89 Kizilirmak/Zara leg.Jäch (79)"; 1 ♂, 2 ♀♀ (NMW): "TR-Erzurum 1.6.[19]89 Coruh Fl. ö.Bay-burt lg.Jäch (36)".

ADDITIONAL MATERIAL EXAMINED:

Unknown location: 1 ♂ (ISNB): "Gardon M. Delfieu".

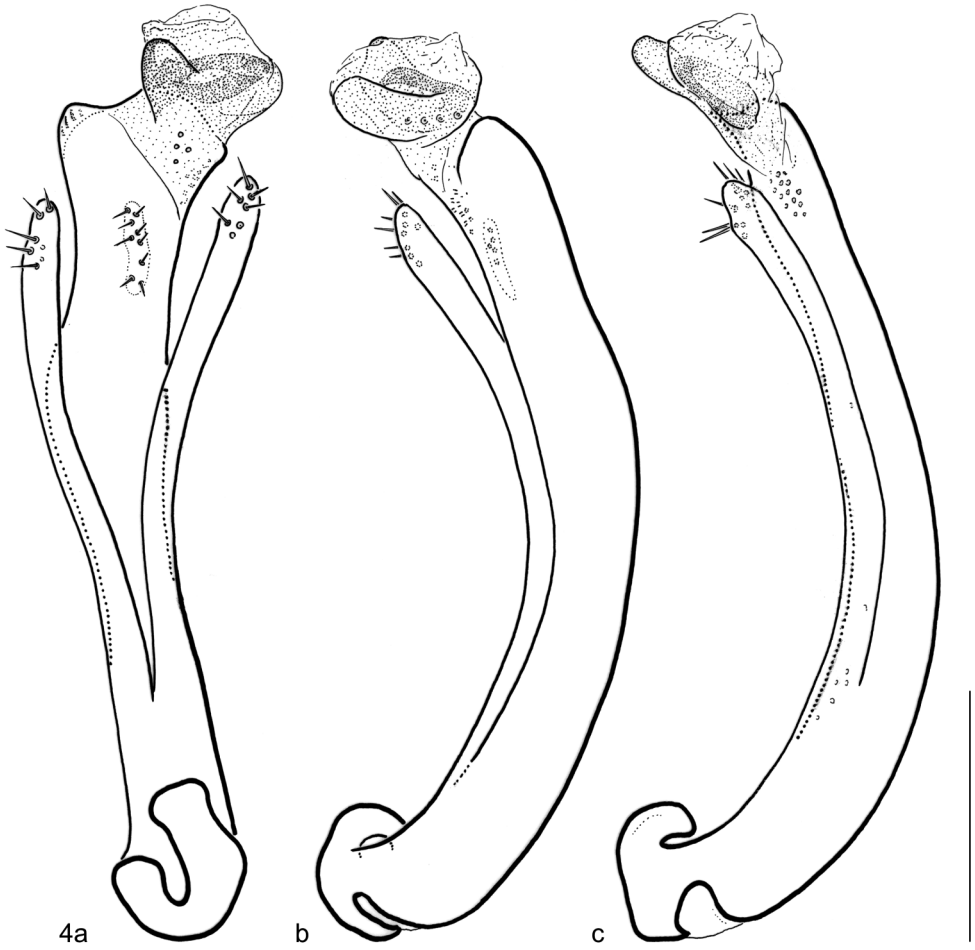

Fig. 4: *Ochthebius magnannulatus*, aedeagus, Ankara (Turkey): a) ventral view, b) dorso-lateral view, c) lateral view; scale: 0.1 mm.

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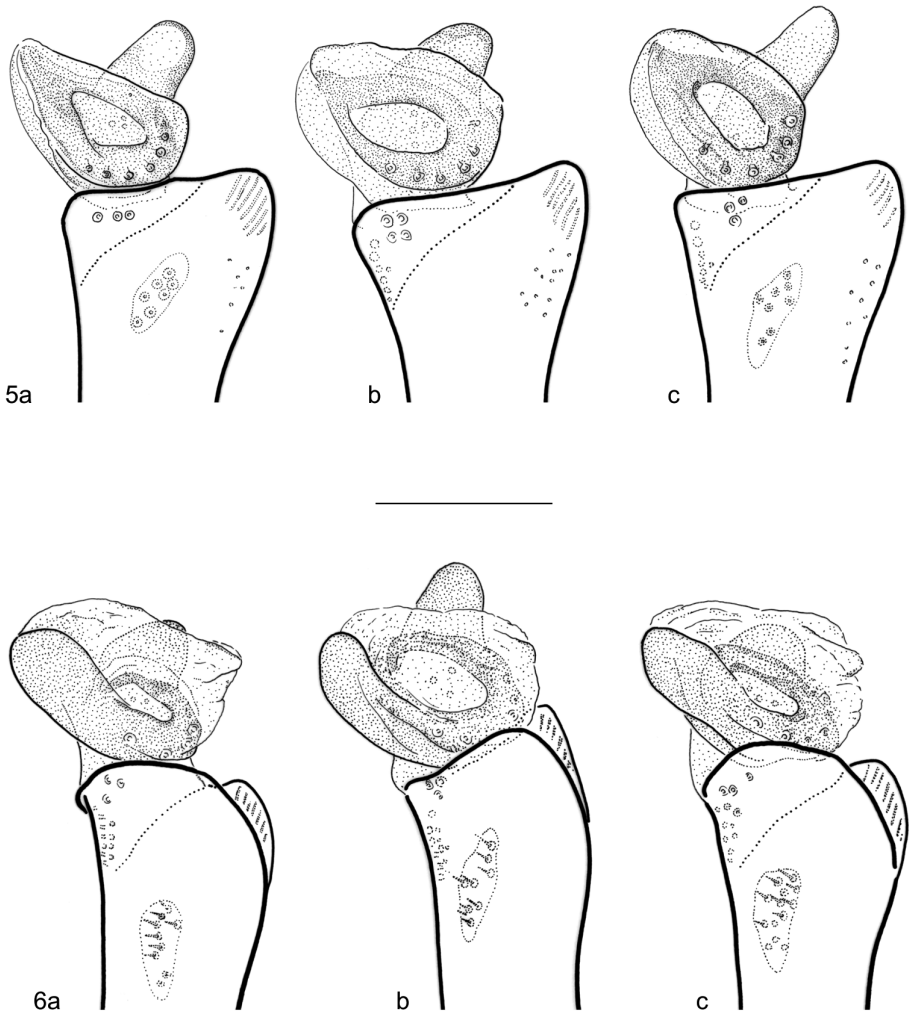

Figs. 5–6: *Ochthebius magnannulatus*, aedeagal apices: 5) dorso-lateral view, 6) dorso-lateral view; a) Alexandroupolis (Greece), b) Muğla (Turkey), c) Sivas (Turkey); scale: 0.05 mm.

DIAGNOSIS: Length (abdomen not included): 1.50–1.75 mm. Externally, *O. magnannulatus* is identical with *O. elburzi*, *O. inconspicuus*, *O. mediterraneus*, and other closely related species.

