Order Coleoptera, superfamily Scarabaeoidea

David Král & Jan Batelka

INTRODUCTION

The scarab beetles (Scarabaeiformia: Scarabaeoidea) are an enormously large and diversified group of beetles adapted to live in a variety of habitats. Some of them exhibit parental care and sociality, some are myrmecophilous, termitophilous or ectoparasitic. Scarabaeoidea belong to the most popular insects among naturalists due to their large-length bodies, one or more extravagant horns on the head and pronotum (mostly in Geotrupidae and Scarabaeidae), large mandibles (in Lucanidae), bright colours and interesting life histories. They form a distinctive and evidently monophyletic cosmopolitan coleopteran group comprising about 2,500 genera and more than 35,000 species are known so far (Scholtz & Grebennikov, 2005). The group is clearly distinguished by highly modified, burrowing prothorax with large procoxae and usually dentate tibiae with only one terminal spur, metathoracic wings with reduced venation and a strong radial bending zone coupled with a hinge, a lamellate antennal club, no metacoxal plates and tergite 8 forming a pygidium not concealed by tergite 7. The group appears to be primitively adapted to burrowing in soil, with secondary evolutionary trends for other habitats. Larvae, also known as 'white grubs', have typical C-shape, soft body and greyish to white colour. They characteristically have all three pairs of legs usually developed, abdomen without urogomphi and cribriform spiracles, three larval instars, generation period usually takes one year, often extends to two, sometimes three or four years. The group is represented in the UAE by subterranean forms feeding on roots or soil organic matter (Glaresidae, Hybosoridae, Scarabaeidae: Dynamopodinae, Aphodiinae, Eremazinae, Melolonthinae or Rutelinae), or forms associated with rotting wood (Scarabaeidae: Dynastinae, Cetoniinae), fungi (Bolboceratinae), carcasses (Trogidae) or excrement (Scarabaeidae: Scarabaeinae, Aphodiinae). Biology of Scarabaeoidea is unusually variable. The larval stages live in environments providing them with adequate protection from drying. Emergence synchronization of adults is achieved by a diapause at the end of the third instar (praepupal stage). The adults may feed on the same materials as do their larvae, or may be leaf- (e.g. Melolonthinae or Rutelinae) or nectar-feeders (e.g. Cetoniinae) (Lawrence & Ślipiński, 2013; Scholtz & Grebennikov, 2005). Some groups of Scarabaeoidea might be of significant environmental, health or economic importance, although their influence in different UAE ecosystems is yet to be evaluated. Larvae of many species of rhinoceros beetles (genus *Oryctes* Hellwig, 1798) are reported as pests of roots of date palm and ornamental palm trees in plantations and orchards (El-Shafie, 2014; Gassouma, 1991; Gharib, 1970; Lepesme et al., 1947; Swair et al., 1979). Dung beetles of the subfamily Scarabaeinae and many species of the tribe Aphodiini are irreplaceable in the process of decomposition of animal (especially those of cattle and camels) and human faeces as imagoes of these beetles use excrement as food for their larvae (see e.g. Hanski & Cambefort, 1991).

Both adults and larvae (white grubs) of Melolonthinae (it may concern also *Schizonycha* Dejean, 1833, Sericini (e.g. *Maladera* (*Cephaloserica*) *insanabilis* (Brenske, 1894) and Adoretini species distributed in the territory of the UAE) are well known as pests of numerous trees and shrubs planted by man, adults for their consumption of green leaves with occasional defoliation and larvae for their harmful feeding on the roots (Bhavane et al, 2012;

Gol'berg et al., 1986, 1989; Regupathy et al., 1995). Last but not least, many inconspicuous native species in the desert may be hosts of other parasitoid insects important for the UAE insect ecosystem and biodiversity. Van Achtenberg & van Harten (2009) reported from the UAE 13 species of the family Thynnidae (Hymenoptera), whose larvae "are likely ectoparasitoids of soil-inhabiting scarab beetle larvae" as they are at least in the subfamily Myzininae, and Schulten (2008) reported four species of Scoliidae (Hymenoptera), whose larvae develop on the same host-group. No observation on specific host-association between hymenopterans and scarab beetles has been reported from the UAE so far.

In this chapter we present first comprehensive overview of the scarabaeoid fauna of the UAE. Probably the first reference to the scarab beetle fauna of the UAE is a description of *Gymnopleurus arabs* Garetta, 1914 (= *G. persianus* Reitter, 1909) from "Arabie orientale, Dibba" (Garetta, 1914). Until the beginning of the 3rd millenium, only scarce records of scarabaeoid beetles were available from the country (e.g. Walker & Pittaway, 1987; Gassouma, 1991; Tigar & Osborne, 1999). Those were usually based on singletons and accidental samplings, or an occasional regional survey. Subsequently, some records in the regional catalogue of Jebel Hafit beetle fauna were added (Howarth & Gillett, 2004). Based on the above publications, van Harten (2005) listed 34 species from the UAE and in the same year Gillett & Gillett (2005) had knowledge about 36 species from the same territory.

Numerous papers dealing with Scarabaeoidea of the territories adjacent to the UAE, mainly of the remaining parts of the Arabian Peninsula, were used for preparation of the present paper. We can divide them to regional checklists or lists (Egypt: Alfieri, 1976; Iraq: Abdul Rassoul, 1976; Derwesh, 1965; Israel: Chikatunov & Pavlíček, 1997; Jordan: Sharaf et al., 1983, Katbeh-Bader & Barbero, 1999; Kuwait: Al-Houty, 1989, 2004; Oman: Janikova, [undated]; Palestine: Bodenheimer, 1937; Saudi Arabia: Beccari, 1971; El-Hawagry et al., 2013; Shalaby, 1961 and Syria: El-Hariri, 1971, or comprehensive monographs dealing with a certain systematic group published mainly in the series 'Fauna of Saudi Arabia' or 'Fauna of Arabia' (Ahrens, 2000; Kuijten, 1980; Paulian, 1948, 1980; Pittino, 1984; Sabatinelli & Pontuale, 1998; Scholtz, 1980; Zunino, 1979, 1981).

MATERIALS AND METHODS

A large quantity of Scarabaeoidea was collected by Antonius van Harten and his co-workers during the research project focused on the arthropod fauna of the UAE (2004–2011). Most of this material was captured using light and Malaise traps, for more details see van Harten (2008). The material was sorted in tubes in ethanol and was divided between BMNH, NMPC, and ZFMK (small part). The material collected by the second author and Hynek Pinda is deposited in NMPC and in the private collection of Jan Batelka (JBCP); material collected by the Czech entomologist Pavel Kučera jr. is deposited in his private collection (PKCL) and some voucher specimens are also kept in IECA, NMPC and LMNC; material collected by German lepidopterist Roland Breithaupt has been donated to NMPC. Most of the material we present here, with addition of all previously published records. The subfamily Dynastinae is treated in a separate chapter of this volume (Krell & Král, 2015) and the deposition of that material is dealt with there.

The following acronyms identify the collections housing the material examined (curators names are in parentheses):

BMNH – The Natural History Museum [former British Museum (Natural History)], London, United Kingdom, (Maxwell V. L. Barclay);
DKCP – David Král collection (deposited in NMPC);
IECA – Institute of Entomology, Biology Centre ASCR, České Budějovice, Czech Republic (Aleš Bezděk);
JBCP – Jan Batelka collection, Praha, Czech Republic;
LMCT – Ladislav Mencl collection, Týnec nad Labem, Czech Republic;
MHNG – Muséum d'histoire naturelle, Genève, Switzerland (Giulio Cuccodoro);
NHMB – Naturhistorisches Museum, Basel, Switzerland (Michel Brancucci †, Eva Sprecher-Uebersachs);
NMPC – Národní muzeum, Praha, Czech Republic (Jiří Hájek);
PKCL – Pavel Kučera jr. collection, Liberec, Czech Republic;
ZFMK – Zoologisches Forschungsmuseum Alexander König, Bonn, Germany (Dirk Ahrens).

Specimens were examined with an Olympus SZ61 stereomicroscope, measurements were taken with an ocular grid. The habitus photographs were taken using a Canon MP-E 65mm/2.8 1-5× Macro attached to a Canon EOS 550D camera. Partially focused images of each specimen were combined using Helicon Focus 3.20.2 Pro software or Zerene software. Specimens of the newly described species are provided with one printed red label: "[name of the taxon] sp. nov., HOLOTYPUS, [ALLOTYPUS or PARATYPUS], sex symbol, David Král det. 2014". Exact label data are cited for the type material examined only. Separate labels are indicated by double slash "//", lines within each label are separated by a slash "/". Information in quotation marks indicates the original spelling. Our remarks and additional comments are placed in brackets: [p] – preceding data (within quotation marks) are printed; [hw] – same but handwritten.

The species are arranged alphabetically in the systematic account. The nomenclature follows Löbl & Smetana (2006) excepting Aphodiinae, treated here in the sense of Dellacasa et al. (2001) (former subgenera of *Aphodius* Hellwig, 1798, are treated here as genera). Family group names classification is adopted from Bouchard et al. (2011), only we accept the name Pachydemini Burmeister, 1855 instead of Tanyproctini Erichson, 1847 (for details see Lacroix & Montreuil (2013), who supported the precedence of Pachydemini over Tanyproctini by the prevailing usage of spelling Pachydemini).

Abbreviations: AvH = leg. Antonius van Harten; NARC = National Avian Research Centre.

SYSTEMATIC ACCOUNT

Superfamily **Scarabaeoidea** Latreille, 1802

Family **Trogidae** Mac Leay, 1819

Subfamily **Omorginae** Nikolajev, 2005

Genus ***Afromorgus*** Scholtz, 1986

Afromorgus gemmatus (A.G. Olivier, 1789) Plate 1

Published records: Pittino (2006): No locality specified.

Specimens examined: None.

Length: 10–13 mm.
Distribution: Widespread Afrotropical species with the Sahelian type of distribution, so far known from Chad, Djibouti, Egypt, Ethiopia, Ghana, Guinea, Mali, Mauritania, Niger, Nigeria, Senegal, Sudan (Alfieri, 1976; Balthasar, 1936; Pittino, 2006; Scholtz, 1980a,b, 1982) eastwards reaching the Arabian Peninsula in which it is recorded from Saudi Arabia ("Hedjaz: Raghama") (Pittino, 2005, 2006; Scholtz, 1980a, 1980b), Oman (Dhofar) (Scholtz, 1980a) and the UAE.

Afromorgus niloticus desertorum (Harold, 1872) Plate 2
Published records: Pittino (2006): No locality specified.
Specimens examined: NARC, near Sweihan, 24°24′N 55.26′E, 1 ex., 1.ii–14.iii.2005, light trap, AvH, NMPC.
Length: 15–17 mm.
Distribution: Species described from "Aegyptus" and as *Trox philbyi* Paulian, 1948, from Saudi Arabia (type locality: "Hejaz, Mecca") (for synonymy see Haaf, 1954); so far recorded from Egypt and Ethiopia without precise data (Alfieri, 1976; Haaf, 1954; Pittino, 2006; Scholtz, 1980a, 1980b, 1982) and the Arabian Peninsula: Saudi Arabia ("Hedjaz; Asir; Abha Gizan; Taif; Mecca; Ad Darbo; Maraba; Khamis Mushayat; Khurma, Jidda") (Paulian, 1948, 1980; Scholtz, 1980a, 1980b); Yemen ("Lahadj") (Scholtz, 1980a, 1980b) and from the UAE.

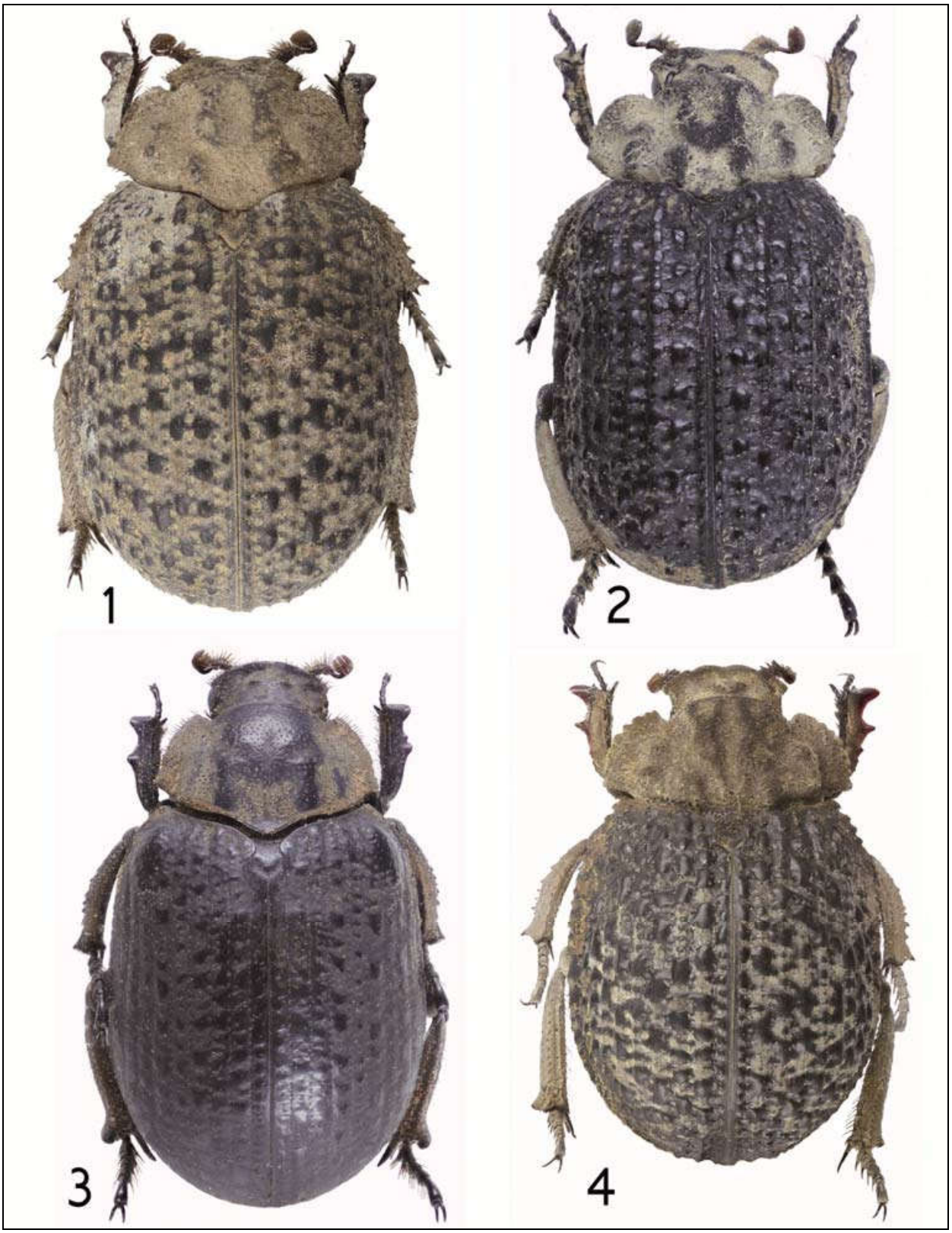
Afromorgus procerus (Harold, 1872) Plate 3
Published records: Pittino (2006): No locality specified.
Specimens examined: Hatta, 24°49′N 56°07′E, 2 ex., 24–30.v.2005, light trap, AvH, NMPC.
Length: 16–20 mm.
Distribution: Widespread Sahelian species restricted to arid savannas and desert regions. Described from "Arabia"; so far known from Chad, Djibouti, Eritrea, Egypt, Iran, India, Mali, Niger, Pakistan, Senegal, Somalia and Sudan (Balthasar, 1936; Emden, 1948; Haaf, 1954; Müller, 1942; Paulian, 1948; Pittino, 2006; Scholtz, 1980a, b 1982; Tesař, 1963). In the Arabian Peninsula recorded from Saudi Arabia ("Hedjaz: Jidda; Quinfidan; Upper Wadi Dhila; Wadi Lith") (Paulian, 1948, 1980; Scholtz, 1980a, 1980b) and from the UAE.

Afromorgus verrucosus (Reiche & Saulcy, 1856) Plate 4
Published records: Pittino (2006): No locality specified.
Specimens examined: None.
Length: 15–18 mm
Distribution: Known so far from Egypte, Iraq and Syria (Balthasar, 1936, Pittino, 2006). From the Arabian Peninsula recorded from Yemen ("Aden, Lahej") by Gahan (1896) and the UAE.

Subfamily **Troginae** Mac Leay, 1819

Genus ***Trox*** Fabricius, 1775

Trox klapperichi Pittino, 1983 Plate 5
Published records: Pittino (2006): No locality specified.
Specimens examined: None.
Length: 8–10 mm.



Plates 1–4. 1: *Afromorgus gemmatus* (A.G. Olivier), ♂, 11.5 mm, Yemen, Abyan Gov., Lawdar, (NMPC); 2: *A. niloticus desertorum* (Harold), 15.0 mm, UAE, NARC, near Sweihan; 3: *A. procerus* (Harold), 18.5 mm, UAE, Hatta; 4: *A. verrucosus* (Reiche & Saulcy), ♀, 16.5 mm,Yemen, Aden, Sheikh Othman (NMPC); all habitus, dorsal view.

Distribution: Eastern-Mediterranean species described from Jordan and known from Greece, Cyprus, Iran, Iraq, Israel, Jordan, Syria, Turkey and Ukraine (Crimea) (Chikatunov & Pavlíček, 1997; Katbeh-Bader & Barbero, 1999); from the Arabian Peninsula recorded from Saudi Arabia ("Hedjaz") (Pittino, 1983) and from the UAE.

Trox puncticollis Haaf, 1953 Plate 6
Published records: Pittino (2006): No locality specified.
Specimens examined: None.
Length: 10–13 mm.
Distribution: Saudi Arabia, described from "Arabia, Medjaz" [= probably Hedjaz) and erroneously form "Capland" (Haaf, 1953), additional paratypes labelled "Hedjaz" and "Djedda" (Scholtz, 1980); reported also from the UAE.

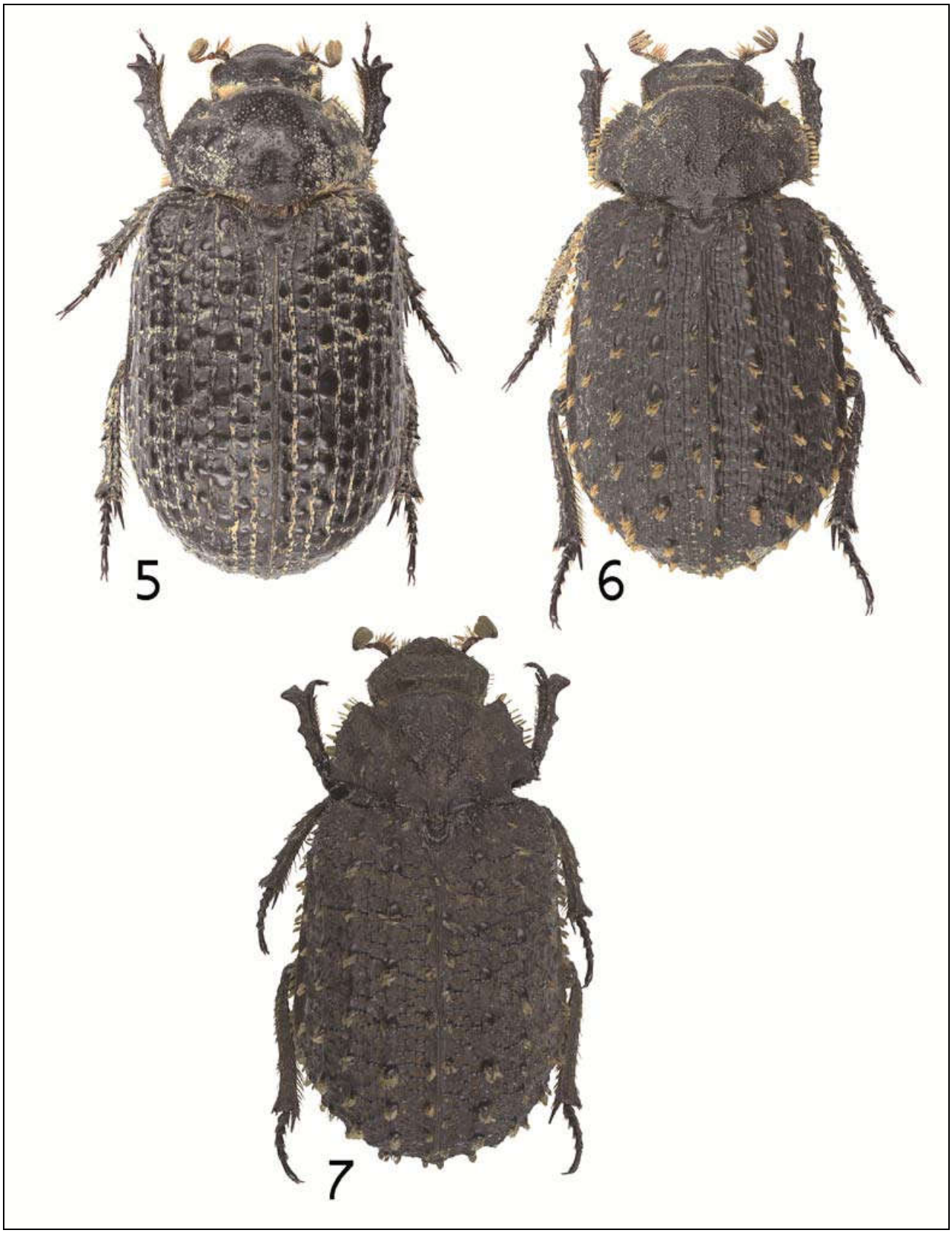
Trox squamiger Roth, 1851 Plate 7
Published records: Pittino (2006): No locality specified.
Specimens examined: None.
Length: 10–14 mm.
Distribution: Widely distributed Afrotropical species (Haaf, 1954; Scholtz, 1980) reaching in the northeast the Ethiopia and the Arabian Peninsula from which recorded from Yemen ("Haz" in region of Sana'a), Saudi Arabia ("Asir: Harabrab and Faifa") (Paulian, 1948, 1980), and the UAE.

Family **Glaresidae** H. J. Kolbe, 1905

Genus ***Glaresis*** Erichson, 1848

Glaresis arabica (Paulian, 1980) Plates 8–9, 14; Figures 1–2
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 7 ex., 19–27.iii.2006, AvH, light trap, NMPC. SWW of ad-Dhaid, 25°09′N 55°48′E, 6 ex., 29.xii.2005–7.ii.2006, light trap, AvH, NMPC. Sharjah Desert Park, 25°17′N 55°42′E, 1 ex., 22.ii–9.iii.2005, light trap, AvH, NMPC; 2 ex., 25.i–22.ii.2005, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 1 ex., 26.ii–2.iv.2006, light trap, AvH, NMPC; 1 ex., 16.xi–21.xii.2005, light trap, AvH, NMPC.
Length: 4.5–5.1 mm.
Distribution: Species restricted to the Arabian Peninsula (Král & Löbl, 2006a); widespread in Saudi Arabia: "Wadi Khumra" (type locality), Hofuf, Wadi Scheibuha, Wadi Hanifa, Wadi Mizbil, Araïda, Dammam, Wadi Durmah, Ryiadh, Wadi al-Ammariyah) (Paulian, 1980), As Sirar (Keith, 2002) and Oman (Muscat: Qurum) (Keith & Drumont, 2004) and Qatar (Keith & Bordat, 2011). New for the UAE.

Glaresis nestor Král **sp**. **nov**. Plates 10–11, 15; Figures 3–4
Type locality: United Arab Emirates, Wadi Maidaq, 25°18′N 56°07′E.
Specimens examined (13 spec.): Holotype ♂ (NMPC), "UAE. 14.03.2006 / Wadi Maidaq, 25.18 / N 56.07E, at light / H. Pohl lgt. [p]"; Paratypes, 8 ex. (NMPC), same locality data as holotype; Paratypes, 4 ex. (BMNH), "United Arab Emirates / Wadi Maidaq, 410 m / Light trap, 25°19′N 56°08′E / 26.v.-6.vi.2006, leg. A. van Harten [p]".
Description of holotype (♂): Robust, strongly convex, weakly widened posteriad, brownish yellow coloured, weakly shining; macrosetation pale. Head with anterior clypeal margin



Plates 5–7. 5: *Trox klapperichi* Pittino, ♂, 9.5 mm, Iraq, Ruthba (NMPC); 6: *T. puncticollis* Haaf, 10.5 mm, Yemen, Sana'a Gov., Wadi Dhahr (NMPC); 7: *T. squamiger* Roth, 11.0 mm, Eritrea, "Wadi Ugri" (NMPC); all habitus, dorsal view.

straight, finely upturned, with row of thick macrosetae; frons not tuberculate; head surface coarsely, densely granulate, each granula bearing short, erect macroseta; genal margin not serrate, with sparse macrosetae. Mandibles robust, external margins sinuate. Pronotum transverse, moderately convex, with median longitudinal, anterior transversal and lateral depressions weakly impressed, mediobasal fovea absent (Plate 10); margins not bordered, lateral and basal margins with row of thick macrosetae; surface sparsely granulate, each granula with short, erect macroseta. Scutellar plate triangular, smooth and bare.
Elytra strongly convex, with ten striae and ten intervals; each stria with a row of coarse, simple punctures; intervals weakly costate; costae with row of short, erect macrosetae. Macropterous. Pygidium weakly shining, scabrous. Ventral surface alutaceous. Metaventral plate bare and smooth, longitudinal furrow absent. Mesotibial fossae of meso-metaventrum present, distinctly impressed, with sharp edges, divergent posteriad (Plate 15). Posterior-superior margin of metatrochanter finely serrate, bearing row of long, thick macrosetae, apical tooth absent. Posterior-superior margin of metafemora slightly irregular, but lacking teeth; anterior-superior margin of metafemora with row of clavate macrosetae (Plate 15). Protibia tridentate. Mesotibia slightly curved, with three strong spines present on outer margin from middle nearly to apex; apex acute, strongly projected. Metatibia broadly triangular, outer margin irregularly serrate with a median projection, strongly macrosetaceous; row of spine-bearing tubercles extending from base to apex medially; inner margin smooth, macrosetaceous; apex of metatibia with outer horseshoe shaped portion subequal to inner spur-bearing portion.
Male genitalia: Parameres as in Figures 3–4.
Sexual dimorphism: Female differs from male only by body indistinctly broader posteriad.
Measurements: Total body length: 2.9–3.5 mm (holotype 3.0 mm; allotype 3.2 mm).
Differential diagnosis: The new species is similar to *Glaresis lomii* Müller, 1942, described and so far known only from Somalia (Mogadishu), for more details see Müller (1942), Petrovitz (1968a) and Scholtz (1983) by presence of pronotal depressions and relatively small size. Both species can be readily separated by absence of transversally oval fovea on mediobasal part of pronotum in *G. nestor* Král sp. nov. (Plate 10) (*G. lomii* with mediobasal pronotal fovea). For differentiation from other *Glaresis* species known from the Arabian Peninsula refer the key below.
Collecting circumstances: Habitat preferences unknown, all specimens were collected in desert or semidesert habitats using light traps (van Harten, 2008).
Distribution: So far known only from the UAE.
Name derivation: The new species resembles in his appearance a *nestor* – very old man, the oldest person in the company; in Greek mythology, Nestor of Gerenia was an Argonaut who helped fight the centaurs, and participated in the hunt for the Calydonian boar; noun in apposition.

Glaresis vanharteni Král **sp. nov.** Plates 12–13, 16; Figures 5–6

Type locality: United Arab Emirates, Al-Ajban, 24°36′N 55°01′E.
Specimens examined (51 spec.): Holotype, ♂ (NMPC), "UAE, 07.11.-09.11.2005 / Al-Ajban, 24°36′N 55°01′E / light trap & Malaise traps / A. van Harten lgt. [p]"; Paratypes, 8 ex. (NMPC), same locality data as holotype; Paratypes, 4 ex. (NMPC), "UAE, 10.-17.10.2005 / SW of ad-Dhaid 24.36N / 55.01E, in Malaise traps & light trap / A. van Harten lgt. 091p 093"; Paratype 1 ex. (NMPC), "UAE, 13.11.-11.12.2005 / Sharjah Desert Park, 25. / 17N 55.42E, light trap / A. van Harten lgt. [p]"; Paratypes, 3 ex. (NMPC), "UAE, 22.02.-09.03.2005 / Sharjah Desert Park / 25.17N 55.42E, light trap / A. van Harten

Plates 8–11. 8: *Glaresis arabica* (Paulian), ♂, 4.6 mm, UAE, al-Ajban, habitus, dorsal view; 9: Same, ventral view; 10: *G. nestor* Král sp. nov., holotype, ♂, 3.0 mm, UAE, Wadi Maidaq; 11: Same, ventral view.

lgt. [p]"; Paratypes 2 ex. (NMPC), "UAE, 13.-29.11.2005 / Fujairah, 25.08N 56.21E, / light trap / A. van Harten lgt. [p]"; Paratypes, 8 ex. (NMPC), "UAE, NARC, near Sweihan / 24.24N 55.26E / 26.02-02.04.2006 / light trap, A.van Harten lgt. [p]"; Paratypes, 6 ex. (NMPC), "UAE, NARC, near Sweihan / 24.24N 55.26E / 01.02-14.03.2005/ light trap, A.van Harten lgt. [p]"; Paratypes, 6 ex. (NMPC), "UAE, Sharjah Desert Park / 25°17'N 55°42'E / 13.–24.iv.2005, in light trap, A. van Harten lgt. [p]"; Paratypes, 6 ex. (NMPC), "UAE, Sharjah Desert Park / 25°17′N 55°42′E / 25.i.–22.ii.2005, in light trap, A. van Harten lgt. [p]"; Paratypes, 5 ex. (BMNH), "United Arab Emirates / Al-Ajban, 80 m / 24°36′N 55°01′E / 12.-19.ix.2006 / leg. A. van Harten [p]"; Paratype, 1 ex. (PKCL), "UAE - Emirates / emirat Sharjah / FILI (160 m n.m.) / N25°00′33 E55°48′29 / 20.11.-4.12. 2013, lgt. P. Kučera jr. [p]".

Description of holotype (♂): Robust, strongly convex, considerably widened posteriad, brownish yellow coloured, weakly shining; macrosetae pale. Head with anterior clypeal margin straight, finely upturned, finely serrate, with row of thick macrosetae; frons not tuberculate; head surface coarsely, densely granulate, each granula bearing short, erect macroseta; genal margin finely serrate, with sparse macrosetae. Mandibles robust, external margins sinuate. Pronotum transverse, moderately convex, only anterior transversal depression present (Plate 12); margins not bordered, lateral margins straight subbasally, lateral and basal margins with row of thick macrosetae; surface sparsely granulate, each granula with short, semierect macroseta. Scutellar plate triangular, smooth and bare.

Elytra strongly convex, with ten striae and ten intervals; each stria with a row of coarse, simple punctures; intervals distinctly costate, costae interrupted by row of short, erect macrosetae. Macropterous.

Pygidium weakly shining, scabrous. Ventral surface alutaceous. Metaventral plate bare and smooth, longitudinal furrow absent. Mesotibial fossae of meso-metaventrum present, with outer edge regularly rounded (Plate 16). Posterior-superior margin of metatrochanter finely serrate, bearing row of long, thick macrosetae, apical tooth absent. Posterior-superior margin of metafemora slightly irregular, but lacking teeth; anterior-superior margin of metafemora with row of slender macrosetae (Plate 16). Protibia tridentate. Mesotibia slightly curved, with five strong spines present on outer margin from middle nearly to apex; apex acute, strongly projected. Metatibia broadly triangular, outer margin irregularly serrate with a median projection, strongly macrosetaceous; row of spine-bearing tubercles extending from base to apex medially; inner margin smooth, macrosetaceous; apex of metatibia with outer horseshoe shaped portion subequal to inner spur-bearing portion.

Male genitalia: Parameres as in Figures 5–6.

Variability: Paratypes show slight individual variations in body length.

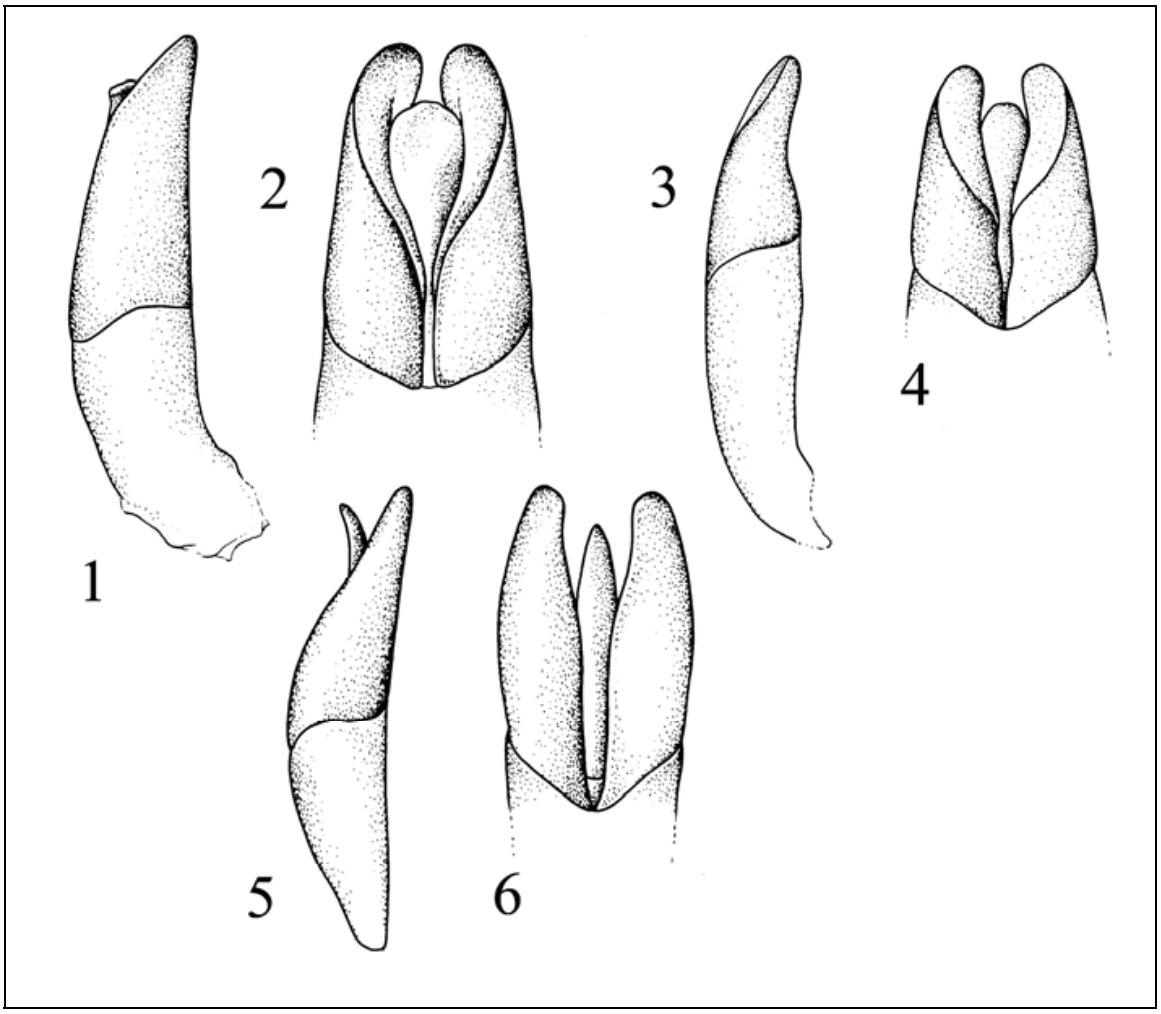
Sexual dimorphism: Female differs from male only by body being indistinctly wider posteriad.

Measurements: Total body length: 3.6–4.5 mm (holotype 4.1 mm; allotype 4.4 mm).

Differential diagnosis: The new species is classified within *Glaresis oxiana* Semenov, 1892, group mainly by absence of pronotal depressions and distinctly impressed mesotibial meso-metaventral fossae, for more details see Semenov & Medvedev (1932). *Glaresis vanharteni* Král sp. nov. is similar and probably closely related to *G. zarudniana* Semenov & S. I. Medvedev, 1932, described from Iran (Kerman). Both species can be readily separated by shape of mesotibial meso-metaventral fossae. In the new species outer edge of the fossae is regularly rounded (Plate 16) while in *G. zarudniana* it is angulate in approximately anterior third. For differentiation from other *Glaresis* species known from the Arabian Peninsula refer to the key below.

Collecting circumstances: Habitat preferences unknown, all specimens were collected in desert or semidesert habitats using light traps (van Harten, 2008).

Plates 12–16. 12: *Glaresis vanharteni* Král sp. nov., holotype, ♂, 4.1 mm, UAE, al-Ajban, habitus dorsal view; 13: Same, 4.0 mm, paratype, ♂, ventral view. 14: *G. arabica* (Paulian), ♂, UAE, al-Ajban; 15: *G. nestor* Král sp. nov., holotype, ♂, UAE, Wadi Maidaq; 16: *G. vanharteni* Král sp. nov., paratype, ♂, UAE, al-Ajban; all ventral surface in detail.



Figures 1–6. 1: *Glaresis arabica* (Paulian), parameres, lateral aspect, schematically; 2: Same, dorsal aspect; 3: *Glaresis nestor* Král sp. nov., parameres, lateral aspect, schematically; 4: Same, dorsal aspect; 5: *Glaresis vanharteni* Král sp. nov., parameres, lateral aspect, schematically; 6: Same, dorsal aspect.

Distribution: So far known only from the UAE.
Name derivation: Patronymic; the new species is dedicated to our colleague Antonius van Harten (Vaiamonte, Portugal), the coordinator of the 'Arthropod fauna of the UAE' project.

Key to *Glaresis* species known from the Arabian Peninsula

1 Pronotum with depressions (Plate 10); mesotibial meso-metaventral fossae distinctly impressed, with sharp edges; anterior-superior margin of metafemora with row of clavate macrosetae (Plates 11, 15); small sized species (2.9–3.6 mm); UAE .... ***G. nestor*** Král sp. nov.

– Pronotum smooth, pronotal depressions absent (Plates 8, 12); mesotibial meso-metaventral fossae weakly impressed or absent; anterior-superior margin of metafemora with slender macrosetae (Plates 9, 13, 14, 16); large sized species **2**

2 Body robust, distinctly widened posteriad (Plate 8); dorsal surface moderately shining; lateral margins of pronotum distinctly sinuate subbasally (Plate 8); mesotibial meso-

metaventral fossae absent (Plates 9, 14); body length 4.5–5.1 mm; Oman, Qatar, Saudi Arabia, UAE ... . ***G. arabica*** (Paulian)

– Body slender, almost parallel (Plate 12); dorsal surface alutaceous; lateral margins of pronotum almost straight subbasally (Plates 13, 16); mesotibial meso-metaventral fossae weakly impressed (Plates 13, 16); body length 3.6–4.5 mm; UAE .... ***G. vanharteni*** Král sp. nov.

Family **Geotrupidae** Latreille, 1802

Subfamily **Bolboceratinae** Mulsant, 1842

Tribe **Athyerini** Lynch-Aribálzaga, 1878

Genus ***Pseudoathyreus*** Howden & Martínez, 1963

Pseudoathyerus orientalis (Laporte, 1840) Plates 17–18

Published records: Gillett & Gillett (2005) (as *Pseudoathyreus flavohirtus* (Walker, 1871)): No locality specified.

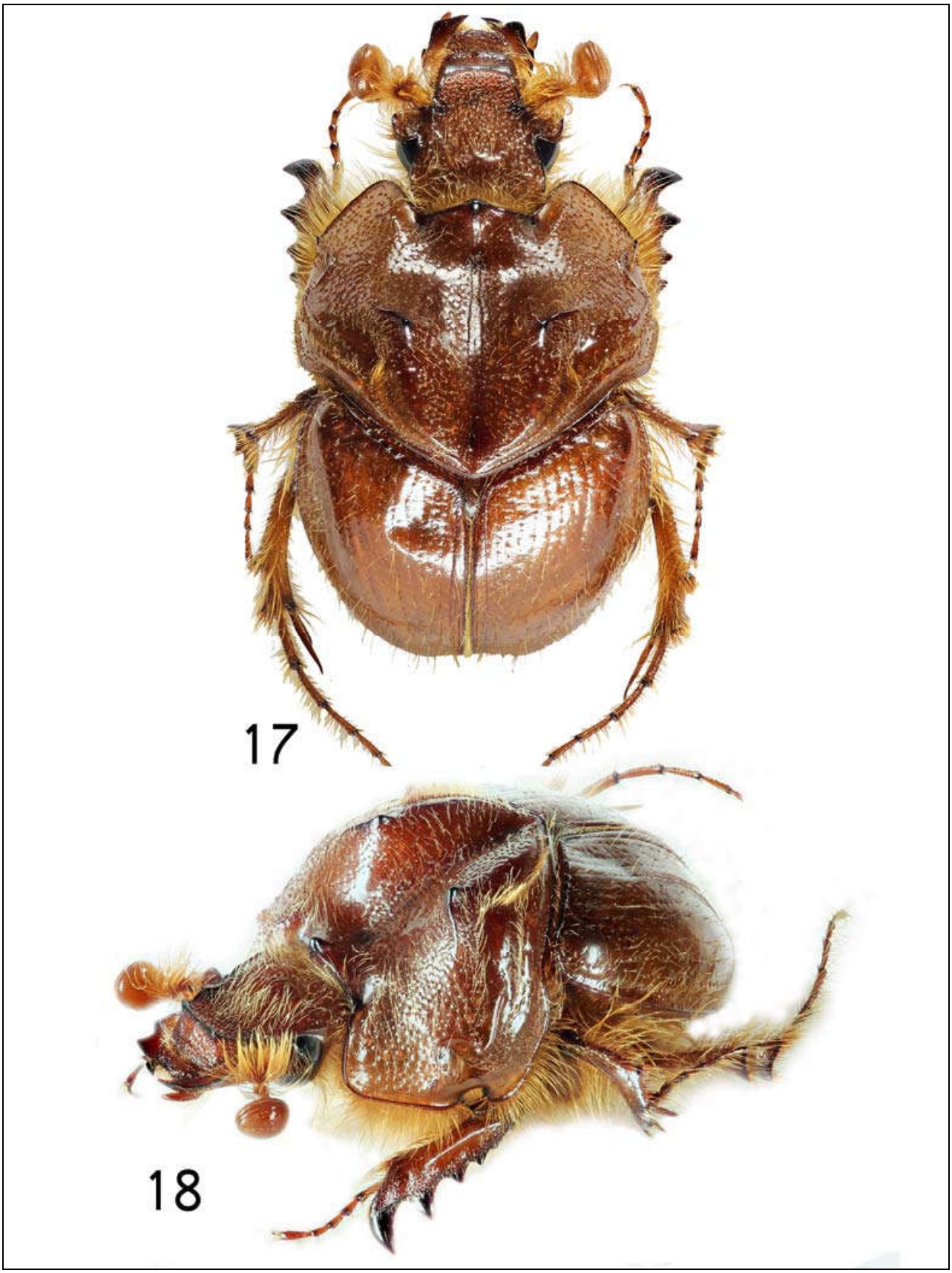
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 9 ex., 19–27.iii.2006, light trap, AvH, NMPC; 2 ex., 12–19.ix.2006, light trap, AvH, BMNH. Sharjah Desert Park, 25°17′N 55°42′E, 1 ex., 13–24.iv.2005, light trap, AvH, NMPC.

Additional specimens examined, not from the UAE: CHINA, Xizang: "Thibet", 2 ex., NHMB. INDIA, Rajasthan: Barmer, Thar Desert, several ex., viii.[19]55, leg. P.S. Nathan, MHNG, NHMB and NMPC. INDIA: "Bengal", 2 ex., NHMB. IRAN, Bushehr: 15 km NW of Bandar-e-Gonāveh, Chahāk vill., 29°40′N 50°25′E, ca 50 m, 1♂, 3–5.v.1996, at light, leg. David Král, DKPC. IRAN, Hormozgan: Bandar-abass [= Bandar-e-Abbās], several ex., MHNG, NHMB and NMPC; Shaghoo [= Shaqu], several ex., MHNG, NHMB and NMPC. NEPAL: "Nepaul", 1 ex., NHMB.

Length: 14–22 mm.

Remarks: Gillett & Gillett (2005) and Janikova [undated] reported *P. flavohirtus* (Walker, 1871) from the UAE and Oman without indication of locality, but we have not studied their specimens. This species has been described from Sudan (type locality: "Hor Tamanib" [= Jebel Tamanib in Al Wilāyah Ash Sharqīyah region]) (Walker, 1871: 6), not from "Arabia and Djibouti" as incorrectly stated in Carpanto et al. (2000) and Král et al. (2006). Type material of *P. flavohirtus* could be traced by the first author neither in BMNH nor in the Oxford Museum, where the remains of the Walker's collection are deposited (Horn & Kahle, 1935–1937). We are of the opinion that this species is either a separate species or a junior subjective synonym of *P. orientalis* or some other African species described by Laporte (1840) or Klug (1843). *Pseudoathyreus orientalis* seems to be an eremian species widely distributed from Xizang and Nepal through northern India and Iran to the Arabian Peninsula and that records from the UAE and Oman by Gillett & Gillett (2005) and Janikova, [undated] belong in fact to *P. orientalis*. Therefore, *P. flavohirtus* is excluded from the fauna of the UAE.

Distribution: Described from "Bengalen" (Laporte, 1840; Klug, 1843; Boucomont, 1912; Carpaneto et al., 2000); recorded so far from Rajasthan (India) (Frey, 1956) and Xizang (China) (Král et al., 2006). First records from Iran (Busher and Hormozgan Prov.) and Nepal. New for the Arabian Peninsula.



Plates 17–18.17: *Pseudoathyreus orientalis* (Laporte), ♂, 19 mm, UAE, al-Ajban, habitus, dorsal view; 18: Same, fronto-lateral view.

Family **Hybosoridae** Erichson, 1847

Subfamily **Hybosorinae** Erichson, 1847

Genus ***Hybosorus*** MacLeay, 1812

Hybosorus roei Westwood, 1845 Plate 19

Published records: Howarth & Gillett (2004): Jebel Hafit, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified. (All as *Hybosorus illigeri* Reiche, 1853).

Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 2 ex., 19–27.iii.2006, AvH, light trap, NMPC; 5 ex., 12–19.ix.2006, light trap, AvH, BMNH. Bithnah, 25°11′N 56°14′E, 160 m, 3 ex., 23.iii–1.iv.2006, light trap, AvH, BMNH. Fujairah, 25°08′N 56°21′E, 3 ex., 6–13.v.2006, light trap, AvH, BMNH. Khor al-Khwair, 25°58′N 56°03′E, 5 ex., 16.vii–5.viii.2009, light trap, AvH, BMNH. Liwa, 2 km S of al-Khis oasis, 2 ex., 23.xi.2006, at light, leg. J. Batelka & H. Pinda, JBCP. Near Mahafiz, 25°12′N 55°44′E, 110 m, 6 ex., 11.iv–10.v.2006, light trap, AvH, BMNH. Wadi Bih (dam), 25°48′N 56°04′E, 100 m, 7 ex., 8–22.iii.2007, light trap, AvH, BMNH. Wadi Maidaq, 25°19′N 56°08′E, 410 m, 1 ex., 2–30.iii.2006, light trap, AvH, BMNH; 6 ex., 26.v–6.vi.2006, light trap, AvH, BMNH; 2 ex., 11.viii–9.ix.2006, light trap, AvH, BMNH. Wadi Safad, near Qurayyah, 25°13.03′N E 56°18.21′E, 5 ex., 28.xi.2013, 170 m, leg. P. Kučera jr., PKCL (3 ex.), LMCT (2 ex.). Wadi Wurayah farm, 25°24′N 56°17′E, 165 m, 5 ex., 16.vii–12.viii.2009, light trap, AvH, BMNH.

Length: 7.0–8.0 mm.

Distribution: Species with an extremely wide distribution, extending from southern parts of Europe to India and south Africa including Madagascar; it has been also introduced to large parts of the United States and in some Caribbean islands, Mexico, Nicaragua and Venezuela (Král & Löbl, 2006; Kuijten, 1983; Ocampo & Ballerio, 2006). From the Arabian Peninsula and adjacent countries it has been recorded from Egypt (including Sinai) (Alfieri, 1976; Baraud, 1985), Iraq (Derwesh, 1965), Israel (Chikatunov & Pavlíček, 1997), Jordan (Katbeh-Bader & Barbero, 1999), Kuwait (Al-Houty, 1989, 2004), Oman (Janikova, [undated]; Keith & Drumont, 2004), Qatar (Keith & Bordat, 2011), Saudi Arabia (Beccari, 1971; Kuijten, 1980; Paulian, 1948, 1980), Syria (El-Hariri, 1971), Yemen (Paulian, 1948; Endrődi, 1970) including Socotra (Gahan, 1903) and the UAE.

Subfamily **Pachyplectrinae** Ocampo, 2006

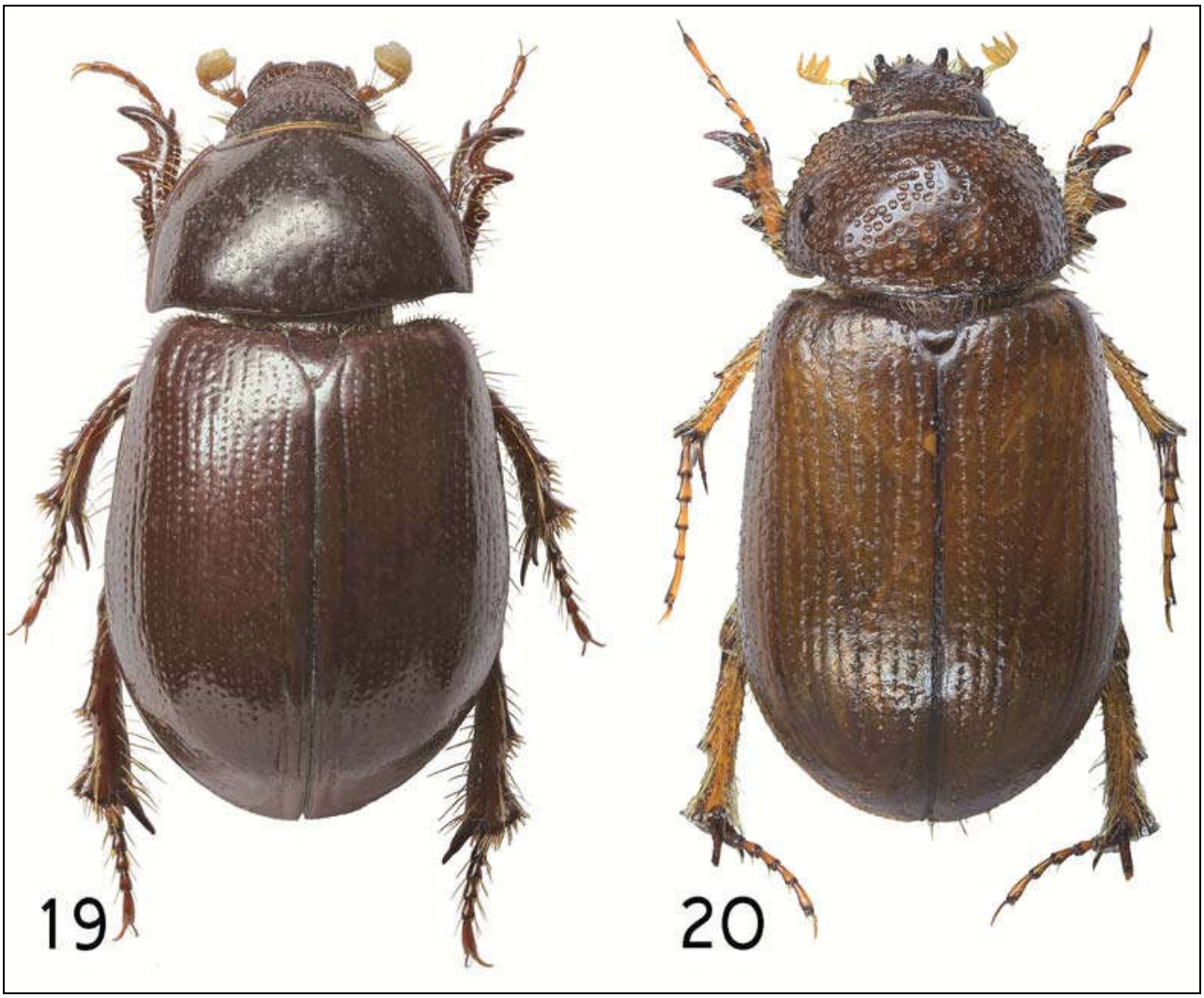
Genus ***Brenskea*** Reitter, 1891

Brenskea coronata Reitter, 1891 Plate 20

Specimens examined: NARC, near Sweihan, 24°24′N 55°26′E, 2 ex., 1.ii–14.iii.2005, light trap, AvH, ZFMK; 1 ex., 16.xi–21.xii.2005, light trap, AvH, ZFMK. Sharjah, Wadi Yudayah, near Mileiha, 25°06.53′N 55°45.87′E, 140 m, 1♀, 24.xi.2013, leg. P. Kučera jr., IECA.