Aedeagus (Figs. 4–6, 14a): PL of main piece: 0.30–0.32 mm. Main piece often slightly wider than in the other members of the *O. mediterraneus* complex; apex truncate in dorsal view, left corner sometimes slightly produced. Distal lobe comparatively large, subglobose in dorso-lateral view; right branch (ring) well developed and large; left branch of variable length, not longer than right branch.

DISTRIBUTION (Fig. 16): Bulgaria, Greece (Thráki, Lésvos) and Turkey (Ankara, Balıkesir, Çanakkale, Erzurum, Izmir, Izmit, Muğla, Sinop, Sivas).

ETYMOLOGY: Magnus (Latin: large) and annulatus (Latin: ringed). Referring to the comparatively large, ring-like sclerotization of the aedeagal distal lobe.

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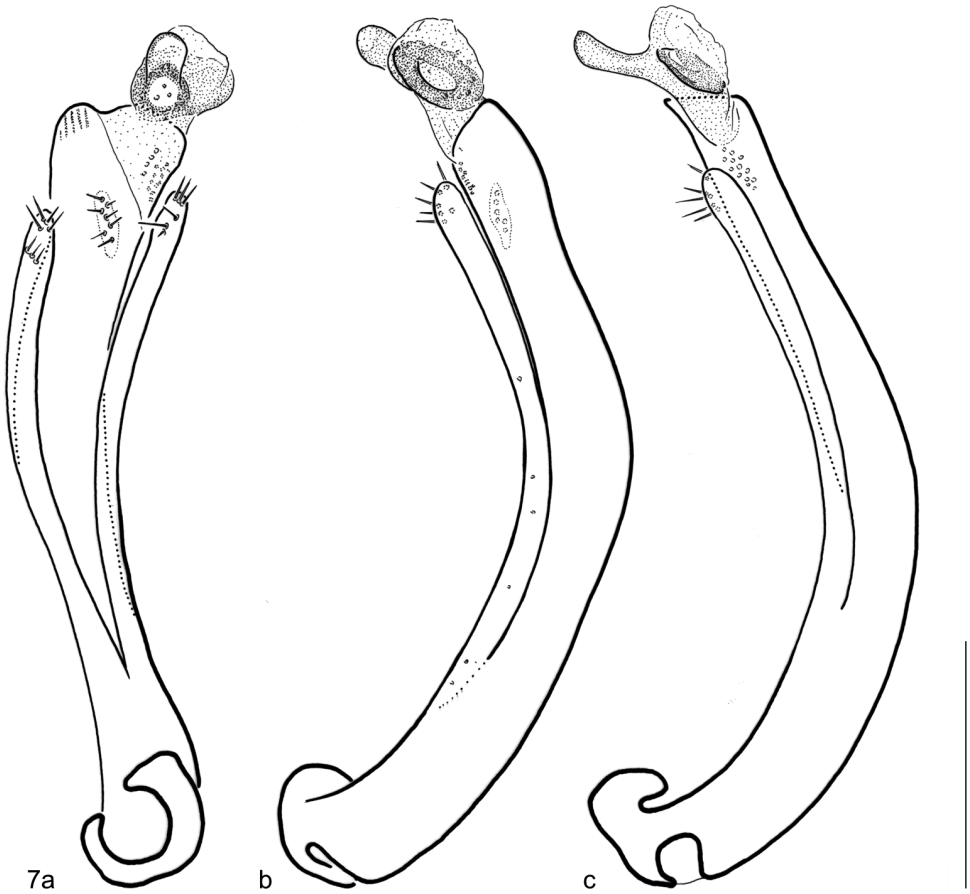

Fig. 7: *Ochthebius mediterraneus*, aedeagus, Nice (France): a) ventral view, b) dorso-lateral view, c) lateral view; scale: 0.1 mm.

Ochthebius (s.str.) *mediterraneus* (IENIŞTEA, 1988)

Some of the publications listed hereunder refer to several species of the *O. mediterraneus* complex [names given in square brackets: m = *magnannulatus*, me = *mediterraneus*, p = *parvannulatus*].

Ochthebius pedicularius "Forme C": ORCHYMONT 1942: 11.

Ochthebius pedicularius: BALFOUR-BROWNE 1979. – LAGAR 1984. – COFFIN 1991.

Hymenodes mediterraneus IENIŞTEA 1988: 223.

Ochthebius mediterraneus: JÄCH 1989, 1991 [m/me/p]. – VALLADARES & MONTES 1991. – RIBERA & AGUILERA 1995. – AUDISIO et al. 1995. – RIBERA et al. 1996. – ACEITUNO-CASTRO & SÁINZ-CANTERO 1997. – DELGADO & SOLER 1997. – MILLÁN et al. 1997. – SAINZ-CANTERO & ACEITUNO-CASTRO 1997. – SÁINZ-CANTERO et al. 1997. – HANSEN 1998 [m/me/p]. – JÄCH & AVTZIS 1999 [m/p]. – JÄCH et al. 1999. – RIBERA et al. 1999. – BENNAS et al. 2001. – LAGAR 2001. – MILLÁN et al. 2002. – RIBERA et al. 2003. – ABELLÁN et al. 2004. – CHAVANON et al. 2004. – JÄCH 2004 [m/me/p]. – QUENEY 2004. – SÁNCHEZ-FERNÁNDEZ et al. 2003, 2004. – HERNANDO et al. 2008. – TOUAYLIA et al. 2009.

Hymenodes emilianus IENIŞTEA 1988: 223 (**syn.n.**).

Ochthebius emilianus: HANSEN 1998. – JÄCH 2004.