Length: 6–8 mm.

Distribution: Widely distributed eremian species recorded so far from North Africa (Morocco, Algeria, Tunisia, Libya, Egypt including Sinai) across Levantine regions, Turkey, Iran, Azerbaijan to Middle Asia (Tajikistan, Turkmenistan, Uzbekistan) to Afghanistan and Pakistan (e.g. Baraud, 1985; Král & Löbl, 2006b; Nikolajev, 1987; Ocampo & Ballerio, 2006). From the Arabian Peninsula only recorded from Oman (Janikova, [undated] as



Plates 19–20. 19: *Hybosorus roei* Westwood, 7.5 mm, UAE, al-Khis; 20: *Brenskea coronata* Reitter, ♀, 7.0 mm, UAE, Wadi Yudayah. Both habitus, dorsal view.

Brenskea varentzovi [sic!] Semenov, 1896), from the adjacent countries recorded from Egypt (Sinai) (Alfieri, 1976) and Israel (Chikatunov & Pavlíček, 1997). New for the UAE.

Family **Scarabaeidae** Latreille, 1802

Subfamily **Aphodiinae** Leach, 1815

Tribe **Didactyliini** Pittino, 1984

Genus ***Didactylia*** d'Orbigny, 1896

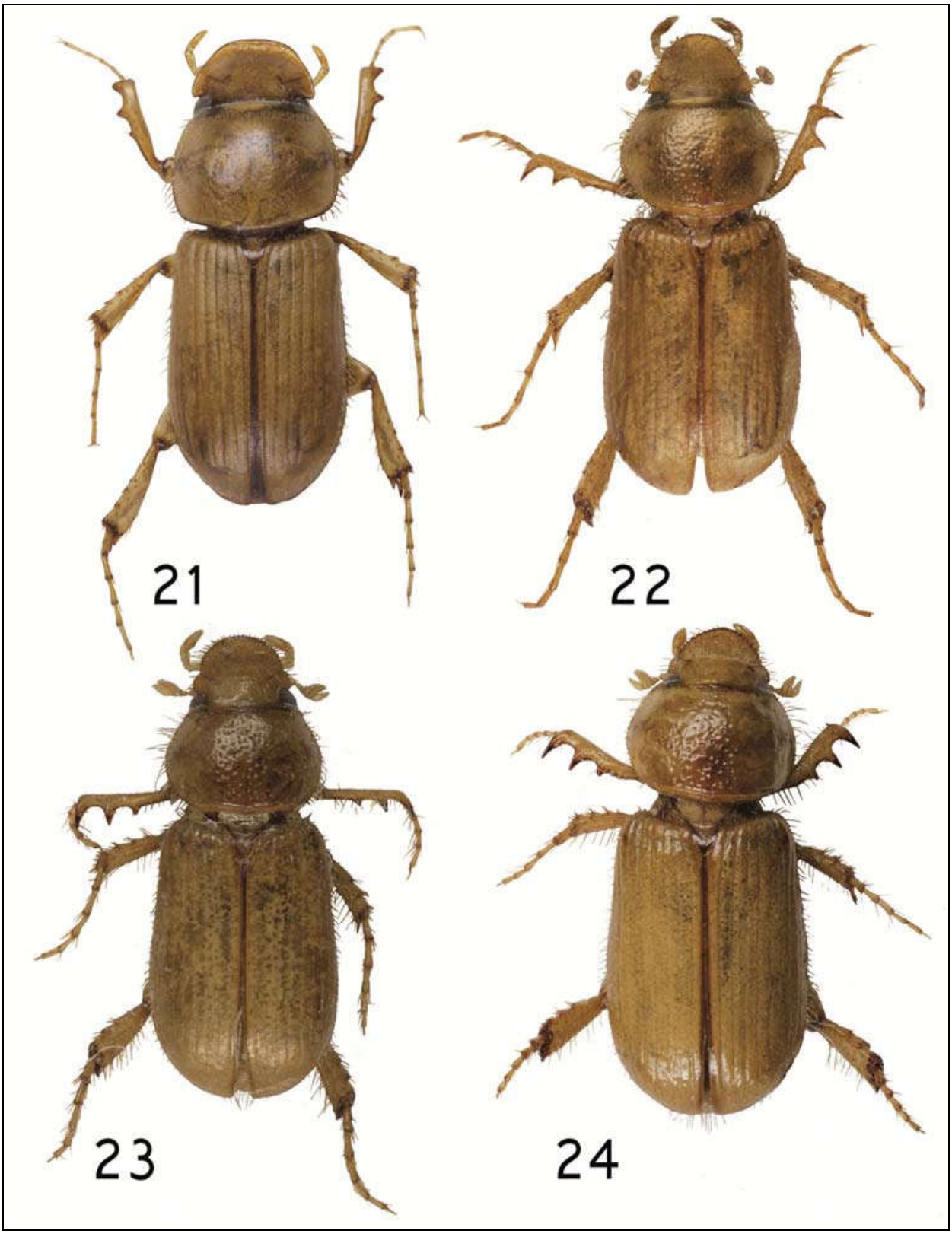
Didactylia arabica Pittino, 1984 Plate 21
Published records: Howarth & Gillett (2004): Jebel Hafit, listed by van Harten (2005); Gillett & Gillett (2005: 187, fig. c): No locality specified.
Specimens examined: None.

Length: 3.6–4.1 mm.
Remarks: Habitus line-drawing of this species published in Gillett & Gillett (2005: 187, fig. c) does not fully correspond with habitus of *Didactylia arabica*.
Distribution: Known from Saudi Arabia (Al Madinah, Hail, Jizan and Makkah Provinces) (Pittino, 1984a) and the UAE.

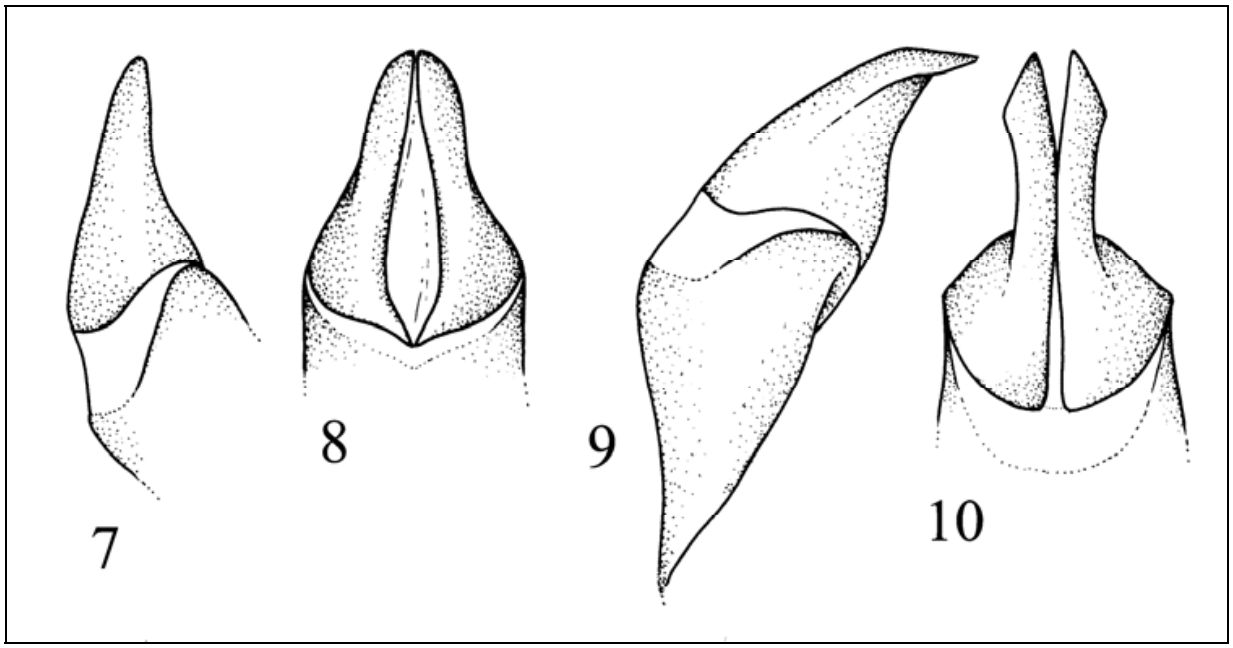
Genus ***Pseudomothon*** Pittino, 1984

Pseudomothon pittinoi Král **sp. nov.** Plates 23–24, 26; Figures 9–10

Type locality: United Arab Emirates, al-Ajban, 24°36′N 55°01′E.
Specimens examined (87 ex.): Holotype ♂ and allotype ♀ (NMPC), "UAE, al-Ajban / 24.36N 55.01E, 19-27.03.2006, in ligth traps, Antonius van Harten lgt. [p]"; Paratypes, 2♂ (NMPC), same locality data as holotype; Paratypes, 7 ex. (NMPC), "UAE, NARC, near Sweihan / 24.24N 55.26E / 01.02-14.03.2005 / light trap / Antonius van Harten lgt. [printed]"; Paratypes, 20 ex. (NMPC), "UAE, NARC, near Sweihan / 24.24N 55.26E / 14.03-28.03.2005 / light trap / Antonius van Harten lgt. [p]"; Paratypes, 4 ex. (LMCT) and 4 ex. (JBCP), "UAE, NARC, near Sweihan / 24.24N 55.26E / 14.03-28.03.2005 / light trap / Antonius van Harten lgt. [p]"; Paratypes, 4 ex. (NMPC), "UAE, NARC, near Sweihan / 24.24N 55.26E / 28.03-02.04.2005 / light trap / Antonius van Harten lgt. [p]"; Paratypes, 39 ex. (NMPC), "UAE, NARC, near Sweihan / 24.24N 55.26E / 16.11-21.12.2005 / light trap / Antonius van Harten lgt. [p]"; Paratype, 1 ex. (NMPC), "UAE, 23.04.2005 / SWW of ad Dhaid / 25.09N 55.48E at light + in /light trap / Antonius van Harten lgt. [p]"; Paratypes, 6 ex. (BMNH), "United Arab Emirates / Nr. Mahafiz, 110m / Light trap, 25°12′N 55°44′E / 11.iv.-10.v.2006 / leg. A. van Harten [p]".
Description of holotype (♂): Body oblong oval, moderately convex, moderately broadened posteriad. Dorsal surface shiny, yellowish, contours of head and pronotum, scutellar plate, elytral sutural interval of elytron, apical contours of femora and protibia, and external teeth of protibia yellowish brown to reddish brown; setation pale. Head (Plates 23, 26) considerably flattened, elongate, narrowed anteriad; clypeus almost flat discally, almost semicircular, anterior margin protruding forwards, slightly upturned at middle, lateral margin distinctly excised anteriorly of semicircular genae, genae not exceeding eyes, frontal suture indistinct, clypeo-genal suture distinct; entire head margin irregularly crenulate with long, close macrosetae; clypeus and frons densely coarsely and irregularly punctato-granulate, each granule bearing long, erect macroseta; terminal maxillary palpomere widened basally, more than twice longer than palpomere 3. Pronotum moderately convex, widest approximately at middle, anterior margin regularly broadly sinuate, widely membranous, marginal line absent; anterior corners angulate, side outline broadly rounded, crenulate and bearing row of long, closed, erect macrosetae; posterior corners obliterate, basis distinctly widely margined, smooth and glabrous; punctation consisted of extremely coarse, irregularly distributed and irregularly shaped punctures separated mostly by less their diameter and intermixed with fine densely distributed ones, punctation becoming confluent basad. Scutellar plate triangulate, almost as long as wide, rounded apically, impunctate.
Elytra elongate, moderately widened posteriad, humerus rounded, exposed, not denticulate; lateral margin with several short macrosetae in basal third; striae deep, distinctly impressed, impunctate; intervals distinctly convex, impunctate; intervals 9–10 and approximately apical fifth of elytra with small sparsely distributed granules, each granule bearing long, fine, semi-erect macroseta. Macropterous.
Pygidium weakly shining and densely, coarsely punctato-granulate with several macrosetae. Ventral surface shining. Metaventral plate shining, flat, bare and smooth, sparsely coarsely punctate laterally, punctures bearing long, fine macrosetae, midline furrow complete. Each



Plates 21–24. 21: *Didactylia arabica* Pittino, ♂, 3.8 mm, Saudi Arabia, Makkah Prov., Wadi Daykah (NHMB); 22: *Pseudomothon arabicus* Pittino, ♂, 4.3 mm, Saudi Arabia, Al Qasim Prov., Jal Khartam (NHMB); 23: *P. pittinoi* Král sp. nov., holotype, ♂, 4.5 mm, UAE, al-Ajban; 24: Same, allotype, ♀, 4.7 mm. All habitus, dorsal view.



Figures 7–10. 7: *Pseudomothon arabicus* Pittino, parameres, lateral aspect, schematically; 8: Same, dorsal aspect; 9: *Pseudomothon pittinoi* Král sp. nov., parameres, lateral aspect, schematically; 10: Same, dorsal aspect.

abdominal ventrite with two somewhat irregular transverse rows of small granules, each granula bearing long, fine semi-erect macrosetae. Meso- and metafemora flat, broad, shiny, considerably sparsely granulate, each granule with long fine macrosetae. Protibia transversely truncate apically, considerably sharply tridentate laterally, terminal spur small, short, distinctly curved downwards, almost vertical, apically acute, reaching middle of protarsomere 1. Meso- and metatibia strongly expanded distad, both with complete distal, incomplete proximal, transverse carinae. Terminal spurs of meso- and metatibiae rather slender, flat, obliquely truncate apically, superior spur obviously longer than inferior spur and somewhat shorter than basitarsomere 1. Meso- and metatarsi longer than tibiae. Metatarsomeres triangularly widened apicad, basimetatarsomere distinctly shorter than following two metatarsomeres combined. Claws thin, slightly curved.

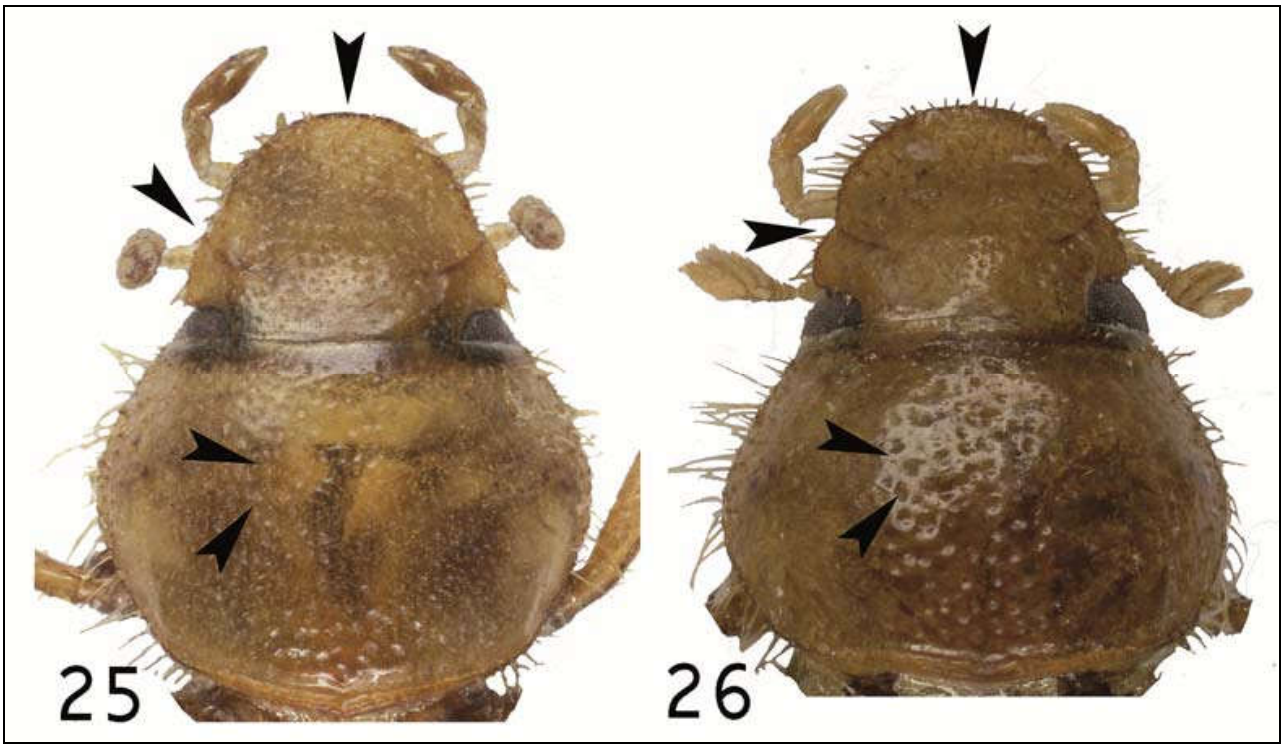
Male genitalia: Parameres as in Figures 9–10.

Variability: Paratypes show slight individual variations in length and length and distribution of punctures and macrosetae.

Sexual dimorphism: Female differs from male as follows (Plate 26): body broader, elytra more distinctly widened posteriad, dorsal surface more shining and as a rule more densely and distinctly punctate.

Measurements: Total body length: 4.3–4.7 mm (holotype 4.5 mm; allotype 4.7 mm).

Differential diagnosis: The new species is classified within the tribe Didactyliini in the genus *Pseudomothon* mainly by possessing clypeus protruding anteriad with semicircular or semi-elliptic anterior margin; genal suture visible; lateral pronotal margins regularly rounded, macrosetaceous; scutellar plate basally approximately as wide as elytral intervals 1–3 and rounded apically; tibiae strongly expanded distad; transversal carinae of mesotibiae distinct, that of metatibiae almost obsolete (see also Pittino, 1984a; Dellacasa et al., 2001).



Plates 25–26. 25: *Pseudomothon arabicus* Pittino, ♂, Saudi Arabia, Al Qasim Prov., Jal Khartam (NHMB); 26: *P. pittinoi* Král sp. nov., holotype, ♂. Both forebody, dorsal view, not to scale.

Pseudomothon pittinoi Král sp. nov. is similar and probably closely related to *P. arabicus* Pittino, 1984, the only so far known species of the genus. Both species can be readily separated as given in Table 1.

Remarks: *Pseudomothon arabicus* Pittino, 1984, was described based on one female originated from Bahara [= Bahrah] (Saudi Arabia: Makkah Prov.). Table 1 is also based on additional material of males (Saudi Arabia, [Al Qasim Prov.], Jal Khartam, 3.iv.1980, leg. Büttiker) studied by the senior author in NHMB. As hitherto known, the genus is endemic to the Arabian Peninsula.

Collecting circumstances: Habitat preferences unknown, all specimens were collected in desert or semidesert habitats using light traps (van Harten, 2008).

Distribution: So far known only from the UAE.

Name derivation: Patronymic; name of the species was chosen in recognition of the outstanding contributions of our colleague Riccardo Pittino (Milan, Italy) to the knowledge of scarab beetles, especially of the subfamily Aphodiinae.

Genus ***Trigonoscelus*** Petrovitz, 1963

Trigonoscelus hypi Král **sp. nov.** Plates 27–28; Figures 11–12

Type locality: United Arab Emirates, Ra's al-Khaimah, near International Airport, Ghaf forest.

Specimens examined (14 ex.): Holotype ♂ and allotype ♀ (NMPC), "U.A.E., RAS AL KHAIMAH / 27.ix.2007 Intl. Airport env. / Ghaf forest / J. Batelka & H. Pinda lgt. [p]"; Paratypes, 3♂, 2♀ (JBCP), same locality data as holotype; Paratypes, 2♂, (NMPC), 1♀ (JBCP), "U.A.E., env., RAS AL KHAIMAH / Wadi Shawkah, 3. 10. 2007, / N 25°06' E 56°02', 250-280 m, / J. Batelka & H. Pinda lgt.

Table 1. Differential characters of *Pseudomothon arabicus* Pittino and *P. pittinoi* Král sp. nov.

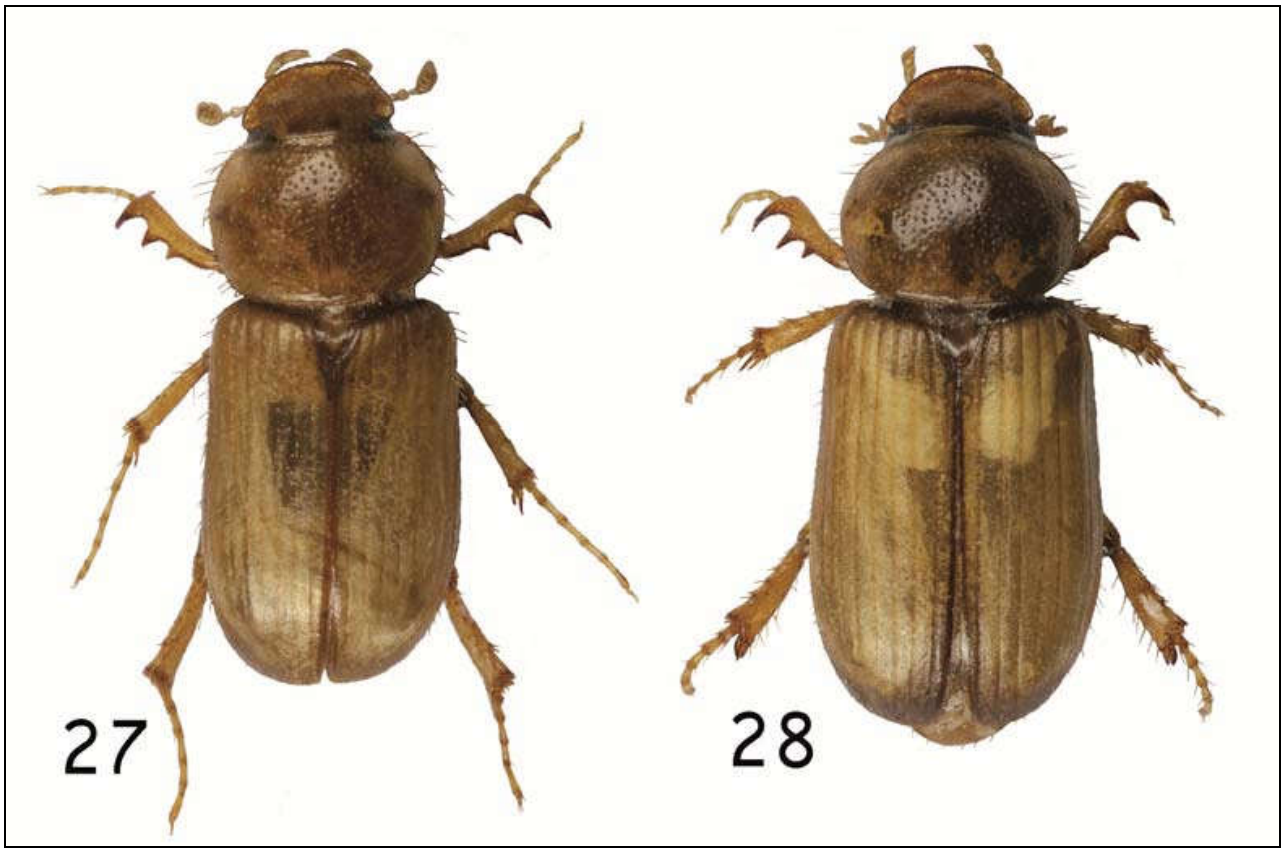
Character	*Pseudomothon arabicus* Pittino (Plates 22, 25)	*Pseudomothon pittinoi* Král sp. nov. (Plates 23, 26)
Dorsal surface	alutaceous	shiny
Shape of clypeus	semi-elliptic	semicircular
Lateral outline of clypeus	not excised anteriorly of genae	excised anteriorly of genae
Shape of genae	almost rectangular	semicircular
Punctation of pronotum	less coarse, regularly shaped punctures intermixed with fine, sparsely distributed ones, punctation almost not confluent basad	extremely coarse, irregularly shaped punctures intermixed with fine, densely distributed ones, punctation becoming confluent basad
Striae of elytra	shallow, finely impressed	deep, distinctly impressed
Intervals of elytra	slightly convex	distinctly convex
Distribution of elytron macrosetation	whole elytra excepting discal and mediobasal areas	intervals 9–10 and approximately apical fifth of elytra
Longitudinal furrow of metaventral plate	extending approximately to anterior half	complete
Abdominal ventrites	alutaceous	shining
Parameres	see Figures 7–8	see Figures 9–10
Distribution	Saudi Arabia (Al Khasim and Makkah Provinces)	UAE

[p]"; Paratypes, 1♂, 1♀ (BMNH), "United Arab Emirates / Wadi Bih (dam), 100m / Light trap, 25°48'N 56°04'E / 8.-22.iii.2007 / leg. A. van Harten [p]"; Paratype, 1♂ (NMPC), "UAE, 23.04.2005 / SWW of ad Dhaid / 25.09N 55.48E at light + in /light trap / Antonius van Harten lgt. [p]"; Paratype, 1♂ (NMPC), "UAE, 10.-17.10.2005 / SWW of ad-Dhaid, 24.36N / 55.01E, in Malaise traps & light trap / A. van Harten lgt. [p]".