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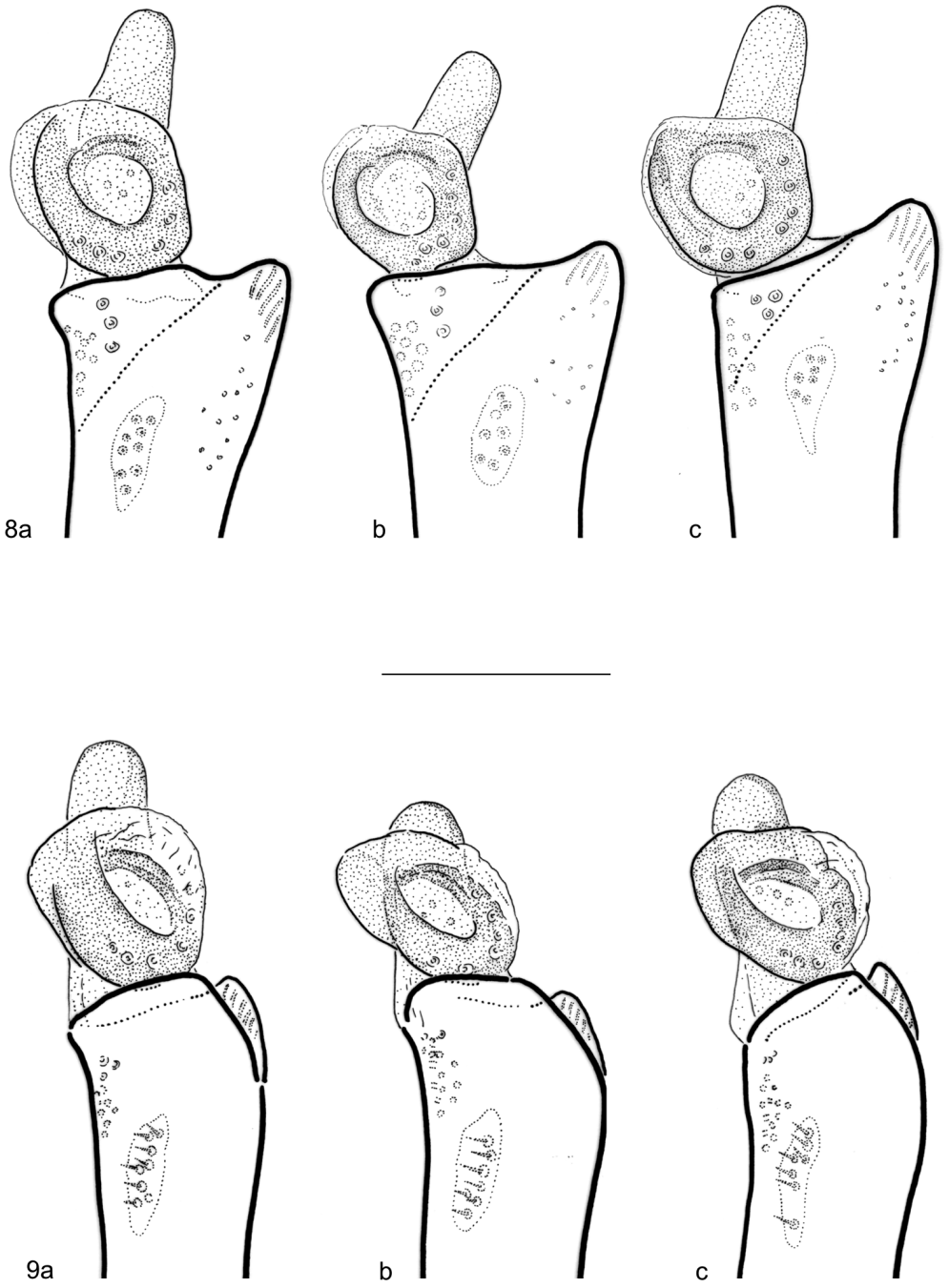

Figs. 8–9: *Ochthebius mediterraneus*, aedeagal apices: 8) dorsal view, 9) dorso-lateral view; a) Jaén (Spain), b) Nice (France), c) Gerace (Italy); scale: 0.05 mm.

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TYPE LOCALITY: Carcassonne, Aude, southern France.

TYPE MATERIAL: **Holotype**: 1 ♂ (ISNB): "Carcassonne", "Ochthebius foveolatus germ." (handwritten), "A. d'Orchymont det: Ochth. (Hymenodes) pedicularius Kuwert", "Hym. (Neohym.) mediterraneus m.n.sp. ~~LEG~~ M. Al. Ien. DET . M.AL. IENIŞTEA", "Holotype". **Paratypes**: 1 ♀ (ISNB): "Carcasonne" (handwritten), "Ochtebius [sic] foveolatus" (handwritten), "A. d'Orchymont det: Ochth. (Hymenodes) pedicularius Kuwert (forme c) [handwritten]", "Paratype"; 3 ♂♂, 5 ♀♀ (ISNB): "Hisp[ania] Granada, E. Rio Xenil st [sample station:]15 680 m 19.9.[19]35 Orch[ymont]", "A. d'Orchymont det: Ochth. (Hymenodes) pedicularius Kuwert", "Paratype"; 1 ♂ (NMW): "Gerace, Cal.[abria] Paganetti", "Hymen. pedicularius ~~LEG~~. C Kuw DET.M.AL. IENIŞTEA" (partly handwritten), "Paratypus" (handwritten), "Hymenodes mediterraneus Ien det. M, Al. Ieniştea" (partly handwritten); 1 ♀ (ISNB): "(Taroudant) [handwritten] Maroc Coll. THERY", "Ochthebius atriceps Germar THERY det.", "Paratype".

SYNONYMY:

Ochthebius emilianus: **Holotype** ♂ (ISNB), examined: "EMILIA Spilamberto 1/10-IV-1915 C. MINOZZI" (partly handwritten), "Ochthebius foveolatus C. Minozzi det." (handwritten), "metast[ernum] entierement pub.[escent] labre ent[iere]", "Hym. (Neohym.) emilianus m.n.sp. ~~LEG~~ M. Al. Ien. DET . M.AL. IENIŞTEA" (partly handwritten), "Holotype". **Paratypes**: 1 ♂, 1 ♀ (ISNB): "Chichahua Maroc Coll. THERY" (partly handwritten), "A. Théry Coll.: atriceps" (partly handwritten), "Hym. (Neohym.) emilianus m.n.sp. ~~LEG~~ M. Al. Ien. DET . M.AL. IENIŞTEA" (partly handwritten), "A. d'Orchymont det: Ochth. (Hymenodes) pedicularius Kuwert", ♂: "atriceps Fairm" (handwritten), ♀: "coll. A. d'Orchymont), ♂ + ♀: "Paratype"; 2 ♂♂, 1 ♀ (ISNB): "Fez Maroc Coll. THERY" (partly handwritten), "Hym. (Neohym.) emilianus m.n.sp. ~~LEG~~ M. Al. Ien. DET . M.AL. IENIŞTEA" (partly handwritten), "Paratype" (the aedeagus of one of the two males belongs to *Ochthebius difficilis* MULSANT); 1 ♂ (ISNB): "Fez 350 m. [sampling station:]70 Alluaud" (partly handwritten), "A. d'Orchymont det: Ochth. (Hymenodes) pedicularius Kuwert", "Hym. (Neohym.) emilianus m.n.sp. ~~LEG~~ M. Al. Ien. DET . M.AL. IENIŞTEA" (partly handwritten), "Paratype"; 1 ♂ (ISNB): "Rabat Maroc Coll. THERY" (partly handwritten), "A. d'Orchymont det: Ochth. (Hymenodes) pedicularius Kuwert", "Hym. (Neohym.) emilianus m.n.sp. ~~LEG~~ M. Al. Ien. DET . M.AL. IENIŞTEA" (partly handwritten), "Paratype".