Description of holotype (♂): Body elongate, almost parallel, convex. Dorsal surface shining, elytra almost alutaceous; yellowish, contours of head and pronotum, scutellum, elytral sutural interval of elytron, apical contours of femora and protibia, and external teeth of protibia yellowish brown; setation pale. Head small, semicircular; clypeus almost flat discally, almost semicircular, margin upturned, slightly emarginate anteriorly; genae right-angled, not exceeding eyes; frontal suture invisible; punctation consisting of coarse but superficially impressed punctures (Plate 27). Pronotum convex, widest approximately at middle; anterior margin regularly broadly sinuate, marginal line absent; anterior corners rounded; side outline almost semicircular, lateral margin slightly crenulate, bearing scarcely distributed long macrosetae; basis feebly sinuate medially, posterior corners obliterated, marginal line absent; surface uniformly, regularly coarsely and densely punctate, punctures separated by less than their diameters, disc impunctate with relatively short, shallow longitudinal furrow (Plate 27). Scutellar plate triangulate, little longer than wide, rounded apically; impunctate.

Elytra slender, almost alutaceous, basal third becoming shiny basad, humerus rounded, exposed, not denticulate; lateral margin with several short macrosetae in basal third; striae

distinctly impressed discally, vanishing apicad, almost impunctate; intervals almost flat, impunctate, shortly, sparsely macrosetaceous laterally and apically (Plate 27); interval 2–7 approximately of same width; sutural interval angustate apicad. Macropterous.
Pygidium alutaceous, impunctate, with tuft of long setae apically. Metaventral plate shining, flat, impunctate. Abdominal ventrites shining, almost impunctate, sparsely longly setaceous.
All femora relatively wide, shiny, impunctate, scarcely macrosetaceous. Protibia with three remarkable sharp external teeth, terminal spur short, acute apically, approximately equal to length of basiprotarsomere. Meso- and metatibia flattened and slightly dilated distad, transversal carinae obsolete; metatarsi approximately as long as metatibia, basimesotarsomere distinctly longer than superior terminal spur, inferior terminal spur shortened; basimetatarsomere little longer than superior terminal spur. Claws only slightly curved.
Male genitalia: Parameres as in Figures 11–12.
Variability: Paratypes show slight individual variations in length of body and length and distribution of punctures and macrosetae.
Sexual dimorphism: Female differs from male as follows (Plate 28): Body broader, elytra more distinctly widened posteriad, dorsal surface more shining and as a rule more densely and distinctly punctate.
Measurements: Total body length: 3.0–3.9 mm (holotype 3.1 mm; allotype 3.9 mm).
Differential diagnosis: The new species is classified within the tribe Didactyliini in the genus *Trigonoscelus* mainly by possessing clypeal outline truncate or slightly emarginate anteriorly; genal suture visible; lateral pronotal margins regularly rounded, macrosetaceous; scutellar plate basally approximately as wide as elytral intervals 1–3 and rounded apically; transversal carinae of meso- and metatibiae almost obsolete (see also Dellacasa et al., 2001, and Ilčíková & Král, 2004). It is distinguished from other described species mainly by the sculpture of pronotum and elytra. In the key to *Trigonoscelus* species (Ilčíková & Král, 2004) specimens of *T. hypi* Král sp. nov. key to the couplet with *T. afghanus* Petrovitz, 1963, but can be separated from it by simple punctation of pronotum, not completely alutaceous elytra (being somewhat shiny in basal third), shortly and sparsely macrosetaceous elytra laterally and apically (Plates 27–28) (double punctation of pronotum, completely alutaceous and bare elytra in *T. afghanus*).
Remarks: The didactyliine genus *Trigonoscelus* comprises the following five species distributed in arid areas from NW Iran to Nepal: *Trigonoscelus afghanus* (Afghanistan, Iran), *T. coelebs* Petrovitz, 1963 (Pakistan), *T. elbursensis* Stebnicka & Galante, 1991 (Iran), *T. narayaniensis* Ilčíková & Král, 2004 (Ilčíková & Král, 2004) (Nepal) and *T. hypi* Král sp. nov. described above. Discovery of this species represents an extension of the distribution of *Trigonoscelus* species in the Arabian Peninsula.
Collecting circumstances: Habitat preferences unknown, all specimens were collected in desert or semidesert habitats using a light source (van Harten, 2008). Specimens collected by JB & HP were attracted by the permanent artificial light among gardens surrounded by remnants of a “Ghaf forest” (i.e. growth of the old *Prosopis cineraria* trees) and sparse sand dunes.
Distribution: So far known only from the UAE.
Name derivation: The new species is dedicated to the collector of this species and friend of the junior author, Hynek Pinda (Praha, Czech Republic/Dubai, UAE). The specific epithet is composed from combination of initial letters of his name (Hynek Pinda); noun in apposition.



Plates 27–28. 27: *Trigonoscelus hypi* Král sp. nov., holotype, ♂, 3.1 mm, UAE, Ghaf forest; 28: Same, allotype, ♀, 3.9 mm. Both habitus, dorsal view.

Tribe **Eupariini** A. Schmidt, 1910

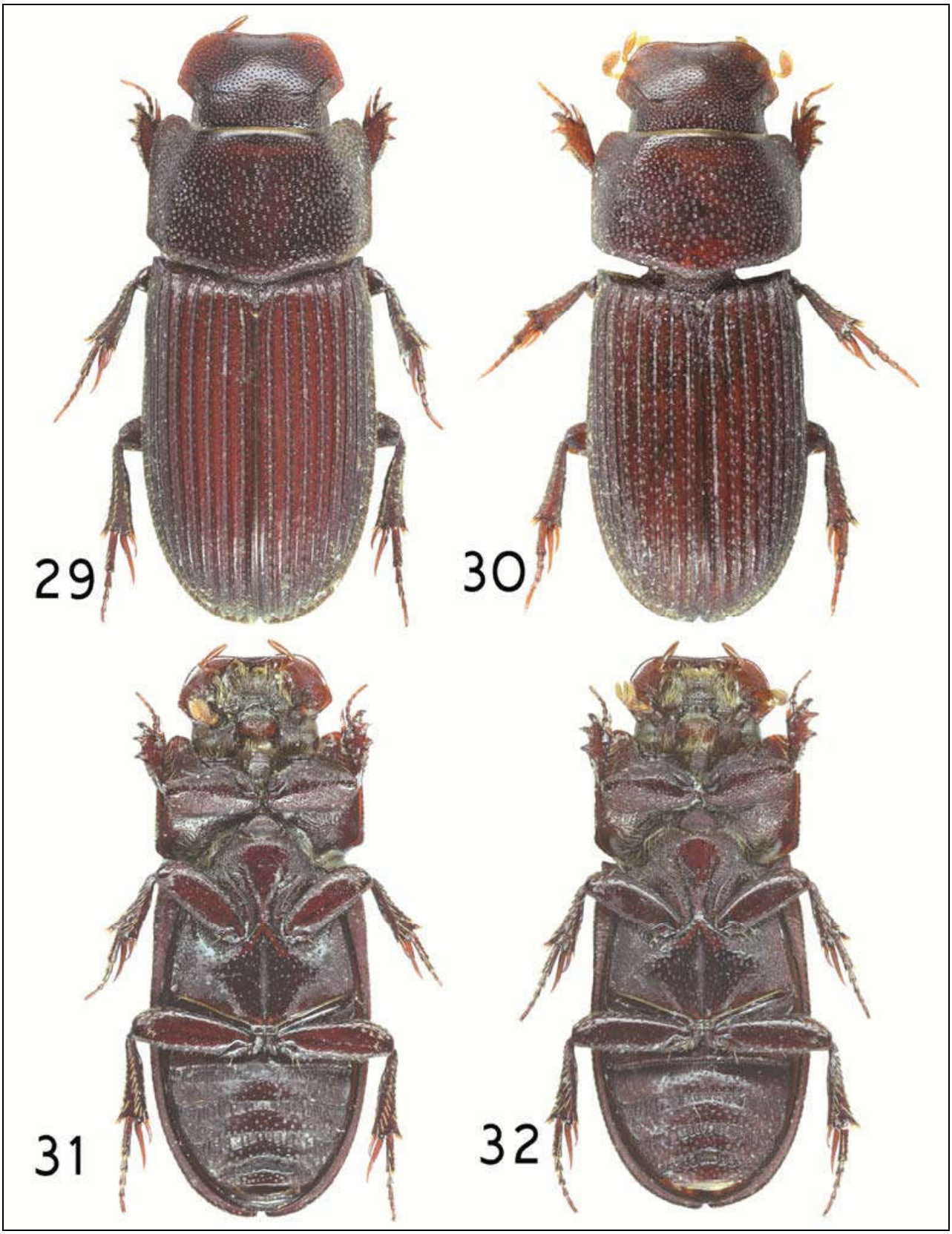
Genus ***Anaetius*** Petrovitz, 1968

Anaetius vanharteni Král **sp. nov.** Plates 29–32; Figures 13–14

Type locality: United Arab Emirates, Fujairah, 25°08′N 56°21′E.

Specimens examined (4 ex.): Holotype ♂ and allotype ♀ (NMPC), "UAE, 05–24.3.2005 / Fujairah / 25.08N 56.12E light trap / A. van Harten lgt [p]"; paratype, ♂ (BMNH), "United Arab Emirates / Fujairah / Light trap, 25°08′N 56°21′E / 6.–13.v.2006, leg. A. van Harten [p]"; paratype, ♂ (BMNH), "United Arab Emirates / Hatta, 315m / Light trap, 24°49′N 56°07′E / 26.ii.–10.v.2006 / leg. A. van Harten [p]".

Description of holotype (♂): Body elongate and deplanate, whole surface reddish brown, strongly shining. Head large, transverse, only moderately gibbose medially, frontal suture marked by fine line only laterally near genae, genal suture marked as complete darkened line. Anterior margin of clypeus broadly rounded each side of broad, shallow medial emargination; lateral margin almost straight to rectangular genae remarkably exceeding eyes. Eyes moderate in length, visible in dorsal aspect. Dorsal surface regularly densely coarsely punctate, punctures separated by approximately their diameters (Plate 29), punctation becoming finer anterad, area near medial emargination impunctate, almost alutaceous.

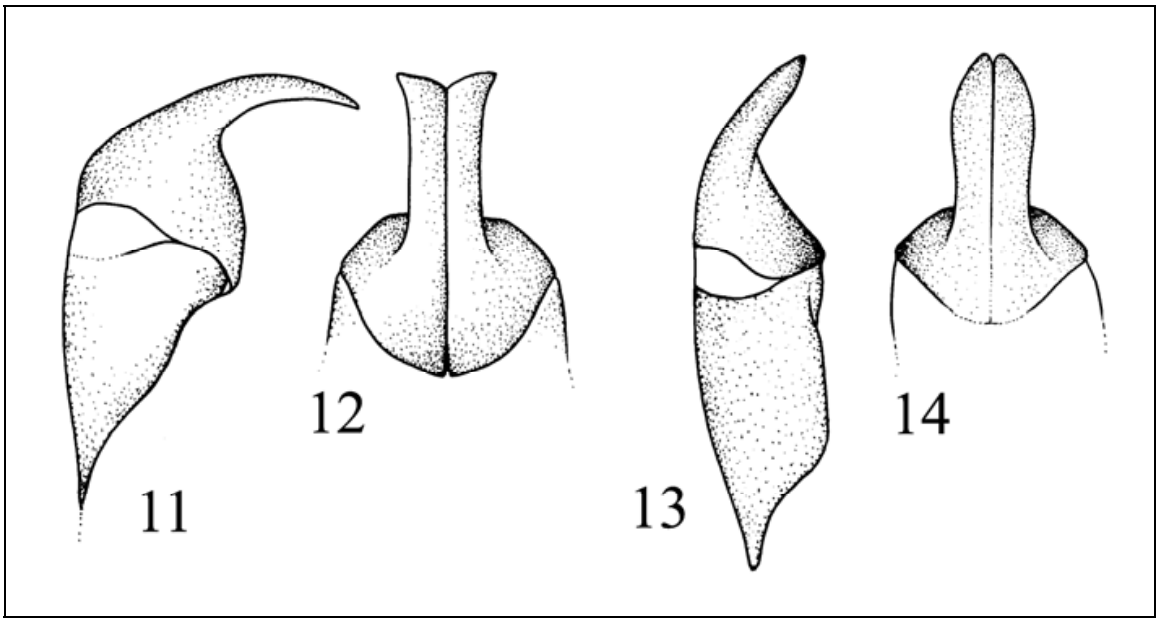


Plates 29–32. *Anaetius vanharteni* Král sp. nov., habitus. 29: Holotype, ♂, 3.8 mm, Fujairah, dorsal view; 30: Same, allotype, ♀, 3.9 mm; 31: Same, holotype, ventral view; 32: Same, allotype.

Pronotum transverse, widest at level of posterior corners, considerably deplanate discally. Anterior margin not bordered, anterior corners large, broadly rounded, lateral margin almost straight, distinctly margined, slightly crenate, posterior corners obtuse-angular, basal margin finely bordered, broadly rounded. Punctation double, consisting of remarkably coarse punctures separated by approximately their diameter, intermixed with remarkably finer ones, punctation becoming distinctly denser to confluent laterally; every puncture bearing very short, erect, pale macroseta (Plate 29). Scutellar plate small, semi-oval in shape, impunctate.
Elytra elongate, flat, with ten striae and ten intervals including marginal one. Basal bead and single humeral denticles present. Striae deeply impressed, with row of deep coarse punctures separated by approximately their diameter. Sutural interval distinctly convex along whole length, intervals 2–4 flat discally, becoming regularly costate apicad, intervals 5–10 costate along whole length; intervals 2–4 basally and discally with two irregular row of fine punctures along their lateral margins. Short, pale relatively dense macrosetation present on lateral intervals 8–10 and approximately on apical quarter of elytra (costiform parts of intervals). Macropterous.
Pygidium scabrous with longitudinal furrow. Mesoventral plate ovoid, shiny, smooth and bare, with two alutaceous posterolateral furrows. Metaventral plate only slightly concave, shiny, considerably coarsely punctate, with complete, deeply impressed and alutaceous medial longitudinal furrow (Plate 31). Abdominal ventrites shiny, considerably coarsely, irregularly punctate. Protibia sharply tridentate laterally, terminal spur simply acute, reaching approximately middle of protarsomere 2. Meso- and metatibia slender, without transversal carinae, metatibia without accessory spine. Superior terminal spur of meso- and metatibia approximately equal to tarsomeres 1 and 2 combined. Claws distinctly curved.
Male genitalia: Parameres as in Figures 13–14.
Variability: Paratypes show only very slight individual variations in body length and length and distribution of punctures of dorsal and ventral surface.
Sexual dimorphism: Female differs from male as follows (Plates 30, 32): body slightly robust, elytra more oblong, metaventral plate flat.
Measurements: Total body length: 3.7–3.9 mm (holotype 3.8 mm; allotype 3.9 mm).
Differential diagnosis: The new species is classified within the tribe Eupariini in the genus *Anaetius* mainly by possessing considerably deplanate pronotum and elytra, macrosetaceous elytra and absence of accessorial spine of metatibia (see also Balthasar, 1972; Petrovitz, 1968). *Anaetius vanharteni* Král sp. nov. is similar and probably closely related to the only so far known species of the genus, *A. kuijteni* Petrovitz, 1968 but clearly differs by coarser and denser punctation of pronotum – coarse punctures separated by less their diameters (Plates 29–30) (coarse punctures separated by at least their diameters in *A. kuijteni* – Plate 33); considerably coarse and dense punctation of metaventral plate (Plates 31–32) (that in *A. kuijteni* fine and remarkably sparse to missing at all – Plate 34) and coarse punctation of abdominal ventrites (Plates 31–32) (that in *A. kuijteni* distinctly finer and sparser – Plate 34).
Remarks: Based on study of type material of *Anaetius kuijteni* Petrovitz, 1968 and *Pseudosaprosites deplanatus* Balthasar, 1972 the following new synonymies are proposed:

Anaetius Petrovitz, 1968: 74 (type species: *Anaetius kuijteni* Petrovitz, 1968, by monotypy) = *Pseudosaprosites* Balthasar, 1972: 28 (type species: *Pseudosaprosites deplanatus* Balthasar, 1972, by monotypy), **syn. nov.**;

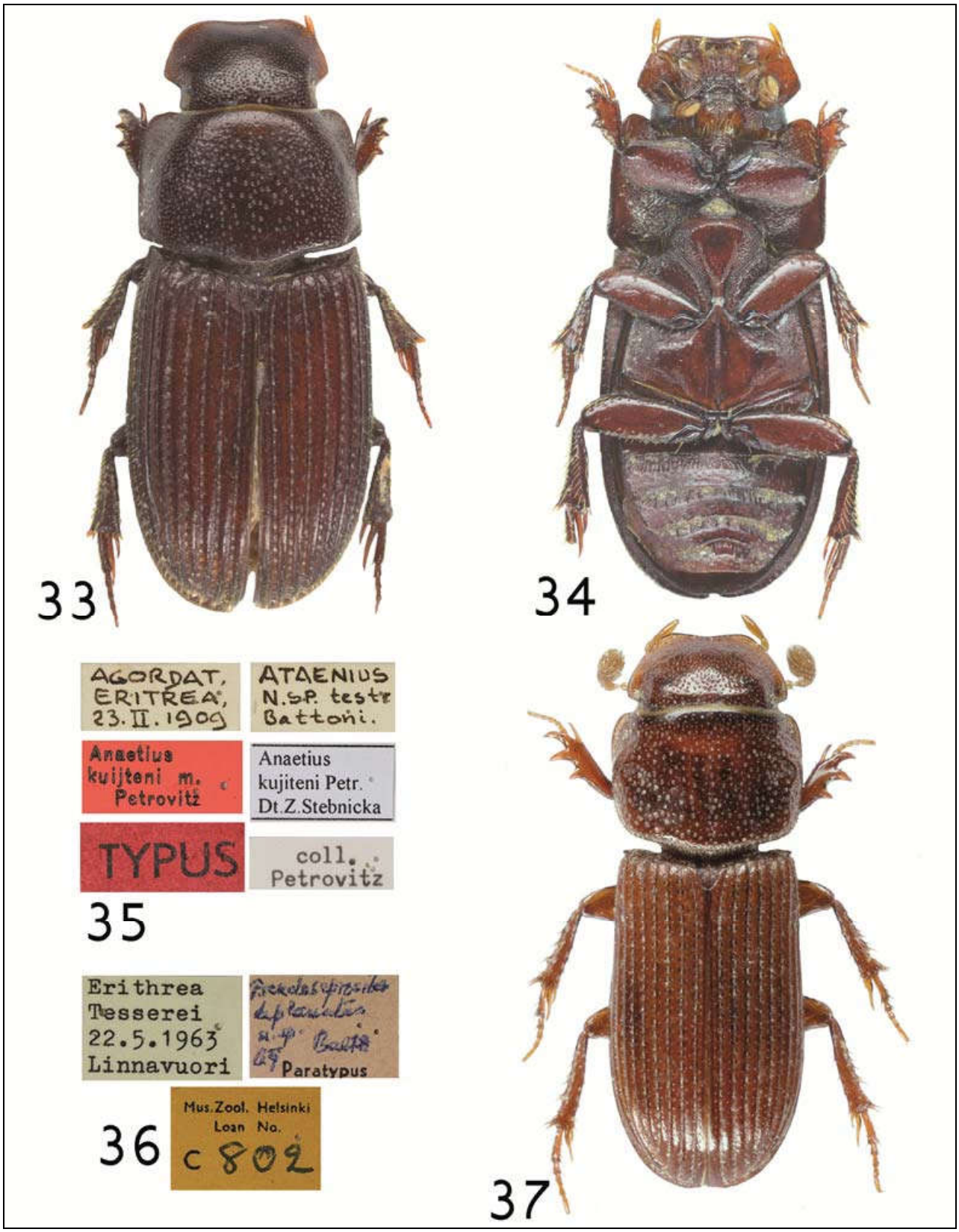
Anaetius kuijteni Petrovitz, 1968: 75 (type locality. "Erytrea, Agordat") = *Pseudosaprosites deplanatus* Balthasar, 1972: 29 (type locality. "Eritrea, Tesserei"), **syn. nov.**



Figures 11–14. 11: *Trigonoscelus hypi* Král sp. nov., parameres, lateral aspect, schematically; 12: Same, dorsal aspect; 13: *Anaetius vanharteni* Král sp. nov., parameres, lateral aspect, schematically; 14: Same, dorsal aspect.

Specimens examined: *Anaetius kuijteni* (Plates 33, 35). Holotype, ♀ (MHNG), "Agordat / Eritrea / 23.II.1909 // Ataenius / N. sp. teste / Battoni. [hw, black ink] // coll. Petrovitz [p] // TYPUS // Anaetius / kuijteni m. / Petrovitz [p, red label] // Anaetius / kuijteni Petr. / Dt. Z. Stebnicka [p]". *Pseudosaprosites deplanatus* (Plates 34, 36). Paratypes, 2♀ (NMPC), "Erythrea / Tesserei / 22.5.1963 / Linnavuori [p] // Mus. Zool. Helsinki / Loan / c [p] / 800 [hw, yellow label] // Pseudosaprosi- / tes deplana- / tus Balth. 69 [Balthasar's hand, blue ink] // Paratypus [p, pink label]".
Collecting circumstances: Habitat preferences unknown, all specimens were collected in desert or semidesert habitats using light traps (van Harten, 2008).
Distribution: So far known only from the UAE.
Name derivation: Patronymic; the new species is dedicated to our colleague Antonius van Harten (Vaiamonte, Portugal), the coordinator of the 'Arthropod fauna of the UAE' project.

Ataenius garamas Peyerimhoff, 1929 Plate 37
Specimens examined: Hatta, 24°49′N 56°07′E, 315 m, 2 ex., 26.ii–10.v.2006, light trap, AvH, BMNH (1 ex.), NMPC (1 ex.).
Length: 2.5–3.0 mm.
Distribution: Widely distributed throughout the Afrotropical region including Madagascar (Endrődi, 1964; Pittino, 1984a, 1990); extending to the Algerian Sahara (Baraud, 1985) and to the Arabian Peninsula from where it was so far recorded from Oman (Janikova, [undated]), Saudi Arabia (Asir, Baha, Eastern and Makkah Provinces) (El-Hawagry et al., 2013; Pittino, 1984a; Stebnicka, 2006) and southern Yemen (Aden) (Paulian, 1948, 1980 – erroneously under the name "*Ataenius gracilis* Melsh." – see Pittino, 1984a). New for the UAE.



Plates 33–37. 33: *Anaetius kuijteni* Petrovitz, holotype, ♀, 3.7 mm, Eritrea, Agordat (MHNG), habitus dorsal view; 34: *Pseudosaprosites deplanatus* Balthasar, paratype, ♀, 3.8 mm, Eritrea, Tesserei (NMPC); habitus, ventral view; 35: *Anaetius kuijteni*, holotype labels; 36: *Pseudosaprosites deplanatus*, paratype labels (NMPC); 37: *Ataenius garamas* Peyerimhoff, 2.6 mm, UAE, Hatta, habitus, dorsal view.

Tribe **Aphodiini** Leach, 1815

Subtribe **Aphodiina** Leach, 1815

Genus ***Apsteiniella*** A. Schmidt, 1916

Apsteiniella naviauxi Baraud, 1977 Plate 38

Published records: Gillett (1995d): Al-Ain, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified.

Specimens examined: Sharjah, Wadi Yudayah, near Mileiha, 25°06.53′N 55°45.87′E, 140 m, 1♂, 24.xi.2013, leg. P. Kučera jr., PKCL. NARC, near Sweihan, 24°24′N 55°26′E, 2 ex., 16.xi-21.xii.2005, light trap, AvH, NMPC. Um al-Quwain, Falaj al-Ali, near ad-Dhaid, 25°21.38′N 55°50.38′E, 70 m, 2 ex., 29.xi.2013, leg. P. Kučera jr., PKCL (1 ex.), LMCT (1 ex.).

Length: 5.5–5.9 mm.

Distribution: Described from Iraq ("lac Thartar") (Baraud, 1977), recorded also from Qatar (Keith & Bordat, 2011), Saudi Arabia (Eastern Prov.: Ain Dam) (Pittino, 1984a) and the UAE.

Genus ***Erytus*** Mulsant & Rey, 1870

Erytus hormozensis (Petrovitz, 1980) Plate 39

Published records: Gillett & Gillett (2005) (as *Aphodius hormozensis* Petrovitz, 1980): No locality specified.

Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 5 ex., 19–27.iii.2006, AvH, light trap, NMPC; 2 ex., 9–17.xi.2005, AvH, light trap + Malaise trap, NMPC; 5 ex., 12–19.ix.2006, light trap, AvH, BMNH. Ad-Dhaid, oasis Tawi as-Saman, 25°14′N 55°49′E, 106 m, 2 ex., 20.xi.2006, leg. J. Batelka & H. Pinda, JBCP. SWW of ad-Dhaid, 25°09′N 55°48′E, 14 ex., 23.iv.2005, light trap, AvH, NMPC; 5 ex., 25.iii.2006, in Malaise trap & light trap, AvH, NMPC. Near Mahafiz, 25°12′N 55°44′E, 110 m, 7 ex., 11.iv–10.v.2006, light trap, AvH, BMNH. Sharjah Desert Park, 25°17′N 55°42′E, 175 ex., 20.i–22.ii.2005, light trap, AvH, NMPC; 2 ex., 22.ii–9.iii.2005, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 6 ex., 14–28.iii.2005, light trap, AvH, NMPC; 155 ex., 16.xi–21.xii.2005, light trap, AvH, NMPC. Wadi Wurayah farm, 25°24′N 56°17′E, 165 m, 7 ex., 16.vii–12.viii.2009, light trap, AvH, BMNH.

Length: 4.5–5.9 mm.

Distribution: Described from "Bandar Abas" (Iran: Hormozgan Prov.) (Petrovitz, 1980) and distributed in S and SE parts of Iran (Bushehr, Hormozgan and Sistan & Baluchistan Prov.), Iraq (Stebnicka, 1985; Dellacasa & Dellacasa, 2002), and in the Arabian Peninsula recorded from Oman, Saudi Arabia, Yemen (Janikova, [undated]; Pittino, 1986; Dellacasa & Dellacasa, 2002, 2006) and the UAE.

Erytus pruinosus (Reitter, 1892) Plate 40

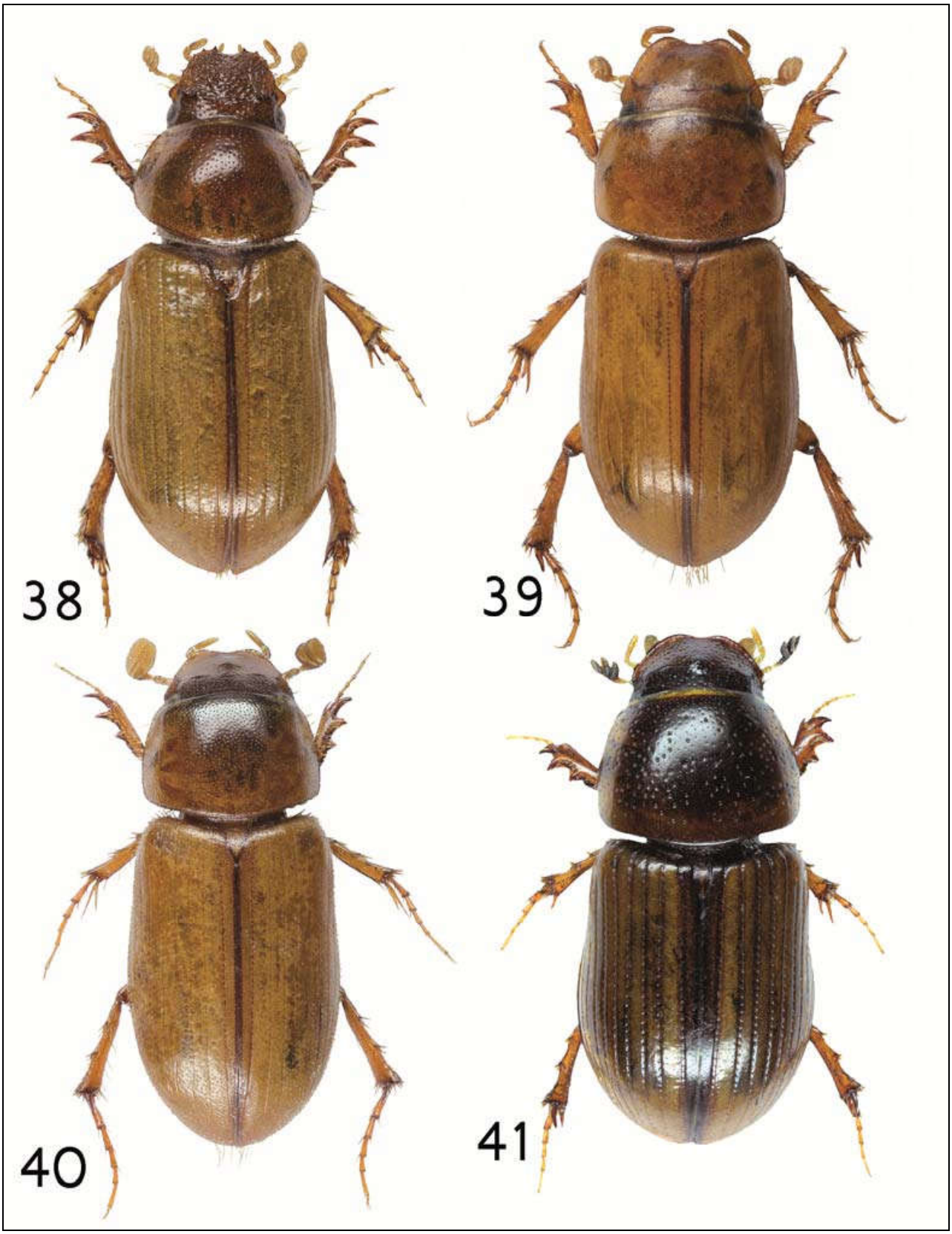
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 3 ex., 12–19.ix.2006, light trap, AvH, BMNH. SWW of ad-Dhaid, 25°09′N 55°48′E, 3 ex., 23.iv.2005, light trap, AvH, NMPC. Fujairah, 25°08′N 56°21′E, 2 ex., 16–24.ii.2005, light trap, AvH, NMPC. Khor al-Khwair, 25°58′N 56°03′E, 1 ex., 16.vii–5.viii.2009, light trap, AvH, NMPC. Near Mahafiz, 25°12′N 55°44′E, 110 m, 7 ex., 11.iv–10.v.2006, light trap, AvH, BMNH. Sharjah Desert Park, 25°17′N 55°42′E, 10 ex., 20.i–22.ii.2005, light trap, AvH, NMPC; 4 ex., 16–31.v.2006, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 1 ex., 14–28.iii.2005, light trap, AvH, NMPC; 14 ex., 16.xi–21.xii.2005, light trap, AvH, NMPC.

Length: 4.4–5.4 mm.
Distribution: Eremian Saharo-Sindian species, widely distributed from North Africa to Pakistan (Baraud, 1985; Dellacasa & Dellacasa, 2002, 2006; Nikolajev, 1987; Stebnicka, 2002; Pittino, 2004a); from the adjacent countries recorded from Iraq, Israel, Kuwait, Lebanon (Dellacasa & Dellacasa, 2006; Derwesh, 1965; Chikatunov & Pavlíček, 1997; Katbeh-Bader & Barbero, 1999; El-Hariri, 1971) and from the Arabian Peninsula from Oman, Saudi Arabia and Yemen (Janikova, [undated]; Paulian, 1948, 1980; Pittino, 1984a). New for the UAE.

Genus ***Labarrus*** Mulsant & Rey, 1870

Labarrus lividus (A. G. Olivier, 1789) Plate 41
Published records: Gillett & Gillett (2005) (as *Aphodius lividus* (Olivier, 1789)): No locality specified.
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 5 ex., 12–19.ix.2006, light trap, AvH, BMNH. Bithnah, 25°11′N 56°14′E, 160 m, 1 ex., 23.iii–1.iv.2006, light trap, AvH, BMNH. Falaj al-Ali, near ad-Dhaid, 25°21.38′N 55°50.38′E, 70 m, 1 ex., 29.xi.2013, leg. P. Kučera jr., PKCL. Fujairah, 25°08′N 56°21′E, 4 ex., 6–13.v.2006, light trap, AvH, BMNH. Khor al-Khwair, 25°58′N 56°03′E, 3 ex., 16.vii–5.viii.2009, light trap, AvH, BMNH. Ra's al-Khaimah, near Intl. Airport, Ghaf forest, 1 ex., 27.ix.2007, leg. J. Batelka & H. Pinda, JBCP. Sharjah Desert Park, 25°17′N 55°42′E, 27 ex., 20.i–22.ii.2005, light trap, AvH, NMPC. Wadi Bih (dam), 25°48′N 56°04′E, 100 m, 1 ex., 8–22.iii.2007, light trap, AvH, NMPC. Wadi Maidaq, 25°19′N 56°08′E, 410 m, 1 ex., 26.v–6.vi.2006, light trap, AvH, BMNH. Wadi Wurayah farm, 25°24′N 56°17′E, 165 m, 1 ex., 16.vii–12.viii.2009, light trap, AvH, BMNH.
Length: 3.2–4.6 mm.
Distribution: Widely distributed species throughout Europe, Africa (including Madagascar) and Asia, and introduced probably by passive transport into the Nearctic and Neotropical regions (Balthasar, 1964; Baraud, 1985; Dellacasa & Dellacasa, 2006; Pittino 1984a); from the Arabian Peninsula recorded from Oman, Qatar, Saudi Arabia and Yemen (El-Hawagry et al., 2013; Janikova, [undated]; Keith & Bordat, 2011; Paulian, 1948, 1980; Pittino, 1984a), and the UAE.

Labarrus translucidus (Petrovitz, 1961) **comb**. **nov**. Plate 42
Published records: Tigar & Osborne (1999b) (as *Aphodius translucidus* Petrovitz, 1961): Abu Dhabi Emirate, listed by van Harten (2005).
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 8 ex., 9–17.xi.2005, AvH, light trap + Malaise trap, NMPC. Falaj al-Ali, near ad-Dhaid, 25°21.38′N 55°50.38′E, 70 m 4 ex., 29.xi.2013, leg. P. Kučera jr., PKCL (3 ex.), LMCT (1 ex.). Khor al-Khwair, 25°58′N 56°03′E, 3 ex., 16.vii–5.viii.2009, light trap, AvH, BMNH. Sharjah, Fili, 25°00.33′N 55°48.29′E, 160 m, 1 ex., 20.xi–4.xii.2013, leg. P. Kučera jr., PKCL. Sharjah Desert Park, 25°17′N 55°42′E, 28 ex., 20.i–22.ii.2005, light trap, AvH, NMPC. Wadi Safad near Qurayyah, 25°13.03′N 56°18.21′E, 170 m, 4 ex., 28.xi.2013, leg. P. Kučera jr., PKCL (3 ex.), LMCT (1 ex.).
Length: 3.7–5.6 mm.
Distribution: Eremian species reported so far from Afghanistan, Iran, Iraq, Turkmenistan and Uttarakhand (Nikolajev, 1987; Pittino, 1984a, Dellacasa & Dellacasa, 2006). From the Arabian Peninsula recorded from Oman (Janikova, [undated]) with no further locality specified, Saudi Arabia (Baha, Makah, Madinah, Jizan Prov.) (Pittino, 1984a) and the UAE.



Plates 38–41. 38: *Apsteiniella naviauxi* Baraud, ♂, 4.8 mm, UAE, Falaj al-Ali; 39: *Erytus hormozensis* (Petrovitz), 4.7 mm, UAE, Tawi as-Saman; 40: *E. pruinosus* (Reitter), 4.6 mm, UAE, Khor al-Khwair; 41: *Labarrus lividus* (A. G. Olivier), 4.0 mm, UAE, Wadi Bih (dam). All habitus, dorsal view.

Genus ***Mendidius*** Harold, 1868

Mendidius beluchistanicus (Petrovitz, 1962) **comb**. **nov**. Plates 43–44

Published records: Gillett & Gillett (2005) (as *Aphodius beluchistanicus* Petrovitz, 1962): No locality specified.

Specimens examined: Falaj al-Ali, near ad-Dhaid, 25°21.38′N 55°50.38′E, 70 m, 13 ex., 29.xi.2013, leg. P. Kučera jr., PKCL (10 ex.), LMCT (3 ex.). Sharjah, Wadi Yudayah, near Mileiha, 25°06.53′N 55°45.87′E, 140 m, 72 ex., 24.xi.2013, leg. P. Kučera jr., PKCL (38 ex.), LMCT (34 ex.). Sharjah Desert Park, 25°17′N 55°42′E, 7 ex., 20.i–22.ii.2005, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 2 ex., 16.xi-21.xii.2005, light trap, AvH, NMPC. Wadi Munay, Munay, 24°57.46′N 56°09.51′E, 270 m, 1 ex., 27.xi.2013, leg. P. Kučera jr., PKCL.

Length: 3.7–7.0 mm.

Distribution: Described from Iran: Sistan & Baluchistan Prov. (type locality: "Bender Tschabahar") (Petrovitz, 1962); recorded also from Iraq, Saudi Arabia (Riyadh and Eastern Prov.) (Pittino, 1984; Dellacasa & Dellacasa, 2006) and the UAE.

Genus ***Mesontoplatys*** Motschulsky, 1864

Mesontoplatys arabicus (Harold, 1875) **comb**. **nov**. Plate 45

Published records: Howarth & Gillett (2004): Jebel Hafit, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified. (All as *Aphodius arabicus* Harold, 1875).

Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 1 ex., 12–19.ix.2006, light trap, AvH, BMNH. Oasis Tawi as-Saman, near ad-Dhaid, 25°14′N 55°49′E, 106 m, 2 ex., 20.xi.2006, leg. J. Batelka & H. Pinda, JBCP. Dubai, near Margham, 24°55′N 55°38′E, 163 m, 3 ex., 19.xi.2006, at light, leg. J. Batelka & H. Pinda, JBCP. Fujairah, 25°08′N 56°21′E, 2 ex., 13–29.xi.2005, light trap, AvH, NMPC. Near Mahafiz, 25°12′N 55°44′E, 110 m, 6 ex., 11.iv–10.v.2006, light trap, AvH, BMNH. Sharjah Desert Park, 25°17′N 55°42′E, 1 ex., 20.x–8.xi.2005, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 7 ex., 16.xi–21.xii.2005, light trap, AvH, NMPC.

Length: 3.4–4.2 mm.

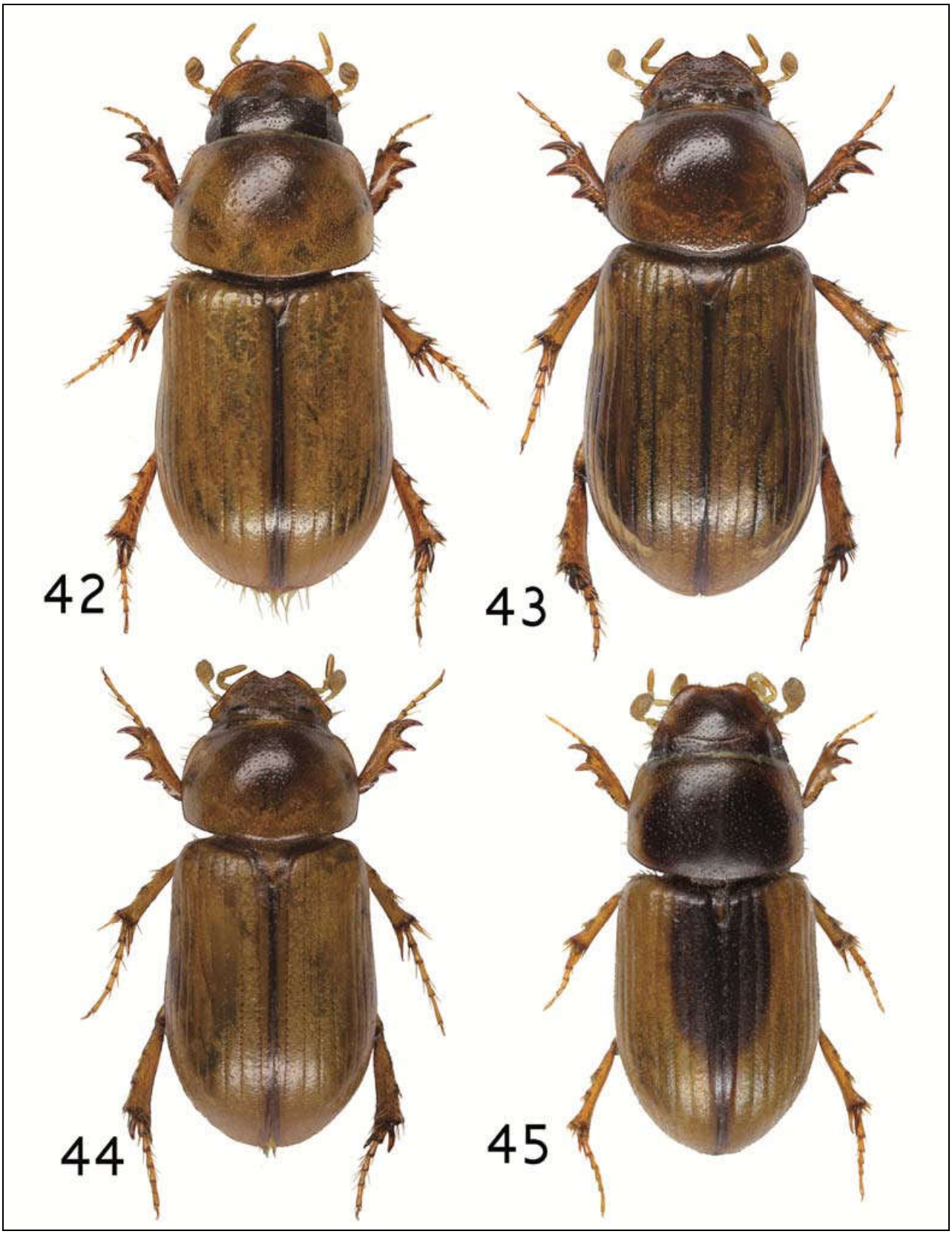
Distribution: Probably widely distributed eremian species, so far recorded from Eritrea, Ethiopia, Egypt (including Sinai), Israel, Kuwait eastwards to Iran (Al-Houty, 1989, 2004; Alfieri, 1976; Balthasar 1964; Chikatunov & Pavlíček, 1997; Dellacasa & Dellacasa, 2006, Pittino, 1984a); from the Arabian Peninsula known from Oman (Janikova, [undated]), Saudi Arabia (Eastern, Jizan, Madinah, Makkah and Riyadh Prov.), Yemen (Paulian, 1980; Pittino, 1984a) and the UAE.

Genus ***Nialosternus*** Hollande & Thérond, 1999

Nialosternus rendallii (Wollaston, 1867) **comb**. **nov**. Plates 46–47

Specimens examined: Wadi Safad, near Qurayyah, 25°13.03′N 56°18.21′E, 170 m, 1 ex., 28.xi.2013, leg. P. Kučera jr., PKCL.

Additional material examined, not from the UAE: CAPE VERDE ISLANDS: Santo Antão (island), black dunes 3 km W of Porto Novo, 2 ex., 7.xi.2011, leg. J. Straka & J. Batelka, JBCP. IRAN: Hormozgan Prov., 22 km N of Bandar Abbas, several ex., 25.iv.1974, leg. Pretzmann, DKCP (1 ex.), NHMB (several ex.). MAURITANIA: Bou Lanouar, tourist place, 21°18′N 16°32′E, 35 m, 3 ex., leg. A. Reiter, NMPC. MOROCCO: M. Hamid, 96 km S of Zagora, 2 ex., 12–13.vi.1996, leg. J. Batelka & Podrouzkova, DKCP. OMAN: Al-Dakhiliyah Prov., Rawdah, Ain Ghubral pool, 23°04′N 57°22′E, 863 m, 1 ex., 11.iv.2011, leg. A. Reiter lgt., NMPC. SAUDI ARABIA: Wadi Hanaq, 22°44′N 39°15′E,



Plates 42–45. 42: *Labarrus translucidus* (Petrovitz), 4.2 mm, UAE, al-Ajban; 43: *Mendidius beluchistanicus* (Petrovitz), ♂, 4.3 mm, UAE, Wadi Yudayah; 44: Same, ♀, 4.5 mm; 45: *Mesontoplatys arabicus* (Harold), ♂, 4.1 mm, UAE, al-Ajban. All habitus, dorsal view.

several ex., leg. W. Büttiker, DKCP (2♂), NHMB (several ex.). SYRIA: Ruthba, 1 ex., iii.1978, leg. O. Kodym, DKCP. YEMEN: [Hadramawt Prov.], Seyun, 2 ex., 4–6.ix.2002, in light trap, leg. AvH & A. Al-Zubayri, DKCP (1♂), ZFMK (1 ex.).

Length: 3.1–4.9 mm.

Remarks: Based on comparison of recently collected material of *Nialosternus rendallii* (Wollaston, 1867) comb. nov. from the Cape Verde Archipelago (see also Landin, 1963: 7, fig. 1, for habitus line drawing and more details) with rich material of *Nialosternus sitiphoides* (d'Orbigny, 1896) from whole of its so far known distribution area (including selected vouchers above) we believe, that both taxa are identical. Therefore we consider *Aphodius sitiphoides* d'Orbigny, 1896: 149 a junior subjective synonym of *Nialosternus rendallii* (Wollaston, 1867: 91).

Distribution: Widely distributed eremian, probably Saharo-Sindian species, so far recorded from the Cape Verde Islands across Northern Africa (Chad, Morocco, Algeria, Tunisia, Libya), the Near East (Israel) to Iraq (Baraud, 1985; Chikatunov & Pavlíček, 1997; Dellacasa & Dellacasa, 2006; Paulian, 1980). From the Arabian Peninsula known from Qatar (Keith & Bordat, 2011) and Saudi Arabia (Riyadh Prov.) (Pittino, 1984a). First records from Iran (Hormozgan Prov.), Mauritania, Syria, Yemen (Hadramawt Prov.) and the UAE.

Genus ***Parabodilus*** Hollande & Thérond, 1999

Parabodilus wollastoni iranicus **(**Balthasar, 1946) Plate 48

Published records: Walker & Pittaway (1987): No locality specified, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified. (All as *Aphodius wollastoni* (Harold, 1862)).

Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 1 ex., 9–17.xi.2005, light trap + Malaise trap, AvH, NMPC; 2 ex., 12–19.ix.2006, light trap, AvH, BMNH. SWW of ad-Dhaid, 24°36′N 55°01′E, 1 ex., 25.iii.2006, Malaise traps & light trap, AvH, NMPC. Khor al-Khwair, 25°58′N 56°03′E, 1 ex., 16.vii–5.viii.2009, light trap, AvH, BMNH. Near Mahafiz, 25°12′N 55°44′E, 110 m, 1♀, 11.iv–10.v.2006, light trap, AvH, BMNH. Sharjah Desert Park, 25°17′N 55°42′E, 16 ex., 20.i–22.ii.2005, light trap, AvH, NMPC; 2 ex., 22.ii–9.iii.2005, light trap, AvH, NMPC; 1 ex., 13.ix–11.xii.2005, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 5 ex., 16.xi–21.xii.2005, light trap, AvH, NMPC. Wadi Munay, Munay, 24°57.46´N 56°09.51´E, 270 m, 3 ex., 27.xi.2013, leg. P. Kučera jr., PKCL (2 ex.), LMCT (1 ex.). Wadi Yudayah, near Mileiha, 25°06.53′N 55°45.87′E, 140 m, 17 ex., 24.xi.2013, leg. P. Kučera jr., PKCL (13 ex.), LMCT (4 ex.).

Length: 5.5–8.4 mm.

Distribution: Eastern subspecies of *Parabodilus wollastoni*, reported so far from Iran, Iraq, Jordan, Kuwait, Sinai, Syria, Pakistan and India (Rajasthan) (Al-Houty, 1989; Balthasar, 1964; Chikatunov & Pavlíček, 1997; Dellacasa & Dellacasa, 2006). In the Arabian Peninsula known from Oman (Janikova, [undated]), Saudi Arabia, Yemen (Pittino, 1984a) and the UAE.

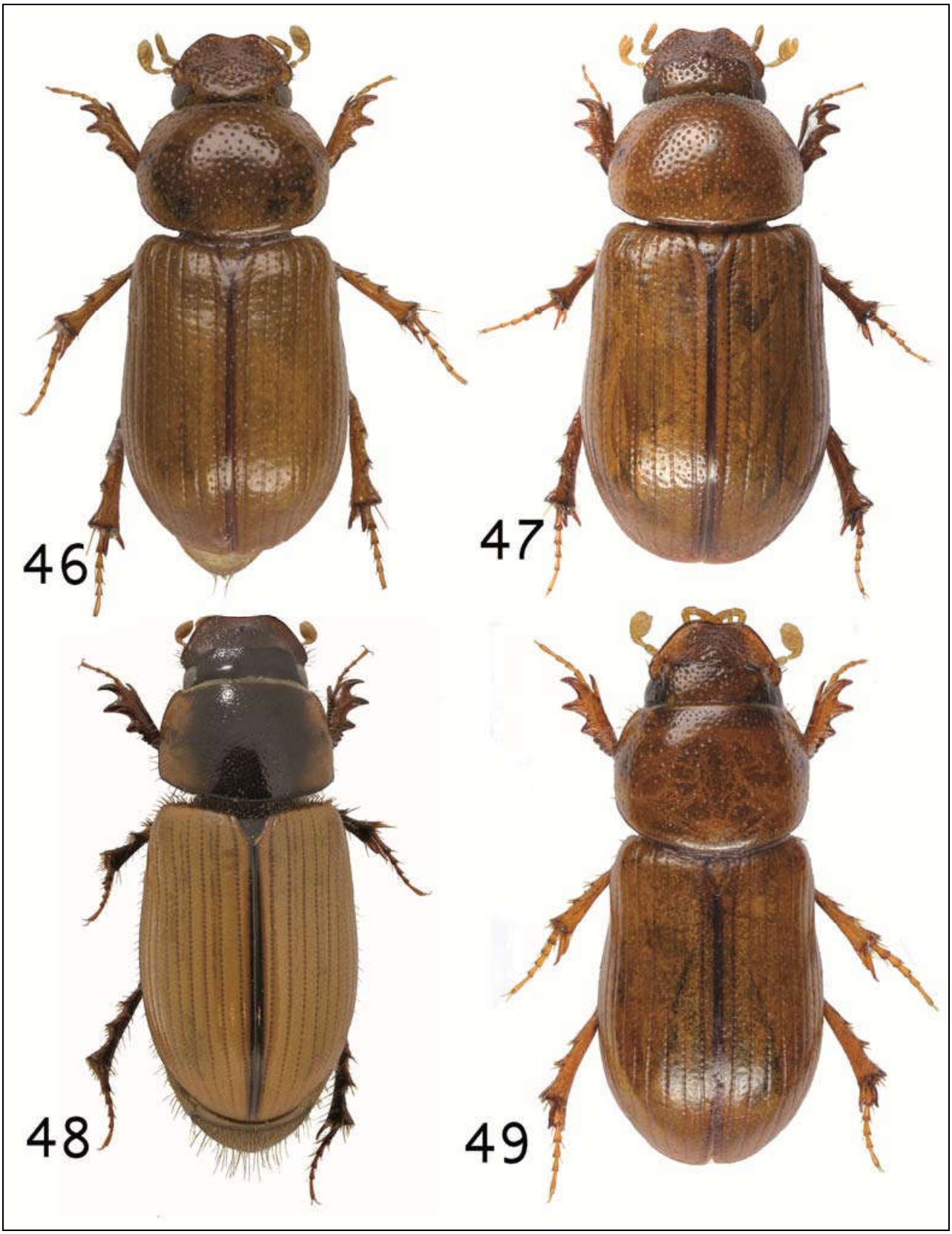
Genus ***Pseuderytus*** Hollande & Thérond, 1999

Pseuderytus chobauti (Clouët des Pesruches, 1896) Plate 49

Specimens examined: Wadi Safad, near Qurayyah, 25°13.03′N 56°18.21′E, 170 m, 1 ex., 28.xi.2013, leg. P. Kučera jr., PKCL.