ADDITIONAL MATERIAL EXAMINED:

S P A I N: NAVARRA: 7 ♂♂, 1 ♀ (NHML): "SPAIN: Navarra Pamplona – Tafalla Rd. 21 km.s. of Pamplona. 5-600m. 31.v.1967.", "M.E. Bacchus & B.Levey. B.M.1968-20.", "Ochthebius (Hymenodes) pedicularius J. Balfour-Browne det. I.1974" (partly handwritten); CASTILLA-LA MANCHA: 4 ♂♂, 10 ♀♀ (NMW, CDM): "SPANIEN 17.7.[19]85 Albacete/R.[ío] Bogarra leg. Delgado"; 2 ♂♂, 4 ♀♀ (CDM): "Rio Mundo en Ayna Albacete 2-11-[19]86 Spain Dep. de Zoologia"; COMUNIDAD VALENCIANA: 1 ♂ (CDM): "Castellón Rio Mijares 13-4-[19]96 J.A. Delgado leg"; 1 ♂ (CDM): "Valencia Rio Cabriel en Casas del Rio 12-4-[19]96 J.A. Delgado leg"; MURCIA: 1 ♂ (CDM): "Baños de la Fuensanta 28-3-[19]86 Departamento de Zoología"; 2 ♂♂, 3 ♀♀ (CDM): "Rio Corneros Murcia Spain 29-11-[19]93 J.A. Delgado leg."; 2 ♂♂, 2 ♀♀ (CDM): "Rambla de Malvariche Murcia Spain 29-11-[19]93 J.A. Delgado leg."; 1 ♂ (CDM): "Rambla del Moro 3-9-[19]82 Murcia Spain Departamento de Zoologia"; 2 ♀♀ (CDM): "Rio Segura Murcia 22-11-[19]81 Dep. Zoología"; ANDALUCÍA: 1 ♂ (NHML): "SPAIN: Cadiz Algodonales – Ronda Rd. 7 km S.E. of Algodonales. R.[iver] Guadalete. 3-400 m. 17.v.1967.", "M.E. Bacchus & B.Levey. B.M.1968-20.", "Ochthebius (Hymenodes) pedicularius J. Balfour-Browne det. XII.1973" (partly handwritten); 1 ♀ (ISNB): "Cordoba"; 1 ♀ (NMW): "Cordoba Spanien [Spain]" (handwritten), "B 63" (underside, handwritten); 1 ♀ (NMW): "ESPANA: Malaga, 19.10.1998 8km SW Marbella nr. San Pedro de Alcantara leg. M. Jäch (2)"; 3 ♂♂ (CAL, NHML, NMW): "SPAIN:Granada, 1 km. S.[outh]of Orgiva. Rio Guadalfeo. 300-400 m.27.v.1967.", "M.E. Bacchus & B.Levey. B.M.1968-20.", "Ochthebius (Hymenodes) pedicularius J. Balfour-Browne det. I.1974" (partly handwritten), "Ochthebius (Hymenodes) pedicularius J. Balfour-Browne det. XII.1973" (partly handwritten); 1 ♂ (NMW): "Hisp.:Granada,E. Rio Xenil st [sampling station:]15 680m. 19.9.[19]35 ,Orch[ymont]", "A.d'Orchymont det. Ochth.(Hymenodes) pedicularius Kuwert"; 2 ♂♂, 2 ♀♀ (NMW, ISNB): "Hisp.[ania]:Jaén S. 7km. Rio Liche st. [sampling station:]11 bis [handwritten, faded] 370m.16.9.[19]35 ,Orch[ymont]", "A.d'Orchymont det. Ochth.(Hymenodes) pedicularius Kuwert"; 1 ♂ (NHML): "SPAIN: Jaen. Valdepenas de Jaen. Trib.[utary] of R.[iver] Guadajoz 900-1000 m.25.v.1967.", "M.E. Bacchus & B.Levey. B.M.1968-20.", "Ochthebius (Hymenodes) pedicularius J. Balfour-Browne det. I.1974" (partly handwritten).

F R A N C E: 1 ♂, 1 ♀ (CAL): "Nice S^{t} Claire-Deville".

I T A L Y: 1 ♂, 1 ♀ (ISNB): "Spilamberto-Emilia 10.x. [19]15 C. Minozzi" (handwritten in ♀); 3 ♂♂, 1 ♀ (NMW): "Gerace,Calab.[ria] Paganetti"; 1 ♂ (ISNB): "Palermo 5, 13" (handwritten).

C R O A T I A: 1 ♂ (DEI): "Dalmatia Reitter", "Coll. Künnemann".

M O R O C C O: 1 ♂ (NMW): "Taroudant [handwritten] Maroc coll. THERY"; 1 ♀ (NMW): "Marokko (Kenifra) Col de Zad, 2100 m leg.G.Wewalka 8.4.[19]85 (M9)"; 2 ♂♂, 1 ♀ (NMW): "Marokko, ca. 70km NE Agadir, nahe [near]Argana 17. 4. [20]00. leg. Wewalka"; 6 ♂♂, 1 ♀ (ISNB): "Maroc: Asni 1200-1300 m. st. [sampling

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station:]27 3-11/VI/1934 (A. Ball)" (partly handwritten) – 5 exs. with additional label: "R. Mus. Hist. Nat. Belg. I. G. 10.417"; 10 ♂♂, 3 ♀♀ (ISNB): "Fès 350 m Alluaud [sampling station:]70 [handwritten]"; 5 ♂♂, 1 ♀ (ISNB): "Gr Atlas sud Aït el Hadi Alluaud [sampling station:]186 [handwritten]"; 17 exs. (ISNB): "Fes [handwritten] Maroc Coll THERY"; 1 ♂ (ISNB): "Fes Sebou [handwritten]"; 1 ♀ (ISNB): "Maroc: Marrakech O. Tousift st [sampling station:]33 5.VI.1934 (A. Ball)" (partly handwritten); 1 ♂ (ISNB): "Maroc: Marrakech st [sampling station:]20 27.V.1934 (A. Ball)" (partly handwritten), "R. Mus. Hist. Nat. Belg. I. G. 10.417" (aedeagus lost); 2 ♀♀ (ISNB): "V[alley]. du Sous Oued Massa Alluaud [sampling station:]180 [handwritten]"; 1 ♂, 5 ♀♀ (ISNB): "O.[ued] Reraïa [handwritten] [sampling station:]132 [handwritten] Alluaud"; 2 ♂♂, 3 ♀♀ (ISNB): "Grand Atlas Hte (Haute du) Réraya Alluaud [sampling station:]131 [handwritten]"; 1 ♀ (ISNB): "Marocco Rolph", "coll. A. d'Orchymont"; 1 ♂, 1 ♀ (ISNB): "De [from] Mogador à [to] Agadir Alluaud [sampling station:]169 [handwritten]"; 1 ♀ (ISNB): "Zelouet [handwritten] Maroc coll. THERY"; 1 ♂, 2 ♀♀ (ISNB): "Chichaua [handwritten] Maroc coll THERY"; 1 ♂ (ISNB): "AGUERD el HAD Sous (Talekjount) 1000-1100 m 3 5 v", "Miss[ion]. LE CERF & TALBOT Grand-Atlas 28. IV à 9. VI 1927".

A L G E R I A: 1 ♂ (CAL): "Biskra 27-11-[19]34"; 1 ♀ (ISNB): "Algérie: Maafa 30 km s. de Batna 15-v-1954 G. Fagel".