Length: 3.8–4.1 mm.

Distribution: Distributed in Northern Africa (Algeria, Egypt, Morocco, Libya and Tunisia) across the Near East (Jordan, Palestine) to Iran, Iraq and the Arabian Peninsula (Saudi



Plates 46–49. 46. *Nialosternus rendallii* (Wollaston), ♂, 3.4 mm, UAE, Wadi Safad; 47: Same, ♀, 3.6 mm; 48: *Parabodilus wollastoni iranicus* (Balthasar), ♀, 6.8 mm, UAE, Sharjah Desert Park; 49: *Pseuderytus chobauti* (Clouët des Pesruches), ♂, 3.9 mm, UAE, Wadi Safad. All habitus, dorsal view.

Arabia: Al Qasim, Madinah and Riyadh Prov.) (Baraud, 1985; Chikatunov & Pavlíček, 1997; Pittino, 1984a). New for the UAE.

Genus ***Pseudesymus*** d'Orbigny, 1896

Pseudesymus lucidus (Klug, 1845) Plate 50
Specimens examined: Liwa, 2 km S of al-Khis oasis, 1 ex., 23.xi.2006, at light, leg. J. Batelka & H. Pinda, JBCP. Sharjah Desert Park, 25°17′N 55°42′E, 2 ex., 20.i–22.ii.2005, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 21 ex., 16.xi-21.xii.2005, light trap, AvH, NMPC. Wadi Maidaq, 25°19′N 56°08′E, 410 m, 1 ex., 26.v–6.vi.2006, light trap, AvH, BMNH.
Length: 3.8–4.2 mm.
Distribution: Widely distributed eremian species, reported from the Canary Islands, across North Africa (Morocco, Algeria, Tunisia, Libya, Egypt), the Near East (Israel), Iran, Iraq Kuwait to Middle Asia (Kazakhstan, Turkmenistan, Uzbekistan) to Afghanistan (Al-Houty, 1989, 2004; Balthasar, 1964; Baraud, 1985; Chikatunov & Pavlíček, 1997; Pittino, 1984a, Dellacasa & Dellacasa, 2006). From the Arabian Peninsula known from Saudi Arabia (Pittino, 1984a). New for the UAE.

Tribe **Psammodiini** Mulsant, 1842

Subtribe **Psammodiina** Mulsant, 1842

Genus ***Leiopsammodius*** Rakovič, 1981

Leiopsammodius indicus (Harold, 1877) Plate 51
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 4 ex., 9–17.xi.2005, light trap + Malaise trap, AvH, NMPC.
Length: 2.8–3.5 mm.
Distribution: Widespread species in the Oriental region (north-westernmost to Pakistan) and also in the Afrotropical region (north-easternmost to Yemen (Aden) (Pittino, 1984a; Rakovič & Král, 1997; Rakovič et al., 2006). New for the UAE.

Leiopsammodius pelluscens (Petrovitz, 1961) Plate 52
Specimens examined: NARC, near Sweihan, 24°24′N 55°26′E, 1 ex., 16.xi-21.xii.2005, light trap, AvH, NMPC.
Length: 2.8–3.4 mm.
Distribution: Rarely collected species, described from Umarkot (Pakistan: Sindh Prov.), known also from India and Saudi Arabia (Riyadh, Eastern and Makakh Provinces) (Pittino, 1984a; Rakovič, 1990; Rakovič et al., 2006). New for the UAE.

Leiopsammodius rakovici Král **sp. nov.** Plate 53
Type locality: United Arab Emirates, SWW of ad-Dhaid, 25°09′N 55°48′E.
Specimens examined (5 ex.): Holotype, ♂ (NMPC), "UAE, 23.04.2005 / SWW of ad-Dhaid / 25.09N 55.48E light traps / A. van Harten lgt. [p]". Paratypes, 4 ex. (NMPC), same collecting data as holotype.
Description of holotype: Oblong oval, convex, considerably broader posteriad. Dorsal surface shiny, brown, clypeal margin and legs rather paler. Head strongly convex, granulate, most

Plates 50–52. 50: *Pseudesymus lucidus* (Klug), 4.6 mm, UAE, Liwa; 51: *Leiopsammodius indicus* (Harold), 2.9 mm, UAE, al-Ajban; 52. *Leiopsammodius pelluscens* (Petrovitz), 3.0 mm, UAE, NARC, near Sweihan. All habitus, dorsal view.

granulae rounded and rather uniform in their size and distribution anteriorly of more or less distinct frontoclypeal suture. Rather indistinct granule posteriorly of suture. Clypeus roundly emarginate, rounded each side of emargination (Plate 53). Genae bare, semicircular moderately protruding over lateral clypeal margins (Plate 53). Eyes small, however, yet visible from above. Pronotum transverse, lateral margins bare (Plate 53), margins of posterior angles with short, tough setae. Rows of punctures corresponding with to transverse furrows 1, 3 and 5 and to posterior longitudinal furrow of Psammodiini with complete pronotal structure. In addition to this about 20 irregularly distributed coarse punctures, prevalently on pronotal disc; basal pronotal margin without a row of coarse punctures (Plate 53). Scutellar plate small, triangular.

Elytra considerably broad, dilated posteriad, with ten striae and ten intervals. Striae with round medium-sized punctures, moderately incised into intervals, rather unevenly separated from each other (some neighbouring punctures separated by distance larger than their diameters, some other nearly confluent. Elytral intervals moderately convex, very sparsely and minutely punctate, interval 10 extended to about 0.85 of elytral length. Macropterous.

Ventral surface shining, yellowish brown (rather paler than dorsal surface), trochanters darker. Pro- and mesoventrite and pro- and mesofemora finely macrosetaceous. Metaventrite, abdominal ventrites and metafemora (except for few macrosetae along anterior and posterior margins glabrous. Row of macrosetae along pygidium apical margin (as much as 16), lower number of macrosetae in remaining specimens - some macrosetae perhaps broken off). Metaventral plate with a complete, rather weak longitudinal furrow of uniform depth and along its whole length. Metafemora plump, strongly dilated. Metatibiae wide, robust, considerably expanded apicad, upper terminal spur about as long as metatarsomeres 1 and 2 combined; metatarsomeres 1–4 short, considerably triangularly widened.

Variability: Specimens of the type series only slightly vary in body length.

Sexual dimorphism: no peculiar sexual dimorphism exhibited.

Measurements: Total body length: 3.0–3.2 mm (holotype (♂): 3.2 mm).

Differential diagnosis: The new species is classified in the genus *Leiopsammodius* Rakovič, 1979, mainly by having the metafemur plump, strongly dilated; metatibia considerably expanded apicad; metatarsus shorter than metatibia; metatarsomeres triangularly widened; pronotum without transverse ridges, only with vestiges of transversal furrows; elytral interval smooth. It is distinguished from other described species mostly by distinct vestiges of transversal furrows 1, 3 and 5 and midline furrow and glabrous genae (Plate 53). In the key to Arabian *Leiopsammodius* species (Pittino, 1984a) the new species key to the couplet with *L. indicus* (Harold, 1877) but can be separated from it by absence of row of punctures along basal pronotal margin (Plate 53) (row of coarse punctures along basal pronotal margin present in *L. indicus* – Plate 51).

Collecting circumstances: All specimens of the type series were collected using light traps (see also van Harten, 2008).

Distribution: So far known only from the type locality in the UAE.

Name derivation: Patronymic; named in honour of our colleague Miloslav Rakovič (Dobřichovice, Czech Republic), an outstanding specialist on Aphodiinae, especially on Psammodiini.

Plate 53. *Leiopsammodius rakovici* Král sp. nov., holotype, ♂, 3.2 mm, UAE, SWW of ad-Dhaid, habitus, dorsal view.

Subtribe **Rhyssemina** Pittino & Mariani, 1986

Genus ***Pararhyssemus*** Balthasar, 1856

Pararhyssemus coluber (Mayet, 1887) Plate 54

Published records: Gillett & Gillett (2005): No locality specified.

Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 3 ex., 12–19.ix.2006, light trap, AvH, BMNH. Bithnah, 25°11′N 56°14′E, 160 m, 13 ex., 23.iii–1.iv.2006, light trap, AvH, BMNH. Hatta, 24°49′N 56°07′E, 315 m, 2 ex., 26.ii–10.v.2006, light trap, AvH, BMNH. Khor al-Khwair, 25°58′N 56°03′E, 1 ex., 16.vii–5.viii.2009, at light, AvH, BMNH. Sharjah Desert Park, 25°17′N 55°42′E, 4 ex., 22.ii–9.iii.2005, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 12 ex., 16.xi-21.xii.2005, light trap, AvH, NMPC. Wadi Maidaq, 25°19′N 56°08′E, 410 m, 2 ex., 2–30.iii.2006, light trap, AvH, BMNH; 2 ex., 26.v–6.vi.2006, light trap, AvH, BMNH; 1 ex., 11.viii–9.ix.2006, light trap, AvH, BMNH. Wadi Munay, Munay, 24°57.46´N 56°09.51´E, 270 m, 12 ex., 27.xi.2013, leg. P. Kučera jr. PKCL (9 ex.), LMCT (3 ex.). Wadi Safad, 25°13′N 56°19′E, 1 ex., 20.x–8.xi.2005, light trap, AvH, NMPC); Wadi Safad, near Qurayyah, 25°13.03′N 56°18.21′E, 170 m, 9 ex., 28.xi.2013, leg. P. Kučera jr., PKCL (7 ex.), LMCT (2 ex.). Wadi Shawkah, 25°06′N 56°02′E, 250-280 m, 1 ex. 3.x.2007, leg. J. Batelka & H. Pinda, JBCP. Wadi Wurayah farm, 25°24′N 56°17′E, 165 m, 3 ex., 16.vii–12.viii.2009, light trap, AvH, BMNH).

Length: 2.8–3.4 mm.

Distribution: Widely distributed Saharo-Sindian species, so far known from Afghanistan, Algeria, Egypt including Sinai, Eritrea, Ethiopia, Iran, India (Rajasthan), Kenya, Morocco, Niger, Somalia and Tunisia (Alfieri, 1976; Balthasar, 1964; Baraud, 1985; Chikatunov & Pavlíček, 1997; Král & Šípek, 2013; Pittino, 1984a, 1984b; Rakovič et al., 2006; Schmidt, 1922). In the Arabian Peninsula recorded from Oman (Janikova, [undated]), Saudi Arabia (Asir, Baha, Gizan, Hail, Makkah, Medina and Riyadh Provinces) (El-Hawagry et al., 2013; Paulian, 1980; Pittino, 1984a) and the UAE.

Genus ***Platytomus*** Mulsant, 1842

Platytomus yadai (Ochi, Kawahara & Inagaki, 2006) Plate 55

Specimens examined: SWW of ad-Dhaid, 25°09′N 55°48′E, 57 ex., 23.iv.2005, light trap, AvH, NMPC. Hatta, 24°49′N 56°07′E, 315 m, 15 ex., 26.ii–10.v.2006, light trap, AvH, BMNH. Near Mahafiz, 25°12′N 55°44′E, 110 m, 6 ex., 11.iv–10.v.2006, light trap, AvH BMNH. Ra's al-Khaimah, near Intl. Airport, Ghaf forest, 1 ex., 27.ix.2007, leg. J. Batelka & H. Pinda, JBCP. Sharjah Desert Park, 25°17′N 55°42′E, 21.vii–5.viii.2005, light trap, AvH, NMPC; Sharjah Desert Park, 25°17′N 55°42′E, 1 ex., 13.ix–11.xii.2005, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 1 ex., 16.xi-21.xii.2005, light trap, AvH, NMPC. Wadi Wurayah farm, 25°24′N 56°17′E, 165 m, 2 ex., 16.vii–12.viii.2009, light trap, AvH, BMNH.

Length: 2.8–3.1 mm.

Distribution: Described from Japan (Okinawa) and recorded also from Qatar ("near Al Hamam, Jeryal Al Batna") from where it was described as *P. qatarensis* Bordat, 2007, and later synonymized (for details see Keith & Bordat, 2011). New for the UAE.

Genus ***Pleurophorus*** Mulsant, 1842

Pleurophorus arabicus Pittino & Mariani, 1986 Plate 56

Published records: Gillett & Gillett (2005) (as *Pleurophorus anatolicus* Petrovitz, 1961): No locality specified.

Specimens examined: Fujairah, 25°08′N 56°21′E, 3 ex., 5–24.iii.2005, light trap, AvH, NMPC.

Length: 3.4–4.3 mm.
Remarks: *Pleurophorus anatolicus* is most likely a vicariant species to *P. arabicus* and it is not distributed in the Arabian Peninsula (for details see Pittino & Mariani, 1986).
Distribution: Species with so far poorly known distribution; recorded from SE Russia, Azerbaijan, NW Iran, Jordan, and Turkmenistan (Pittino, 1984; Pittino & Mariani, 1986; Rakovič et al., 1986); in the Arabian Peninsula recorded so far from Oman (Musandam Khasab Area), Saudi Arabia (Eastern, Gasim and Riyadh Prov.) (Pittino, 1984a [under the name *P. anatolicus* Petrovitz, 1961]; Pittino & Mariani, 1986; Rakovič et al. 2006) and the UAE.

Genus ***Rhyssemodes*** Reitter, 1892

Rhyssemodes orientalis (Mulsant & Godart, 1875) Plate 57
Specimens examined: Fujairah, Wadi Hayl, 25°04′E 56°13′N, 225 m, 2 ex., 5.x.2007, leg. J. Batelka & H. Pinda, JBCP.
Length: 3.3–4.7 mm.
Distribution: Eremian Saharo-Sindian species, common throughout almost the entire southern parts of the Palaearctic region, from Morocco and Spain to Middle Asia and China; southwards to Ethiopia and Sudan (Balthasar, 1964; Dellacasa & Dellacasa, 2006; Pittino, 1984a). Widely distributed in Saudi Arabia (Pittino, 1984a). New for the UAE.

Rhyssemus brevitarsis Pittino, 1984 Plate 58
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 4 ex., 12–19.ix.2006, light trap, AvH, BMNH. Bithnah, 25°11′N 56°14′E, 160 m, 3 ex., 23.iii–1.iv.2006, light trap, AvH, BMNH. Fujairah, 25°08′N 56°21′E, 6 ex., 6–13.v.2006, at light, AvH, BMNH. Khor al-Khwair, 25°58′N 56°03′E, 5 ex., 16.vii–5.viii.2009, light trap, AvH, BMNH. Near Mahafiz, 25°12′N 55°44′E, 110 m, 2 ex., 11.iv–10.v.2006, light trap, AvH, BMNH. Sharjah–Khor Kalba, near tunnel, 24°59′N 56°14′E, 3 ex., 17–24.v.2006, AvH, BMNH. NARC, near Sweihan, 24°24′N 55°26′E, 5 ex., 16.xi–21.xii.2005, light trap, AvH, NMPC. Wadi Bih (dam), 25°48′N 56°04′E, 100 m, 2 ex., 8–22.iii.2007, light trap, AvH, BMNH. Wadi Maidaq, 25°19′N 56°08′E, 410 m, 15 ex., 2–30.iii.2006, light trap, AvH, BMNH (10 ex.), NMPC (5 ex.).
Length: 3.4–4.6 mm.
Distribution: Arabian Peninsula only, probably widely distributed in Saudi Arabia (Baha, Baha, Gasim, Gizan, Makkah, Medina and Riyadh Provinces), recorded also from Oman (Rostaq) (El-Hawagry et al., 2013; Pittino, 1984a; Rakovič et al., 2006). New for the UAE.

Rhyssemus granosus **(**Klug, 1842) Plate 59
Published records: Walker & Pittaway (1987): No locality specified, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified.
Specimens examined: Bithnah, 25°11′N 56°14′E, 160 m, 1 ex., 23.iii–1.iv.2006, light trap, AvH, BMNH. Dubai, near Margham, 24°55′N 55°38′E, 163 m, 1 ex., 19.xi.2006, at light, leg. J. Batelka & H. Pinda, JBCP. Hatta, 24°49′N 56°07′E, 315 m, 11 ex., 26.ii–10.v.2006, light trap, AvH BMNH (6 ex.), NMPC (5 ex.). Sharjah Desert Park, 25°17′N 55°42′E, 6 ex., 20.i–22.ii.2005, light trap, AvH, NMPC.
Length: 3.4–4.6 mm.
Distribution: Widely distributed Eremian Saharan and Subsaharan species (Balthasar, 1964; Dellacasa & Dellacasa, 2006; Pittino, 1984a); from the Palearctic Region known from Kuwait

Plates 54–57. 54: *Pararhyssemus coluber* (Mayet), 3.3 mm, UAE, Wadi Shawkah; 55: *Platytomus yadai* (Ochi, Kawahara & Inagaki), 2.8 mm, UAE, Ghaf forest; 56: *Pleurophorus arabicus* Pittino & Mariani, 3.7 mm, UAE, Fujairah; 57: *Rhyssemodes orientalis* (Mulsant & Godart), 3.7 mm, UAE, Wadi Hayl. All habitus, dorsal view.

(Al-Houty, 1989) and from the Arabian Peninsula from Qatar (Keith & Bordat, 2011), Saudi Arabia (Beccari, 1971; El-Hawagry et al., 2013; Pittino, 1984a), and the UAE.

Trichiorhyssemus elegans (Petrovitz, 1963) Plate 60
Specimens examined: Wadi Maidaq, 25°19′N 56°08′E, 410 m, 1 ex., 27.xi–22.xii.2005, light trap, AvH, NMPC.
Length: 4.4–4.5 mm.
Distribution: Known so far only from the Irani Province of Hormozgan (type locality: "Dschaz Morian Massif") (Petrovitz, 1963; Pittino, 1984b; Rakovič et al., 2006). New for the Arabian Peninsula.

Subfamily **Dynamopodinae** Arrow, 1911

Tribe **Dynamopodini** Arrow, 1911

Genus ***Orubesa*** Reitter, 1895

Orubesa semenowi (Arrow, 1911) Plate 61
Published records: Tigar & Osborne (1999b) (as *Dynamopus semenowi* Arrow, 1911): Abu Dhabi Emirate listed by van Harten (2005).
Specimens examined: None.
Additional specimens examined, not from the UAE: OMAN: Az Zahirah Prov., near Mahdah, N of Burayami, 24°22.32′N 56°00.08′E, 1 ex., 13.x.2013. leg. P. Kučera, PKCL. SAUDI ARABIA: Ain Namas, 2 ex., 18.vii.1981, NHMB. SUDAN: Two paratypes of *Dynamopus sudanicus*, "Sudan / Ed Damer Hudeiba [p] / 18. VII. 62 [hw] / leg. R. Remane [p] // Dynamopus / sudanicus n. sp. / Balth[asar]. [19]67 [hw, Balthasar's hand], Paratypus [p, red label] // ex. coll. V. Balthasar / National Museum / Prague, Czech Republic [p]". Khartoum, 2 ex., i.1968, leg. P. Štys, DKCP.
Length: 7.5–9.5 mm.
Remarks: Gillett & Gillett (2005) recorded from the UAE (without precise data) doubtfully also *Orubesa sudanica* (Balthasar, 1971: 1) (originally described in the genus *Dynamopus* Semenov, 1896; type locality: "Sudan: Ed Damer, Hudeiba") which we consider a junior subjective synonym of *Orubesa semenowi* (Arrow, 1911: 610) based on the type material of both species.
Distribution: Described from Sudan (type locality: "White Nile") by Arrow (1911) and recorded also from Ethiopia, Libya (Fezzan), Saudi Arabia, Sudan (Baraud, 1985; Král, 2006), and the UAE.

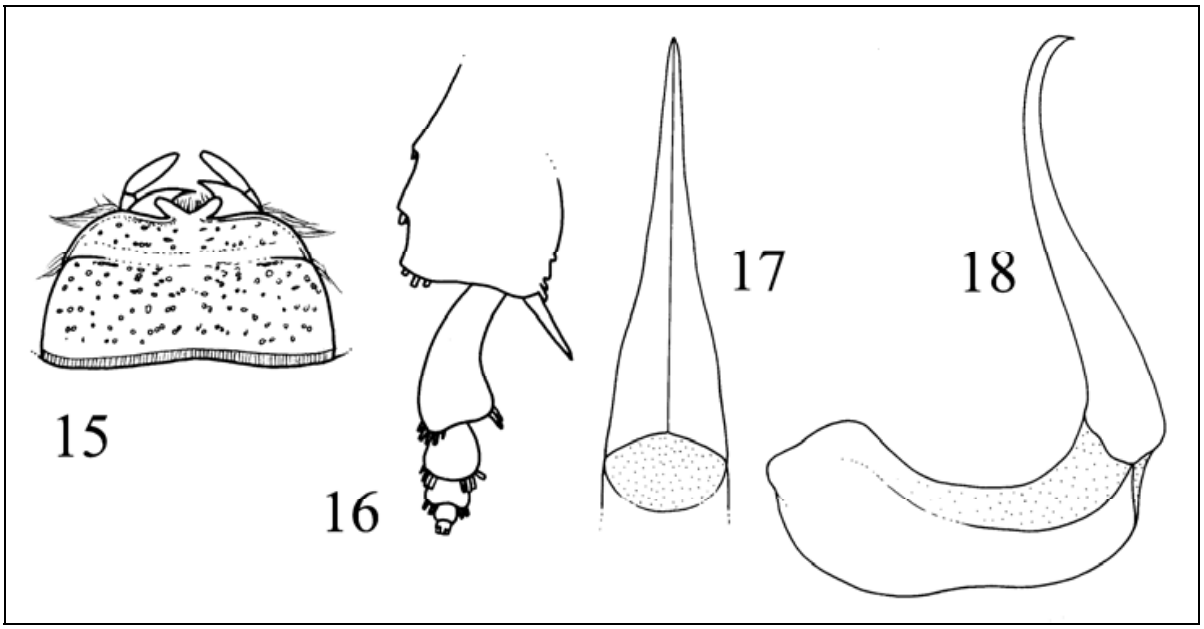
Subfamily **Eremazinae** Iablokoff-Khnzorian, 1977

Genus ***Eremazus*** Mulsant, 1851

Eremazus giganteus Král **sp**. **nov**. Plates 62–63; Figures 15–18
Type locality: United Arab Emirates, NARC [= National Avian Research Centre], near Sweihan, 24°24′N 55°26′E.
Specimens examined (1 ex.): Holotype, ♂ (NMPC), "UAE, NARC, near Sweihan / 24.24N 55.26E / 28.03-02.04.2005 / light trap / Antonius van Harten lgt. [p]".

Plates 58–60. 58: *Rhyssemus brevitarsis* Pittino, 3.8 mm, UAE, NARC, near Sweihan; 59: *R. granosus* (Klug), 3.7 mm, UAE, Margham; 60: *Trichiorhyssemus elegans* (Petrovitz), 4.2 mm, UAE, Wadi Maidaq. All habitus, dorsal view.

Plate 61. *Orubesa semenowi* (Arrow), 8.0 mm, Oman, Az Zahirah Prov., Mahdah (LMCT), habitus dorsal view.



Figures 15–18. 15: *Eremazus giganteus* Král sp. nov., holotype, head, dorsal aspect, schematically; 16: Same: left metatibia and metatarsus, dorsal aspect; 17: Same, parameres, dorsal aspect; 18: Same, parameres, lateral aspect.