T U N I S I A: 1 ♂ (CTB, in alcohol): "Douimis S. 13-11-[20]05"; 1 ♂ (CTB, in alcohol): "Aïn Gnaâa. 31-08-[20]05" (handwritten).

DIAGNOSIS: Length (abdomen not included): 1.55–1.80 mm. Head and palpi dark brown, generally darker than pronotum and elytra; pronotum, elytra and legs brown; head, pronotum and sometimes elytra with distinct coppery reflections. Labrum deeply emarginate, clypeus, at least laterally, microreticulate. Interfoveal areas of pronotal disc generally glabrous and sparsely punctate, in some specimens chagreened. Anterior margin of pronotum straight. Pronotal foveae well impressed, distinctly microreticulate. Females with distinctly explanate elytral gutter.

Aedeagus (Figs. 7–9, 14b): PL of main piece: 0.30–0.32 mm. Main piece slender, evenly curved in lateral view, bisinuous in ventral view; apex rather slender, left corner more or less slightly produced in ventral view. Distal lobe slightly smaller than in *O. magnannulatus*; right branch well developed and ring-shaped; left branch of variable length, slender, not longer than right branch.

DISCUSSION: In his revision, JÄCH (1991) found it "quite possible that the species regarded as *O. mediterraneus* forms a complex of two or even more closely related and variable species". In fact, after examination of additional specimens it turned out that *O. mediterraneus* (sensu JÄCH 1991) has to be split into three species: *O. magnannulatus* sp.n., *O. mediterraneus*, and *O. parvannulatus* sp.n.

DISTRIBUTION (Fig. 16): Western Mediterranean (Spain, France, Italy, Croatia: first record, Morocco, Algeria, Tunisia).

Ochthebius (s.str.) *medius* JÄCH, 1991 stat.n.

Ochthebius pedicularius medius JÄCH 1991: 76. – JÄCH 1998b.
Ochthebius medius: JÄCH 2004.

TAXONOMY: *Ochthebius medius* was originally described as a subspecies of *O. pedicularius*. However, it was treated as distinct species by JÄCH (2004).

The aedeagal differences described by JÄCH (1991) (main piece more strongly curved in ventral view, dorsal margin more distinctly concave in left lateral view, distal lobe smaller) proved to be significant. No morphological overlap was observed so far.

Ochthebius medius is here formally elevated to species rank.

DISTRIBUTION: Kazakhstan and Kyrgyzstan.

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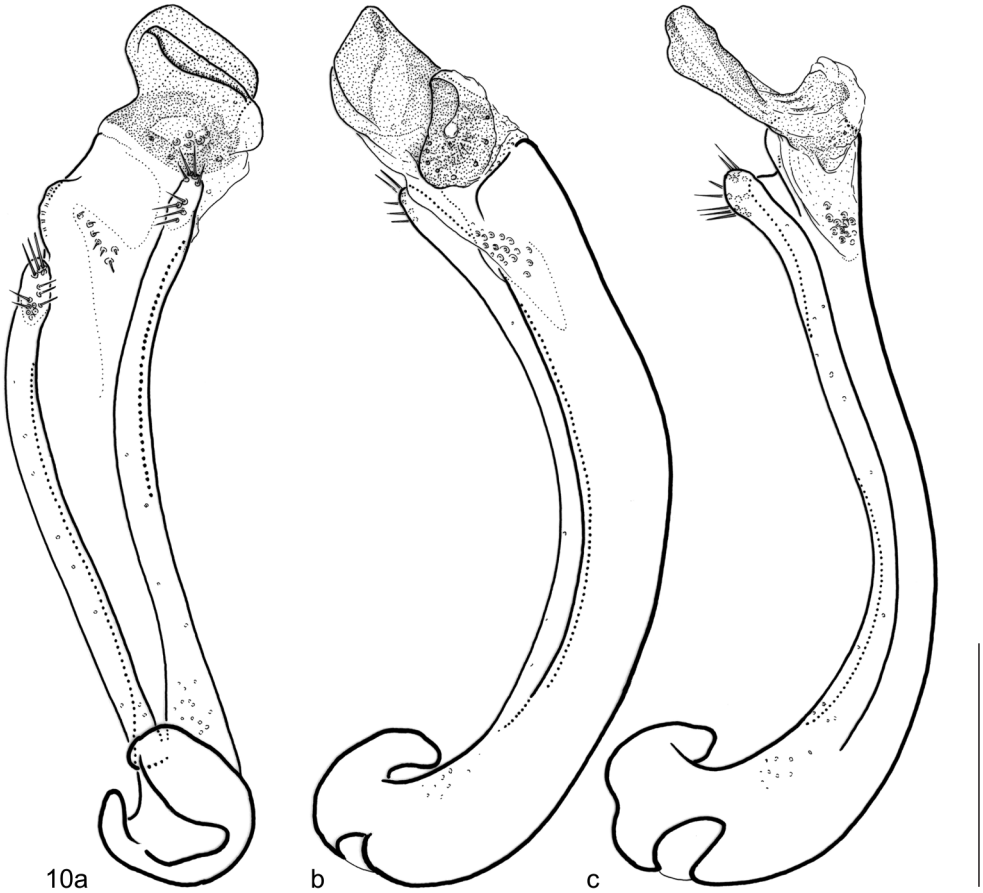

Fig. 10: *Ochthebius pakistanicus*, aedeagus, holotype: a) ventral view, b) dorso-lateral view, c) lateral view; scale: 0.1 mm.

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

TYPE LOCALITY: Awaran (اواران) District, southern Balochistan, southern Pakistan.

TYPE MATERIAL: **Holotype** ♂ (NMW): "PAKISTAN 4.–7.4. S,BALOCHISTAN 1999 Awaran (distr.Khuzdar) lgt.S.Becvar".

DIAGNOSIS: Length (abdomen not included): 1.75 mm. Externally, *O. pakistanicus* is characterised by the rather strongly impressed pronotal foveae, thereby resembling *O. pallidulus* KUWERT. The new species is distinguished from the latter by the wider, less elongate labrum.

Aedeagus (Figs. 10): PL of main piece: 0.31 mm. Main piece rather straight in apical half (lateral view), strongly curved in ventral view; with a flat rounded subapical projection on left margin. Distal lobe with a dorsal branch (globular, forming a well sclerotized ring), and with a well developed ventral branch, which is elongate and slender in lateral view, wide and flattened in ventral view, apically inconspicuously gaping.