Description of holotype (♂): Robust, oblong oval, strongly convex, shining, dark brown, dorsal surface bare, margins of body fringed with long pale macrosetae arranged in clumps and tufts. Head. Clypeus anteriorly truncate, upturned, with thin lobular protrusion medially (Fig. 15), anterior clypeal margin and slightly sinuate, visible frontoclypeal suture darkened; genae small, abruptly rounded; mandibles with clump of close macrosetae; surface simply, coarsely and densely punctate. Pronotum transversal, anterior corners acute with clumps of close macrosetae, sides straight, divergent to rounded posterior corners; surface simply, finely and densely punctate (Plates 62–63). Scutellar plate small, triangular, impunctate.
Elytra without striae, humeral denticles absent, surface simply coarsely and densely punctate (Plates 62–63).Macropterous.
Pygydium scabrous, with long dense macrosetation. Ventral surface alutaceous, covered with dense macrosetae; mesoventrum convex, lower than metaventrum; meso-metaventral plate shiny, smooth and bare. Metafemora fusiform covered with considerably dense and considerably long macrosetation; protibiae tridentate and with two smaller teeth subbasally; meso-and metatibiae with dense, long macrosetation, oblique carinae and terminal edge with rows of short, tubuliform spines located close together (Fig. 16); mesotarsomeres with short, tubuliform spines; metatarsomeres strongly expanded apicad, with short, tubuliform spines (Fig. 16).
Male genitalia: Parameres quite long, strongly recurved in lateral view (Figs 17–18).
Measurements: Total body length: holotype 6.3 mm.
Differential diagnosis: The new species is classified within Eremazinae subfamily in the genus *Eremazus* mainly by possessing punctate head, anterior margin of clypeus truncate, elytra without striae and intervals and legs clothed with considerably long, dense macrosetation (see also Stebnicka, 1977, 2011). At the first sight, it is distinguished from other so far described *Eremazus* species by its considerably large size (body length 6.3 mm)

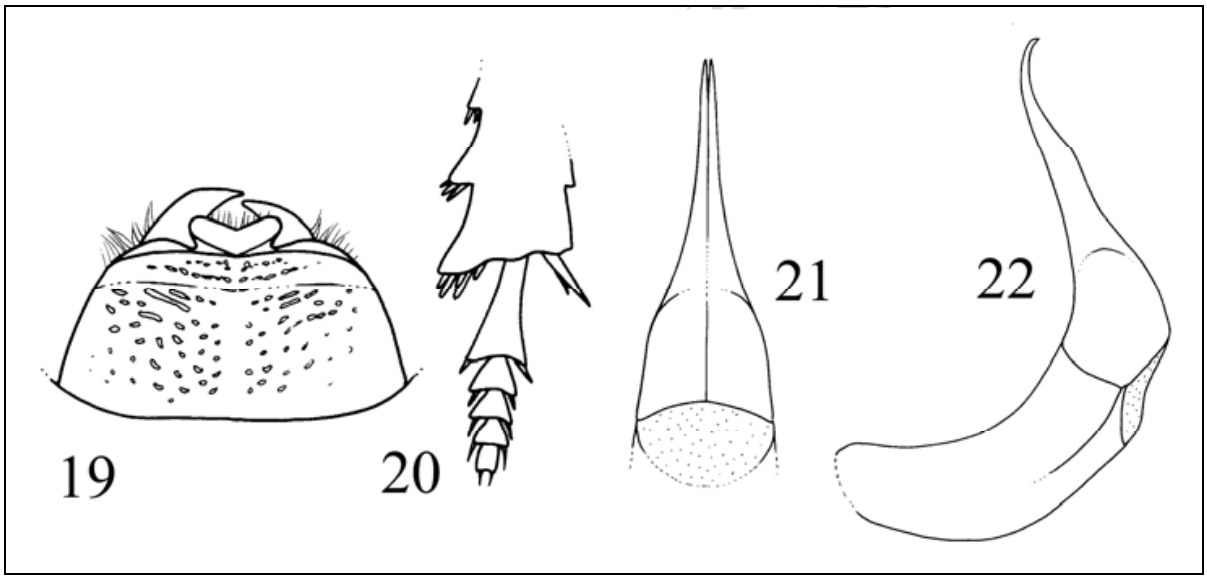
Table 2. Differential characters of and *Eremazus giganteus* Král sp. nov. and *Eremazus marmottani* (Fairmaire)

Character	*Eremazus giganteus* Král sp. nov.	*Eremazus marmottani* (Fairmaire)
Lobular protrusion of clypeus	thinner (Fig. 15)	thicker (Fig. 19)
Punctation of pronotum	simple (Plates 62–63)	double (Plate 64)
Punctation of elytra	fine (Plates 62–63)	coarse (Plate 64)
Shape of macrosetae of oblique carinae and terminal edge of meso- and metatibiae	short tubuliform spines (Fig. 16)	longer, almost acute spines (Fig. 20)
Shape of macrosetae of meso- and metatarsomeres	short tubuliform spines (Fig. 16)	almost acute spines (Fig. 20)
Shape of metatarsomeres	strongly expanded apicad (Fig. 16)	expanded apicad (Fig. 20)
Shape of parameres	longer, strongly recurved in lateral view (Figs 17–18)	shorter, weakly recurved in lateral view (Figs 21–22)
Total body length	6.3 mm (holotype)	3.7–4.3 mm
Distribution	UAE	Algeria, Morocco, Tunisia, UAE

in contrast to the 3.7–4.8 mm recorded total body length in other species (see Baraud, 1985; Nikolajev, 1987; Stebnicka, 1977, 2011). In the key to *Eremazus* species (Stebnicka, 1977) the holotype of *E. giganteus* Král sp. nov. keys to the couplet with *T. marmottani* (Fairmaire, 1871). Both species can be readily separated as given in Table 2.
Collecting circumstances: Taken from light trap (for more details see van Harten, 2008).
Distribution: So far known only from the UAE.
Name derivation: The species epithet is the Latin adjective *giganteus*, *-a*, *-um*, meaning giant.

Eremazus marmottani (Fairmaire, 1871) Plate 64; Figures 19–22
Specimens examined: NARC, near Sweihan, 24°24′N 55°26′E, 3 ex., 16.xi–21.xii.2005, light trap, AvH, NMPC.
Length: 3.7–4.3 mm.
Distribution: So far known from North Africa (Algeria, Morocco, Tunisia) (Baraud, 1985; Stebnicka, 1977, 2006a, 2011). New for the Arabian Peninsula and the UAE.

Eremazus unistriatus Mulsant, 1851 Plate 65
Published records: Howarth & Gillett (2004): Jebel Hafit, listed by van Harten (2005); Gillett & Gillett (2005) and Stebnicka (2011): Both no locality specified.
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 5 ex., 19–27.iii.2006, light trap, AvH, NMPC; 4 ex., 12–19.ix.2006, light trap, AvH, BMNH. Bithnah, 25°11′N 56°14′E, 160 m, 1 ex., 23.iii–1.iv.2006, light trap, AvH, BMNH. Near ad-Dhaid, oasis Tawi as-Saman, 25°14.33′N 55°49′E, 106 m, 3 ex., 20.xi.2006, leg. J. Batelka & H. Pinda, JBCP. SWW of ad-Dhaid, 25°09′N 55°48′E, 30 ex.,



Figures 19–22. 19: *Eremazus marmottani* (Fairmaire), head, dorsal aspect, schematically; 20: Same, left metatibia and metatarsus, dorsal aspect; 21: Same, parameres, dorsal aspect; 22: Same, parameres, lateral aspect.

23.iv.2005, light trap, AvH, NMPC. Fujairah, 25°08′N 56°21′E, 5 ex., 6–13.v.2006, light trap, AvH, BMNH. Khor al-Khwair, 25°58′N 56°03′E, 12 ex., 16.vii–5.viii.2009, light trap, AvH, BMNH. Near Mahafiz, 25°12′N 55°44′E, 110 m, 3 ex., 11.iv–10.v.2006, light trap, AvH, BMNH. Sharjah Desert Park, 25°17′N 55°42′E, 45 ex., 25.i–22.ii.2005, light trap, AvH, NMPC; 6 ex., 22.ii–9.iii.2005, light trap, AvH, NMPC; 1 ex., 21.vii–5.viii.2005, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 16 ex., 14–28.iii.2005, light trap, AvH, NMPC; 6 ex., 16.xi-21.xii.2005, light trap, AvH, NMPC.

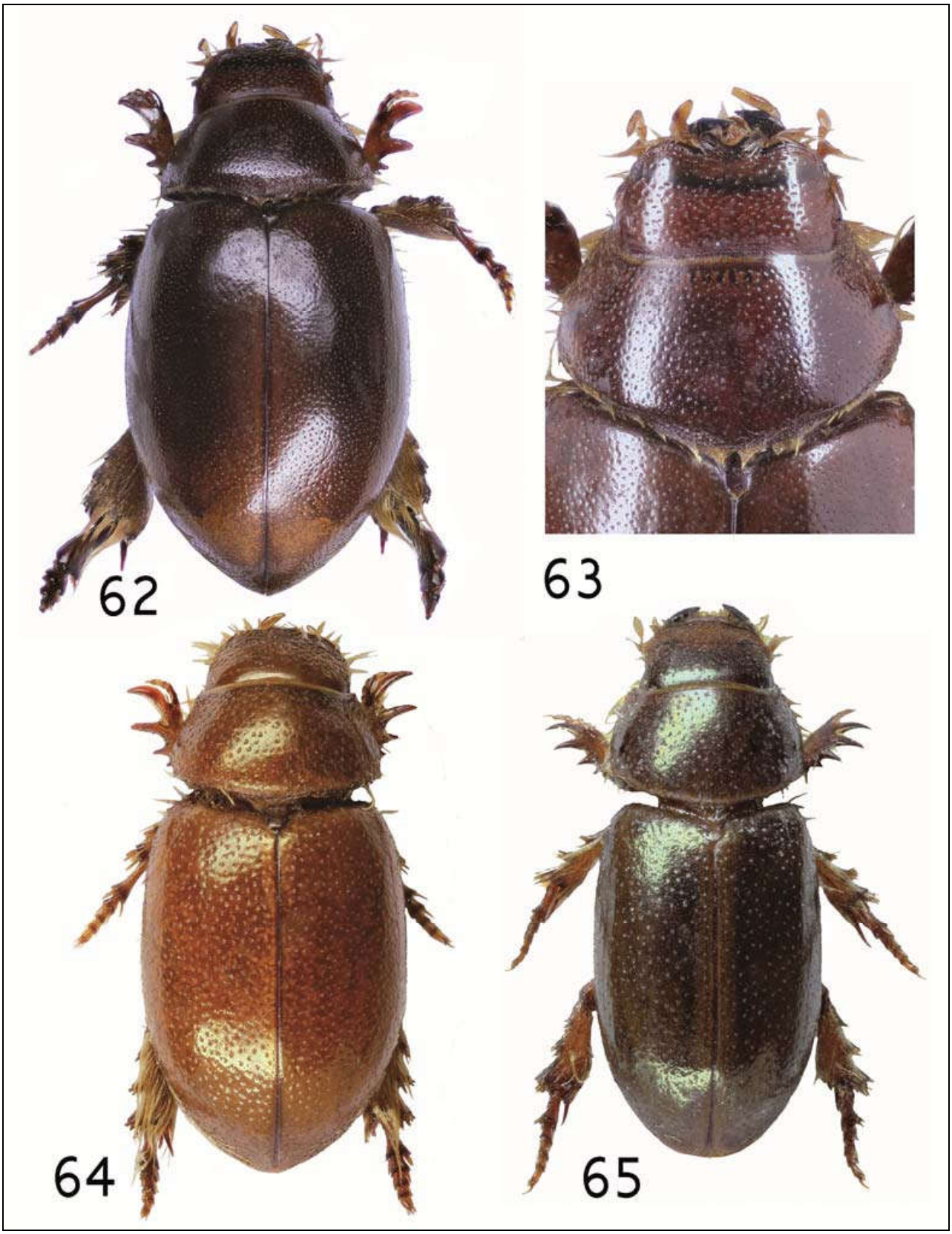
Length: 3.3–4.5 mm.

Distribution: Eremian species, widely distributed from North Africa (Canary Islands, Morocco, Mauritania, Algeria, Tunisia, Libya and Egypt (including Sinai) across the Arabian Peninsula, Near East (Israel, Syria), Iran, Iraq, SE Turkey to Transcaucasia (Armenia, Georgia), Middle Asia (Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan), Pakistan and Uttarakhand (India) (Baraud, 1985; Nikolajev, 1987; Pittino, 1984a, Stebnicka, 1977, 2006a, 2011). From the adjacent countries recorded from Iraq (Derwesh, 1965), Israel (Chikatunov & Pavlíček, 1997), Kuwait (Al-Houty, 1989, 2004) and Syria (El-Hariri, 1971); from the Arabian Peninsula so far recorded from Bahrain, UAE (Stebnicka, 2006a, 2011), and Oman (Janikova, [undated]) all without specification of localities; widespread throughout Saudi Arabia (Pittino, 1984a).

Subfamily **Scarabaeinae** Latreille, 1802

Tribe **Coprini** Leach, 1815

Genus ***Metacatharsius*** Montreuil, 1998



Plates 62–65. 62: *Eremazus giganteus* Král sp. nov., holotype, 4.9 mm, UAE, NARC, near Sweihan, 63: Same, forebody, not to scale; 64: *E. marmottani* (Fairmaire), 4.2 mm, UAE, NARC, near Sweihan; 65: *E. unistriatus* Mulsant, 4.0 mm, UAE, Tawi as-Saman. All except plate 63 habitus, all dorsal view.

Metacatharsius inermis (Laporte, 1840) Plate 66
Published records: Gillett (1995a): Al-Ain, Tigar & Osborne (1999b): Abu Dhabi Emirate, (both as *Catharsius inermis* Laporte, 1840), Howarth & Gillett (2004): Jebel Hafit; all listed by van Harten (2005); Gillett & Gillett (2005): No locality specified.
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 6 ex., 12–19.ix.2006, light trap, AvH, BMNH; 8 ex., 19–27.iii.2006, light trap, AvH, NMPC; 3 ex., 9–17.xi.2005, light trap + Malaise trap, AvH, NMPC. Near Mahafiz, 25°12′N 55°44′E, 110 m, 5 ex., 11.iv–10.v.2006, light trap, AvH, BMNH. Sharjah Desert Park, 25°17′N 55°42′E, 2 ex., 13–24.iv.2005, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 1 ex., 2–30.iv.2005, light trap, AvH, NMPC; 7 ex., 16.xi-21.xii.2005, light trap, AvH, NMPC.
Length: 10–15 mm.
Distribution: Widely distributed eremian, probably Saharo-Sindian species, known from Chad, Egypt and Ethiopia across Iraq, Kuwait to Pakistan and India (Punjab, Rajasthan) (Al-Houty, 1989; Alfieri, 1976; Arrow, 1931; Balthasar, 1963a); in the Arabian Peninsula recorded from Oman (Janikova, [undated]), Saudi Arabia (Eastern and Riyadh Prov., "Asir" and "Hedjaz" (Beccari, 1971; Paulian, 1980; Shalaby, 1961), Yemen ("Hadramaut") (Paulian, 1980), and the UAE.

Tribe **Gymnopleurini** Lacordaire, 1856

Genus ***Gymnopleurus*** Illiger, 1803

Subgenus ***Gymnopleurus*** Illiger, 1803

Gymnopleurus (***Gymnopleurus***) ***elegans*** (Klug, 1845) Plate 67
Published records: Howarth & Gillett (2004): Jebel Hafit, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified.
Specimens examined: Wadi Safad, 25°13′N 56°19′E, 2 ex., 20.x–8.xi.2005, light trap, AvH, NMPC.
Length: 6–9 mm.
Distribution: Hitherto known only from the Arabian Peninsula (Balthasar, 1963a; Bezděk, 2006b) (type locality: "Arabia deserta") (Klug, 1845); recorded from Oman ("Muscat") (Janikova, [undated]; Paulian, 1980), Saudi Arabia ("Hedjaz") (Paulian, 1948, 1980), Yemen (Aden and Lahej Governorates) (Balthasar, 1963a; Paulian, 1948, 1980) and the UAE.

Gymnopleurus (***Gymnopleurus***) ***persianus*** Reitter, 1909 Plate 68
Published records: Garetta (1914): "Arabia, Dibbah"; Gillett & Gillett (2005): No locality specified. (Both as *Gymnopleurus arabs* Garetta, 1914).
Specimens examined: None.
Length: 8–12 mm.
Remarks: The species is erroneously reported also from Saudi Arabia by Bezděk (2006b), probably based on Paulian's (1980) vague notice "Espèce propre à l'Arabie".
Distribution: Widely distributed in Iran (Hormozgan, Kerman, Khuzestan, Lorestan and Sistan & Baluchistan Provinces), Iraq and Syria (Bezděk, 2006b; Montreuil, 2011); known also from the Oman–UAE border area of the Dibba town from where it has been described as *G. arabs* by Garetta (1914: 357; type locality: "Arabie orientale, Dibba [= present day town Diba / Dibba situated at Oman (Musandam) / UAE (Fujairah) border]" (see Montreuil, 2009, 2011, for details) and lately recorded also under this name from Jebel Hafit (UAE) by Howarth & Gillett (2004).

Tribe **Oniticellini** H. J. Kolbe, 1905

Genus ***Euoniticellus*** A. Janssens, 1953

Euoniticellus pallens (A. G. Olivier, 1789) Plate 69
Published records: Gillett & Gillett (2005): No locality specified.
Specimens examined: Wadi Maidaq, 25°19′N 56°08′E, 410 m, 3 ex., 27.xi–22.xii.2005, light trap, AvH, NMPC).
Length: 6–9 mm.
Distribution: Eremian species, widely distributed from North Africa (Canary Islands, Morocco, Mauritania, Algeria, Tunisia, Libya and Egypt (including Sinai) across the Arabian Peninsula, Near East (Israel, Syria), Iran, Iraq, SE Turkey to Transcaucasia (Armenia, Georgia), Middle Asia (Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan), Pakistan; introduced to Australia and India (Uttarakhand) (Arrow, 1931; Balthasar, 1963b; Baraud, 1985; Bezděk & Krell, 2006a; Kabakov, 2006; Nikolajev, 1987). From the adjacent countries recorded from Iraq (Derwesh, 1965), Israel (Chikatunov & Pavlíček, 1997), Kuwait (Al-Houty, 1989, 2004) and Syria (El-Hariri, 1971); from the Arabian Peninsula so far recorded from Oman (Janikova, [undated]), Yemen (Aden, Sana'a) (Paulian, 1948, 1980), and the UAE.

Tribe **Onitini** Laporte, 1840

Genus ***Cheironitis*** van Lansberge, 1875

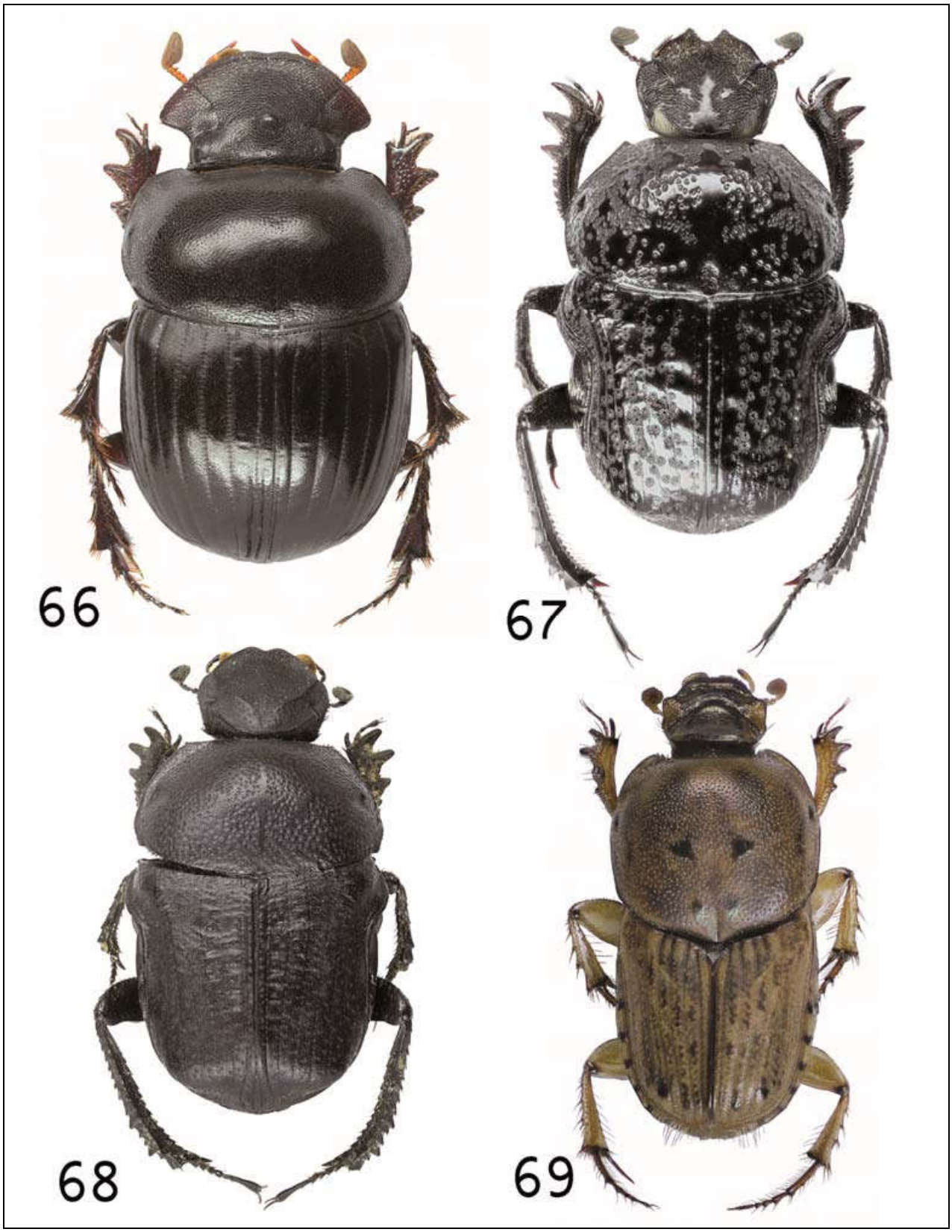
Cheironitis osiridis (Reiche, 1856) Plates 70–71
Published records: Gillett (1995a): Al-Ain, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified. (All as *Chironitis osiridis* – incorrect subsequent spelling).
Specimens examined: Wadi Safad, 25°13′01″N 16°17′42″E, 170 m, 2♂, 19.iii.2007, leg. J. Batelka & H. Pinda, JBCP.
Length: 10–14 mm.
Distribution: Eremian Saharo-Sindian species distributed from Saharan parts of Algeria, Libya, Egypt, Sudan across the Arabian Peninsula to Iran, Pakistan and India (Arrow, 1931; Balthasar, 1963b, Baraud, 1985; Bezděk & Krell, 2006; Kabakov, 2006). From the Arabian Peninsula reported from Oman (Janikova, [undated]), Saudi Arabia (Karaman Islands), Yemen (Aden, Hadramaut, Lahej) (Paulian, 1948, 1980), and the UAE.

Tribe **Onthophagini** Burmeister, 1846

Genus ***Onthophagus*** Latreille, 1802

Subgenus ***Eremonthophagus*** Zunino, 1979

Onthophagus (***Eremonthophagus***) ***sticticus*** Harold, 1867
Published records: Gillett & Gillett (2005): No locality specified.
Specimens examined: None.
Length: 6.3–8.0 mm.



Plates 66–69. 66: *Metacatharsius inermis* (Laporte), ♂, 12 mm, UAE, al-Ajban; 67: *Gymnopleurus* (*Gymnopleurus*) *elegans* (Klug), 11 mm, UAE, Wadi Safad; 68: *G.* (*G.*) *persianus* Reitter, 11 mm, Iran, Kerman Prov., Sabzewaran (NMPC); 69: *Euoniticellus pallens* (A. G. Olivier), 8 mm, UAE, Wadi Maidaq. All habitus, dorsal view.

Distribution: Northern Africa, Eritrea, Somalia (Balthasar, 1963b, Baraud, 1985; Löbl et al. 2006). From the Arabian Peninsula reported from Oman (Janikova, [undated]; Paulian, 1948, 1980), Saudi Arabia (Hedjaz), Yemen (Aden) (Paulian, 1948, 1980; Zunino, 1981), and the UAE.

Onthophagus (***Eremonthophagus***) ***transcaspicus*** König, 1889 Plates 72–73

Published records: Gillett & Gillett (2005): No locality specified.

Specimens examined: Bithnah, 25°11′N 56°14′E, 160 m, 3 ex., 23.iii–1.iv.2006, light trap, AvH, BMNH. Fujairah, 25°08′N 56°21′E, 1 ex., 6–13.v.2006, at light, AvH, BMNH. Khor al-Khwair, 25°58′N 56°03′E, 1 ex., 16.vii–5.viii.2009, light trap, AvH, BMNH. Ra's al-Khaimah, near river dam, 24°59′N 56°07′E, 1 ex., 23.ix.2007, leg. J. Batelka & H. Pinda, JBCP. Sharjah–Khor Kalba, near tunnel, 24°59′N 56°14′E, 10 ex., 17–24.v.2006, light trap, AvH, BMNH); Wadi Bih (dam), 25°48′N 56°04′E, 100 m, 1 ex., 8–22.iii.2007, light trap, AvH, BMNH. Wadi Hayl, 25°04′E 56°13′N, 225 m, 2 ex., 5.x.2007, leg. J. Batelka & H. Pinda, JBCP. Wadi Maidaq, 25°19′N 56°08′E, 410 m, 4 ex., 2–30.iii.2006, light trap, AvH, BMNH; 7 ex., 26.v–6.vi.2006, light trap, AvH, BMNH; 6 ex., 11.viii–9.ix.2006, light trap, AvH, BMNH; 13 ex., 27.xi–22.xii.2005, light trap, AvH, NMPC. Wadi Safad, 25°13′N 56°19′E, 6 ex., 20.x–8.xi.2005, light trap, AvH, NMPC.

Length: 6.5–9.5 mm.

Distribution: Widely distributed Saharo-Sindian species, reported from Northern Africa, Ethiopia, Somalia, Egypt, Sinai, Israel to Middle Asia (Turkmenistan), Iran and Pakistan Alfieri, 1976; Balthasar, 1963b; Chikatunov & Pavlíček, 1997; Kabakov, 2006; Nikolajev, 1987). In the Arabian Peninsula reported from Oman (Janikova, [undated]) and Oman (Musandam) (Zunino, 1981), Saudi Arabia (El-Hawagry et al., 2013; Paulian, 1948, 1980; Zunino, 1979, 1981), and the UAE.