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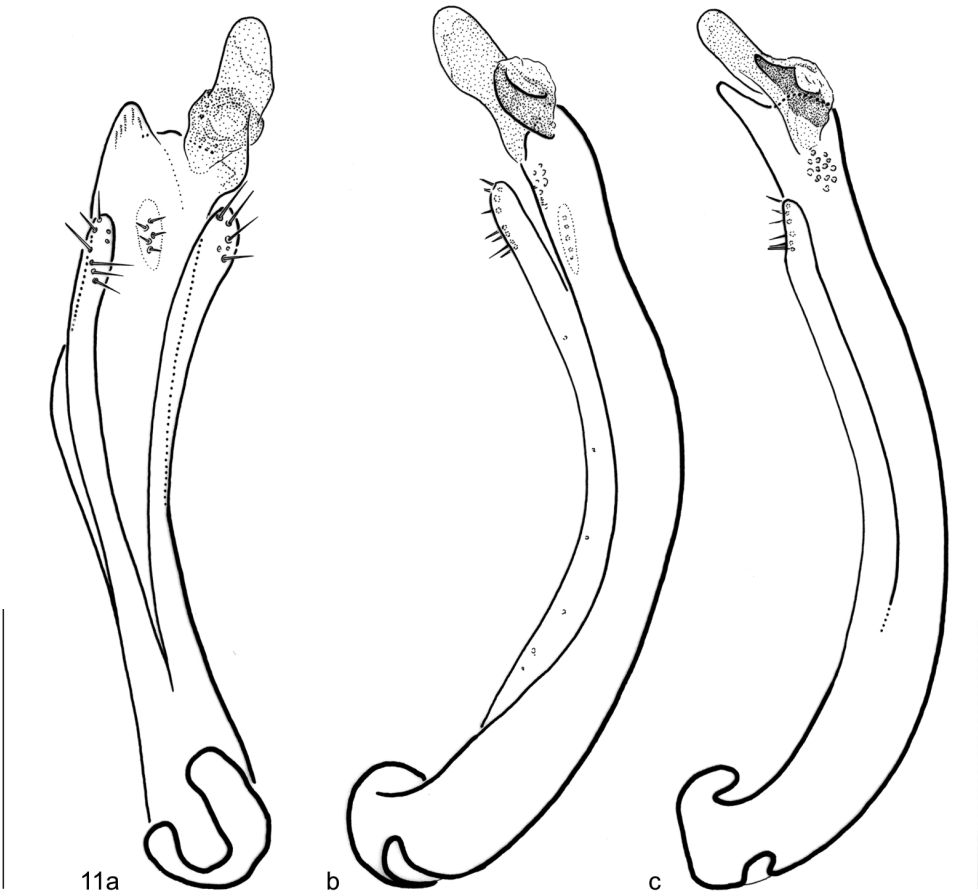

Fig. 11: *Ochthebius parvannulatus*, aedeagus, Ioannina (Greece): a) ventral view, b) dorso-lateral view, c) lateral view; scale: 0.1 mm.

In lateral view, the distal lobe of the new species somewhat resembles that of *O. inconspicuus* JÄCH, but in the latter species the distal lobe is distinctly more elongate in ventral view.

DISTRIBUTION: So far known only from the type locality.

ETYMOLOGY: Named in reference to its geographical distribution.

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

Some of the publications listed hereunder refer to several species of the *O. mediterraneus* complex [names given in square brackets: m = *magnannulatus*, me = *mediterraneus*, p = *parvannulatus*].
Ochthebius pedicularius "Forme typique" (partly): ORCHYMONT 1942: 11.
[*Hymenodes fallax* IENIŞTEA 1988: 223 (nomen nudum). – HANSEN 1998: 124.]
Ochthebius mediterraneus: JÄCH 1991 [m/me/p]. – HANSEN 1998 [m/me/p]. – JÄCH & AVTZIS 1999 [m/p]. – JÄCH 2004 [m/me/p].

TYPE LOCALITY: Northwestern branch of Arachtos River, between Karies and Millotades, ca. 11 km NE of Ioánnina (Ιωάννινα), 510 m a.s.l., 39.73800N, 20.94098E, central part of department of Ioánnina, northeastern Epirus (Ípiros, Ήπειρος), northwestern Greece.

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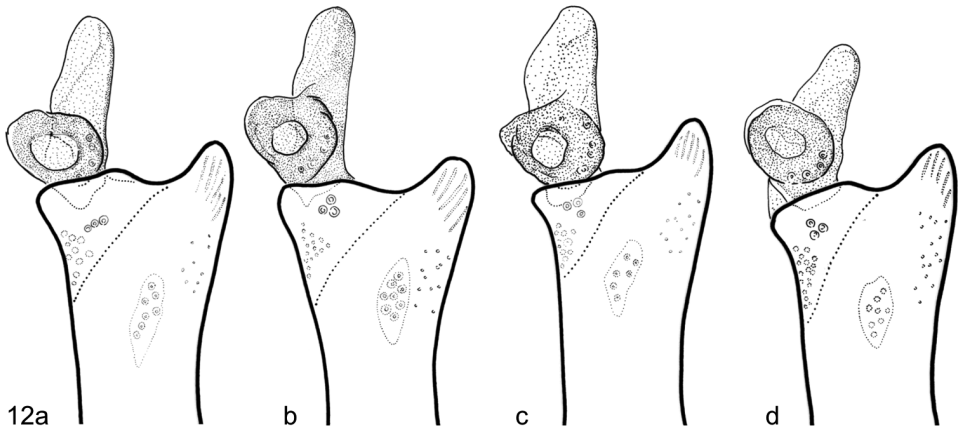

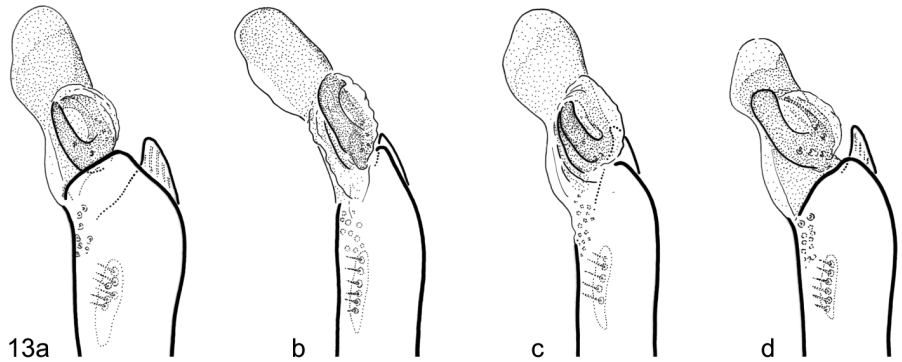

Figs. 12–13: *Ochthebius parvannulatus*, aedeagal apices: 12) dorsal view, 13) dorso-lateral view; a) Čapljina (Bosnia-Hercegovina), b) Ioannina (Greece), c) Trabzon (Turkey), d) Krasnoalexandrovskoe (Krasnodar, Russia); scale: 0.05 mm.

TYPE MATERIAL: **Holotype** ♂ (NMW): "GR: Ioannina, 22.9.1999 11 km NE Ioannina, 510m 39.73800 N 20.94098 E leg. Hess & Heckes (3)". **Paratypes**: BOSNIA–HERCEGOVINA: 3 ♂♂, 2 ♀♀ (NMW): "Apfelb.[eck] Čapljina", "foveolatus" (handwritten). ALBANIA: 4 exs. (NMW): "Skutari Mesi"; 3 exs. (NMW): "Apfelb.[eck] Alban.[ien] spt.[septentrionalis] IV.V.'05", "Skutari Mesi"; 6 exs. (NMW): "Skutari Kiri". MACEDONIA: 1 ♂ (ISNB): "MAKEDONIA, Struga lac [lake] Orhid mare [pond] 690 m 7 vi 1930 d'Orchym.", "A. d'Orchymont det: Ocht. (Hymenodes) pedicularius Kuwert", "Hym. (Neohym.) fallax m.n.sp. LEG. DET. M. AL. IENIŞTEA M. Al. Ien." (partly handwritten), "Holotype". GREECE: IPIROS: 2 ♂♂ (CSH, NMW): same label data as holotype; PELOPONNESE: 1 ♂ (NMW): "GR Peloponnes N.Achaia", "Vourakis Gorge 26.4.[19]94 Heiss"; 1 ♂ (ISNB): "MOREA (Peloponnese) Greka Zacha (Alifira) Ruisseau pierreux [gravelly stream] 9 v 1930 d'Orchym.", "A. d'Orchymont det: Ocht. (Hymenodes) pedicularius Kuwert", "Hym. (Neohym.) fallax m.n.sp. LEG DET . M.AL. IENIŞTEA M. Al. Ien." (partly handwritten), "Paratype". TURKEY: 2 ♂♂ 3 ♀♀ (ISNB, NMW): "N.E. Anatolie: Trébizonde [Trabzon] 13-14 et 23-26-VIII-1962 Em. Janssens", "R. I. Sc. N. B. I. G. 22.655"; 4 ♂♂ (NMW) + 76 exs. (ISNB): "N.E. Anatolie : Maçka alt. 600 m 19–20 et 22–VIII–1962 Em. Janssens", "R. I. Sc. N. B. I. G. 22.655", "E. Janssens det., 19 Ochthebius (Hym.) pedicularius Kuw." (partly handwritten) – 2 exs. with an additional label: "Prep. Micr. No: 1810622" resp. "1810623"; 1 ♂ (NMW): "TURKEY: Erzincan Prov.-Kemaliye NE-Dilli, Dilli

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brook 39°18'53"N 38°26'23"E, 891m, 03.06.2007 leg.M.Darilmaz (M5)"; 2 ♂♂, 2 ♀♀ (CSH, NMW): "TURCIA m. Prov.Antalya 1 km S Sagirin, Sagirini River 01.05.2003, leg. A.Skale Fluß und Kiesbänke [river and gravel banks], Ufer [shore]"; 1 ♂ (CSH): "TURCIA m. Prov. Antalya 10 km N Demirtas, Sedre-Tal [valley] 500m36°30'22"N, 32°15'44"E 25.V.2006leg. A.Skale"; 2 ♂♂ (CSH): "TURCIA m. Prov. Antalya 30 km W Gündogmus, 150m, Karpuzcay River, 36°46'38"N, 31°44'59"E 27.V.2006leg. A.Skale"; 18 exs. (CSH): "TURCIA m. Prov. Antalya32 km NE Mahmutlar, N Karapinar, Gevne Cay-River, 1050m 36°37'15"N, 32°24'52"E 29.V.2006leg. A.Skale"; 1 ♂, 1 ♀ (CSH): "TURCIA m. Prov. Mersin Aydincik 11km E, Sipahili, Babadil River, 36°09'44"N, 33°27'44"E 28.V.2002 leg. A.Skale". RUSSIA: 1 ♂, 2 ♀♀ (NMW): "RUSSIA: NW-Kaukasus Krasnodarskiy Kray Ashe river val.[ley] nr. Krasnoalexandrovskoe", "11.5.1995 swarming leg. V. Shchurov".

ADDITIONAL MATERIAL EXAMINED:

T U R K E Y: 1 ♂ (NMW): "TURCIA m. Prov. Antalya 30 km W Gündogmus, 150m, Karpuzcay River, 36°46'38"N, 31°44'59"E 27.V.2006leg. A.Skale".

DIAGNOSIS: Length (abdomen not included): 1.45–1.75 mm. Externally identical with *O. elburzi*, *O. inconspicuus*, *O. mediterraneus*, *O. magnannulatus*, and other closely related species.

Aedeagus (Figs. 11–13, 14c): PL of main piece: 0.26–0.29 mm. Main piece slender; apex slightly emarginate and left corner distinctly produced in dorsal view. Distal lobe comparatively small; right branch (ring) smaller than in the other species of the complex; left branch of variable length, as long as or longer than right branch, rather wide in dorso-lateral view.

VARIABILITY: The specimen from Karpuzcay River (Antalya, Turkey) is distinctly smaller (1.35 mm long) than any other specimen examined. Its distal lobe is also unusually small. However, regading the general aedeagal variability of *Ochthebius parvannulatus*, this specimen might well represent a dwarfish example of *O. parvannulatus*.

DISTRIBUTION (Fig. 16): Bosnia-Hercegovina, Albania, Macedonia, Greece, Turkey (Antalya, Erzincan, Mersin, Trabzon) and Russia (Krasnodar).

ETYMOLOGY: Parvus (Latin: small) and annulatus (Latin: ringed). Referring to the comparatively small ring-like sclerotization of the aedeagal distal lobe.

Ochthebius sp.

MATERIAL EXAMINED:

AZERBAYDZHAN: 1 ♂ (NMW): "Lenkoran Leder".

The aedeagus of this single specimen is remarkably similar to *Ochthebius mediterraneus*, from which it differs in a few subtle characters: main piece slightly more sinuous, left corner of main piece distinctly projecting caudad (cf. *O. parvannulatus*), left branch of distal lobe wider and shorter (Fig. 15).

Possibly, this specimen represents an undescribed species. However, more material is needed to confirm this assumption.

Discussion

Earlier authors (e.g. ORCHYMONT 1942, BALFOUR-BROWNE 1979) usually identified members of the *Ochthebius mediterraneus* complex as "*O. pedicularius*". Possibly, the specimens recorded from Armenia under the name "*O. pedicularius*" by JANSSENS (1968) must in fact be attributed to one of its members (e.g., *O. elburzi*, *O. inconspicuus*, *O. magnannulatus*, or *O. parvannulatus*).

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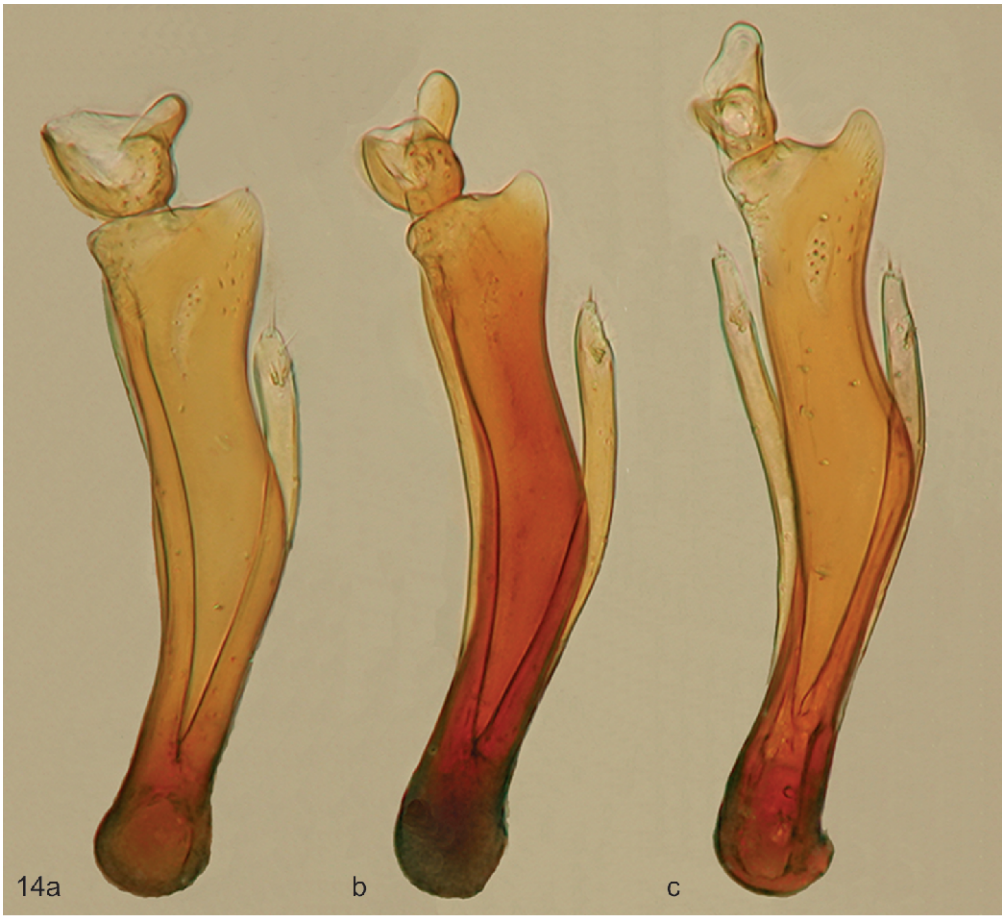

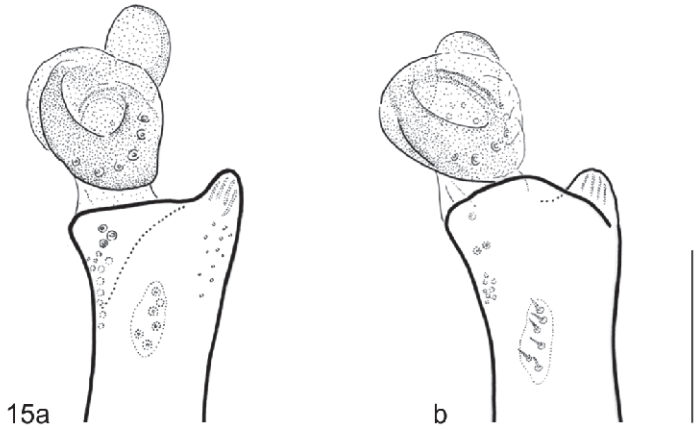

Figs. 14–15: 14) Photographs of aedeagi, dorsal view: a) *Ochthebius magnannulatus*, Lesbos (Greece), b) *O. mediterraneus*, Albacete (Spain), c) *O. parvannulatus*, Antalya (Turkey); 15) aedeagal apex, *Ochthebius* sp., Lenkoran (Azerbaydzhan): a) dorsal view, b) dorso-lateral view; scale: 0.05 mm.

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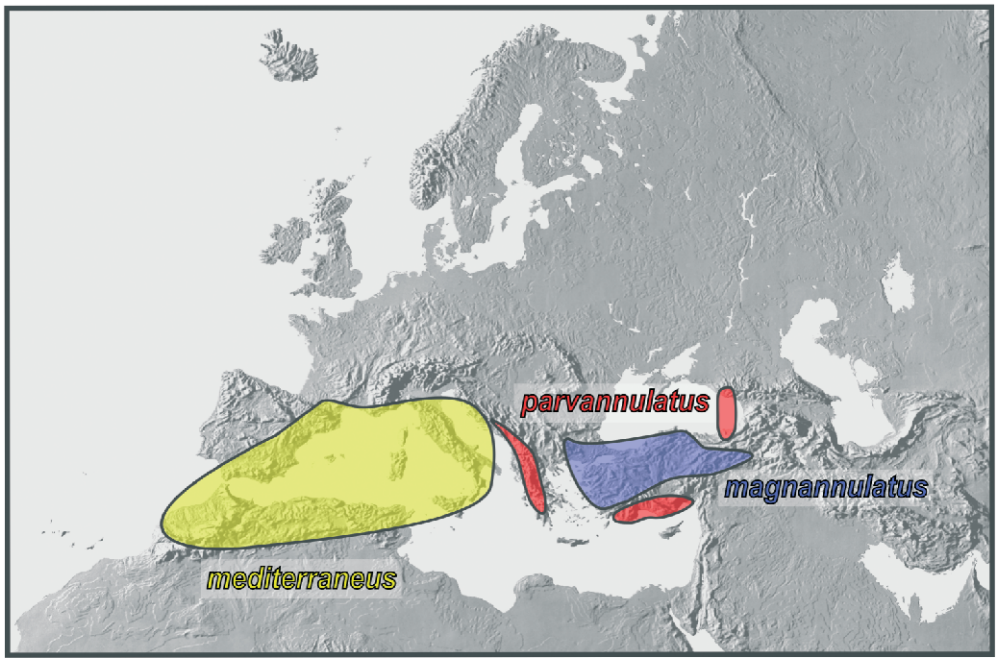

Fig. 16: Geographical distribution of *Ochthebius magnannulatus*, *O. mediterraneus*, and *O. parvannulatus.*

The second author was able to examine all five Armenian specimens (2 ♂♂, 1 ♀: Arpa River, Yekhegnadzor; 1 ♂: Berd, Shamshadin Area; 1 ♀: Goris, Shurnukh; all deposited in CKE) of "*O. pedicularius*" (det. E. Janssens), which were collected by S.M. Yablokoff-Khnzorian between 1950 and 1952. Unfortunately, all males lack their aedeagi, which were probably extracted and slide-mounted by E. Janssens. However, slide-mounts could not be traced, and therefore, correct identification of these specimens remains impossible at present.

Acknowledgements

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Dr. Juan A. DELGADO
Departamento de Zoología, Facultad de Biología, Universidad de Murcia, 30100 Murcia, Spain (jdelgado@um.es)

Dr. Manfred A. JÄCH
Naturhistorisches Museum, Burgring 7, A – 1010 Wien, Austria (manfred.jaech@nhm-wien.ac.at)

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