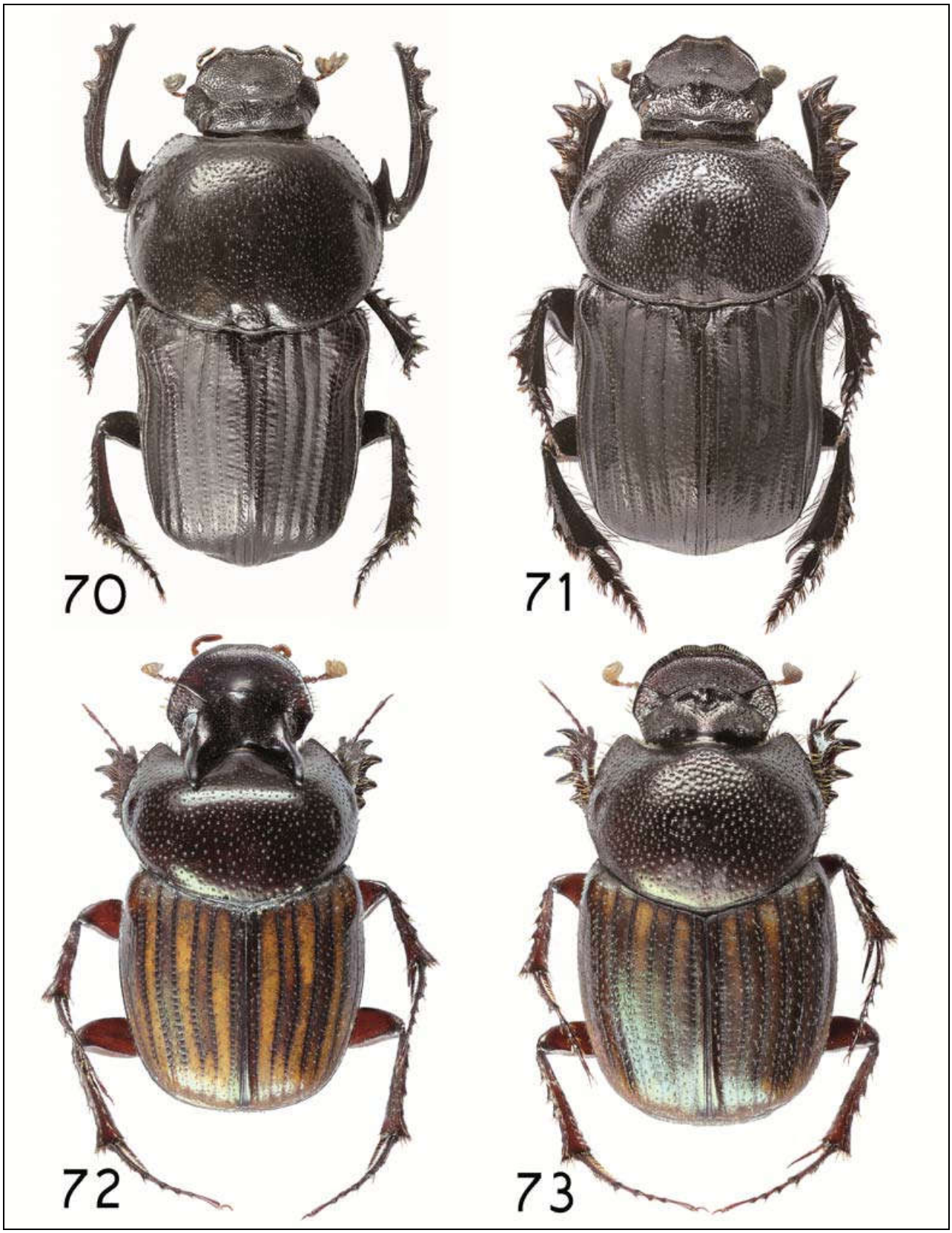
Subgenus ***Furconthophagus*** Zunino, 1979

Onthophagus (***Furconthophagus***) ***variegatus*** (Fabricius, 1798) Plates 74–75

Published records: Howarth & Gillett (2004): Jebel Hafit, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified.

Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, , 2 ex., 9–17.xi.2005, light trap + Malaise trap, AvH, NMPC. Bithnah, 25°11′N 56°14′E, 160 m, 3 ex., 23.iii–1.iv.2006, light trap, AvH, BMNH. Near ad-Dhaid, oasis Tawi as-Saman, 25°14′N 55°49′E, 106 m, 10 ex., 20.xi.2006, leg. J. Batelka & H. Pinda, JBCP. Fujairah, 25°08′N 56°21′E, 3 ex., 16–24.ii.2005, light trap, AvH, NMPC; 12 ex., 5–24.iii.2005, light trap, AvH, NMPC; 5 ex., 6–13.v.2006, light trap, AvH, BMNH. Hatta, 24°49′N 56°07′E, 315 m, 3 ex., 26.ii–10.v.2006, light trap, AvH, BMNH. Khor al-Khwair, 25°58′N 56°03′E, 2 ex., 16.vii–5.viii.2009, at light, AvH, BMNH. Near Mahafiz, 25°12′N 55°44′E, 110 m, 7 ex., 11.iv–10.v.2006, light trap, AvH, BMNH. Sharjah–Khor Kalba, near tunnel at 24°59′N 56°14′E, 5 ex., 17–24.v.2006, AvH, BMNH. Sharjah Desert Park, 25°17′N 55°42′E, 55 ex., 20.i–22.ii.2005, light trap, AvH, NMPC; 6 ex., 22.ii–9.iii.2005, light trap, AvH, NMPC; 7 ex., 21.vii–5.viii.2005, light trap, AvH, NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 26 ex., 16.xi-21.xii.2005, light trap, AvH, NMPC. Wadi Bih (dam), 25°48′N 56°04′E, 100 m, 1 ex., 8–22.iii.2007, light trap, AvH, BMNH. Wadi Hayl, 25°04′E 56°13′N, 225 m, 1 ex., 5.x.2007, leg. J. Batelka & H. Pinda, JBCP. Wadi Maidaq, 25°19′N 56°08′E, 410 m, 2 ex., 2–30.iii.2006, light trap, AvH, BMNH; 8 ex., 11.viii–9.ix.2006, light trap, AvH, BMNH; 4 ex., 26.v–6.vi.2006, light trap, AvH, BMNH. Wadi Safad, 25°13′01′′N 16°17′42′′E, 170 m, 3 ex., 20.x–8.xi.2005, light traps, AvH, NMPC; 2 ex., 19.iii.2007, leg. J. Batelka & H. Pinda, JBCP.

Length: 3.0–5.5 mm.



Plates 70–73. 70: *Cheironitis osiridis* (Reiche), ♂, 14 mm, UAE, Wadi Safad; 71: Same, ♀, 12 mm, Algeria, Djanet (NMPC); 72: *Onthophagus* (*Eremonthophagus*) *transcaspicus* König, ♂, 8.5 mm, UAE, Wadi Hayl; 73: Same, ♀, 8.5 mm, UAE, Wadi Shawkah. All habitus, dorsal view.

Distribution: Afrotropical and Oriental species, in the Palaearctic region recorded from Egypt, Iraq, Iran, Afghanistan and Pakistan (Alfieri, 1976; Balthasar, 1963b; Kabakov, 2006; Löbl et al., 2006b). From the Arabian Peninsula recorded from Oman (Janikova, [undated]), Saudi Arabia, Yemen (Paulian, 1948; Zunino, 1979, 1981) and the UAE.

Subgenus ***Indonthophagus*** Kabakov, 2006

Onthophagus (***Indonthophagus***) ***nitidulus*** Klug, 1856 Plate 76
Published records: Gillett (1995a): Al-Ain, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified.
Specimens examined: Fujairah, 25°08′N 56°21′E, 5 ex., 16–24.ii.2005, light trap, AvH, NMPC. Khor al-Khwair, 25°58′N 56°03′E, 1 ex., 16.vii–5.viii.2009, at light, AvH, BMNH.
Length: 4.5–6.0 mm.
Distribution: Widely distributed Saharo-Sindian species, reported from Ethiopia, Eritrea, Sudan, Egypt, Iraq, Iran, Pakistan (Balthasar, 1963b, Kabakov, 2006; Löbl et al., 2006b). From the Arabian Peninsula recorded from Oman (Janikova, [undated]), Saudi Arabia (Jeddah), Yemen (Paulian, 1980; Zunino, 1981), and from the UAE.

Subgenus ***Micronthophagus*** Balthasar, 1963

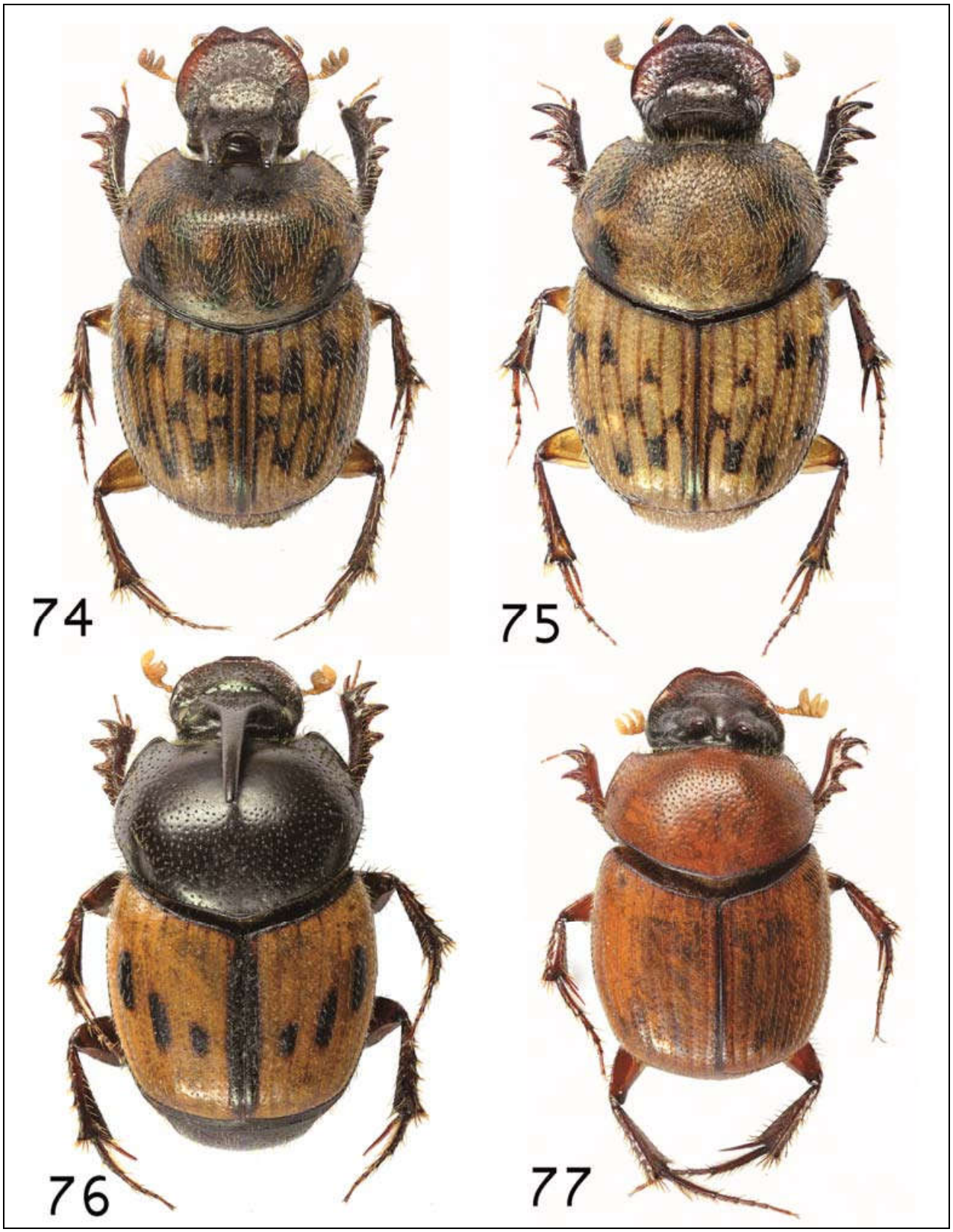
Onthophagus (***Micronthophagus***) ***ochreatus*** d'Orbigny, 1897 Plate 77
Published records: Tigar & Osborne (1999b): Abu Dhabi Emirate, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified.
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 2♂, 12–19.ix.2005, light trap, AvH, NMPC.
Length: 4.5–6.0 mm.
Distribution: Senegal, Eritrea, Ethiopia, Somalia and Pakistan (Balthasar, 1963b; Löbl et al., 2006b; Zunino, 1981), From the Arabian Peninsula recorded from Oman (Janikova, [undated]), Saudi Arabia ("Asir, Hejaz, Gizan") (Paulian, 1980; Zunino, 1981), and the UAE.

Tribe **Scarabaeini** Latreille, 1802

Genus ***Scarabaeus*** Linnaeus, 1758

Subgenus ***Escarabaeus*** Zídek & Pokorný, 2011

Scarabaeus (***Escarabaeus***) ***bannuensis*** A. Janssens, 1940 Plate 78
Published records: Howarth & Gillett (2004): Jebel Hafit, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified.
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 2 ex., 19–27.iii.2006, light trap, AvH, NMPC; 1 ex., 12–19.ix.2006, light trap, AvH, BMNH. SWW of ad-Dhaid, 24°36′N 55°01′E, 1 ex., 25.iii.2006, Malaise traps & light trap, AvH, NMPC. Dubai, near Margham, 24°55′N 55°38′E, 163 m, 3 ex., 19.xi.2006, at light, leg. J. Batelka & H. Pinda, JBCP; Dubai, Nazwa, 25°04′25.1″N 55°42′49.7″E, 153 m, 2 ex., 30.ix.2007, leg. J. Batelka & H. Pinda, JBCP. Near Mahafiz, 25°12′N 55°44′E, 110 m, 3 ex., 11.iv–10.v.2006, light trap, AvH, BMNH. NARC, near Sweihan, 24°24′N 55°26′E, 2 ex., 28.iii–2.iv.2005, light trap, AvH, NMPC; NARC, near Sweihan, 24°24′N 55°26′E, 2 ex., 2–30.iv.2005, light



Plates 74–77. 74: *Onthophagus* (*Furconthophagus*) *variegatus* (Fabricius), ♂, 4.3 mm, UAE, Tawi as-Saman; 75: Same, ♀, 4.4 mm, Wadi Safid; 76: *O.* (*Indonthophagus*) *nitidulus* Klug, ♂, 5.0 mm, UAE, Fujairah; 77: *O.* (*Micronthophagus*) *ochreatus* d'Orbigny, ♂, 5.2 mm, UAE, al-Ajban. All habitus, dorsal view.

trap, AvH, NMPC. Sharjah Desert Park, 25°17′N 55°42′E, 1 ex., 21.iii–29.iii.2005, light trap, AvH, NMPC; 1 ex., 21.vii–5.viii.2005, light trap, AvH, NMPC; 1 ex., 20.x–8.xi.2005, light trap, AvH, NMPC.
Length: 25–30 mm.
Distribution: Widespread Saharo-Sindian species distributed from N and NE Africa (S Algeria, N Chad, Kenya, Libya, N Mali, Mauritania, Morocco, Tunisia), across Jordan, the Arabian Peninsula, Kuwait, S Iraq, S Iran, reaching to W Pakistan (Al-Houty, 2004; Balthasar, 1963a; Baraud, 1985; Löbl et al., 2006c; Ziani & Gudenzi, 2013; Zídek & Pokorný, 2004, 2008, 2011). In the Arabian Peninsula recorded from Oman (Janikova, [undated]); Qatar (Keith & Bordat, 2011), Saudi Arabia (ar-Riyadh) (Ziani & Gudenzi, 2013), and the UAE.

Scarabaeus (***Escarabaeus***) ***cristatus cristatus*** Fabricius, 1775 Plate 79
Published records: Gillett (1995a): Al-Ain; Tigar & Osborne (1999c): Abu Dhabi; Howarth & Gillett (2004): Jebel Hafit; all listed by van Harten (2005); Gillett & Gillett (2005) and Zídek & Pokorný (2008): No localities specified.
Specimens examined: SWW of ad-Dhaid, 25°09′N 55°48′E, 2 ex., 23.iv.2005, light trap, AvH, NMPC. Dubai, near Margham, 24°55′N 55°38′E, 163 m, 1 ex., 19.xi.2006, at light, leg. J. Batelka & H. Pinda, JBCP. Near Mahafiz, 25°12′N 55°44′E, 110 m, 2 ex., 11.iv–10.v.2006, light trap, AvH, BMNH. Sharjah Desert Park, 25°17′N 55°42′E, 1 ex., 13–23.iv.2005, light trap, AvH. NMPC. NARC, near Sweihan, 24°24′N 55°26′E, 3 ex., 16.xi–21.xii.2005, light trap, AvH, NMPC.
Length: 22–33 mm.
Distribution: Widespread Saharo-Sindian species distributed from N and NE Africa (Chad, Djibouti, Egypt, Eritrea, Ethiopia, Guinea, Libya, Mali, Niger, Senegal, Sudan) across the Near East (Israel, Palestine) and the Arabian Peninsula to Iraq, Kuwait, Iran, Afghanistan and Pakistan (Alfieri, 1976; Al-Houty, 2004; Al-Houty & Al-Musalam, 1997; Arrow, 1931; Balthasar, 1963a, Baraud, 1985; Chikatunov & Pavlíček; Löbl et al., 2006c; Ziani & Gudenzi, 2013; Zídek & Pokorný, 2004, 2008, 2011). In the Arabian Peninsula recorded from Oman (Janikova, [undated]), Saudi Arabia: “Hejaz” (Paulian, 1948, 1980) and Wadi Jizan (Ziani & Gudenzi, 2013), Yemen: “Lahej” (Paulian, 1948, 1980), and the UAE.

Subgenus ***Scarabaeus*** Linnaeus, 1758

Scarabaeus (***Scarabaeus***) ***acuticollis*** Motschulsky, 1849 Plate 80
Specimens examined: SWW of ad-Dhaid, 25°09′N 55°48′E, 1♀, 23.iv.2005, light trap, AvH, NMPC.
Length: 27–38 mm.
Remarks: Cunningham & Aspinall (2001) recorded from Abu Dhabi (UAE) *Scarabaeus* (*Scarabaeus*) *sacer* Linnaeus, 1758. This species is distributed throughout the Mediterranean region (cf. Balthasar, 1963; Kabakov, 2006; Löbl et al., 2006c). In our opinion, occurrence of this species in the UAE is doubtful and concerns probably a similar *Scarabaeus* species, most likely *S.* (*S.*) *acuticollis*.
Distribution: Eremian species, widely distributed from E Azerbaijan across whole Middle Asia, NW Afghanistan, Iran to the Near East (Iraq, Syria) (Balthasar, 1963a; Kabakov, 2006; Löbl et al., 2006c; Nikolajev, 1987) and Kuwait (Al-Houty, 2004). New to the Arabian Peninsula.

Plate 78. *Scarabaeus* (*Escarabaeus*) *bannuensis* A. Janssens, ♂, 28 mm, UAE, Nazwa, habitus, dorsal view.

Plate 79. *Scarabaeus* (*Escarabaeus*) *cristatus cristatus* Fabricius, ♂, 27 mm, UAE, SSW of ad-Dhaid, habitus, dorsal view.

Plate 80. *Scarabaeus* (*Scarabaeus*) *acuticollis* (Motschulsky), ♀, 29 mm, UAE, SWW of ad-Dhaid, habitus, dorsal view.

Subfamily **Melolonthinae** Leach, 1819

Tribe **Pachydemini** Burmeister, 1855

Genus ***Buettikeria*** Sabatinelli & Pontuale, 1998

Buettikeria echinocephala Nikolajev, 2003 Plate 81
Published records: Nikolajev (2003): Type locality: "UAE, Rub-al-Khali desert, 4 km NW of Malaiha, W foothill of Jebel Malaiha Mt. Range, ca 170 m, 25°09′51″N 55°49′58″E".
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 3♂, 19–27.iii.2006, light trap, AvH, NMPC; 11♂, 12–19.ix.2006, light trap. AvH, BMNH. Near ad-Dhaid, Tawi as Saman, 25°16′32.5″N 55°48′54.0″E, 109 m, 5♂, 18.xi.2006, leg. J. Batelka & H. Pinda, JBCP; 3♂, 15.iii.2007, leg. J. Batelka & H. Pinda, JBCP (2♂), NMPC (1♂). Dubai, near Tawi al-Faqa, 24°38′38.8″N 55°31′00.2″E, 221 m, 1♂, 2.x.2007, leg. J. Batelka & H. Pinda, JBCP; Dubai, Nazwa, 153 m, 25°04′25.1″N 55°42′49.7″E, 1♂, 30.ix.2007, leg. J. Batelka & H. Pinda, JBCP; Dubai, near Margham, 24°55′N 55°38′E, 163 m, 1♂, 19.xi.2006, at light, leg. J. Batelka & H. Pinda, JBCP. Khor al-Khwair, 25°58′N 56°03′E, 1♂, 16.vii–5.viii.2009, light trap, AvH, BMNH. Near Mahafiz, 25°12′N 55°44′E, 110 m, 4♂, 11.iv–10.v.2006, light trap, AvH, BMNH. Ra's al-Khaimah, near Intl. Airport, Ghaf forest, 2♂, 27.ix.2007, leg. J. Batelka & H. Pinda, JBCP. NARC, near Sweihan, 24°24′N 55°26′E, 1♂, 16.xi–21.xii.2005, light trap, AvH, NMPC.
Length: 7–8 mm.
Distribution: Species so far known only from the UAE (Nikolajev, 2003; Král & Smetana, 2006a).

Buettikeria graingeri Sabatinelli & Pontuale, 1998
Published records: Keith (2002): Ra's al-Khaimah; listed by van Harten (2005).
Specimens examined: None.
Length: 7–8 mm.
Distribution: Described from Saudi Arabia (Eastern Province: "Rub al Khali, Salwah") (Král & Smetana, 2006a; Sabatinelli & Pontuale, 1998); recorded also from the UAE.

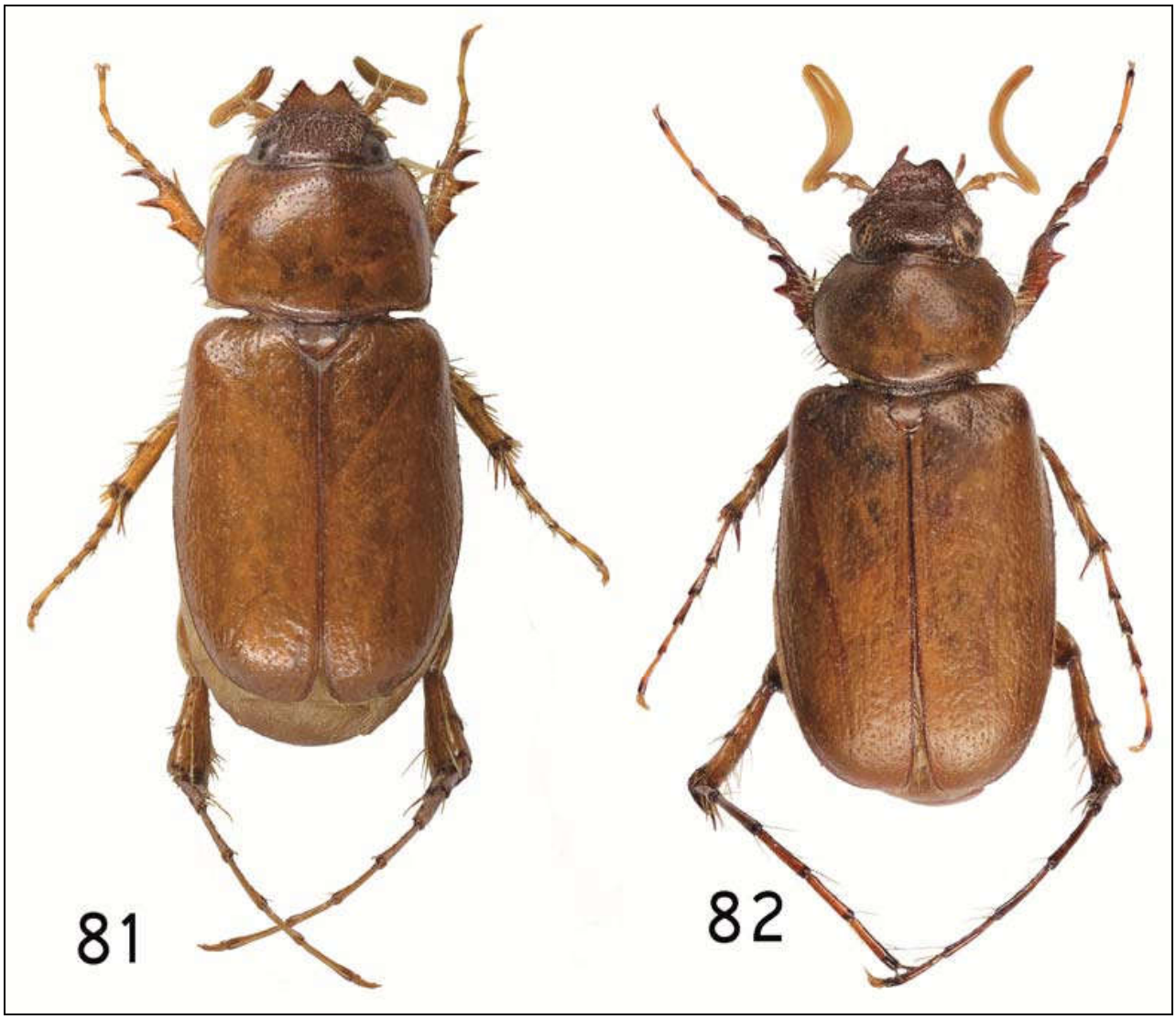
Genus ***Phalangonyx*** Reitter, 1889

Phalangonyx buettikeri Sabatinelli & Pontuale, 1998 Plate 82
Published records: Gillett & Gillett (2005): No locality specified.
Specimens examined: NARC, near Sweihan, 24°24′N 55°26′E, 1♂, 16.xi–21.xii.2005, light trap, AvH, NMPC.
Length: 7.2–9.5 mm.
Distribution: Described from Saudi Arabia (Riyadh Province: "Khashm Khafs" and "vicinity of Riyadh"), recorded also from the UAE.

Genus ***Tanyproctoides*** Petrovitz, 1971

Subgenus ***Tanyproctoides*** Petrovitz, 1971

Tanyproctoides (***Tanyproctoides***) ***arabicus*** (Arrow, 1932)
Published records: Walker & Pittaway (1987): No locality specified; Howarth & Gillett, 2004: Jebel Hafit; both listed by van Harten (2005).



Plates 81–82. 81: *Buettikeria echinocephala* Nikolajev, ♂, 7.0 mm, UAE, Tawi as-Saman; 82: *Phalangonyx buettikeri* Sabatinelli & Pontuale, ♂, 8 mm, UAE, NARC, near Sweihan. Both habitus, dorsal view.

Specimens examined: None.
Length: 13–14 mm.
Distribution: Known from Saudi Arabia (Eastern Province: "Abqaiq" and "Qatif") and Kuwait (Al-Houty, 1989; Král & Smetana, 2006a; Sabatinelli & Pontuale, 1998); recorded also from Qatar (Keith, 2006) and the UAE.

Tribe **Schizonychini** Burmeister, 1855

Genus ***Schizonycha*** Dejean, 1833

Schizonycha buettikeri Sabatinelli & Pontuale, 1998 Plate 83
Published records: Howarth & Gillett (2004): Jebel Hafit; listed by van Harten (2005); Gillett & Gillett (2005): No locality specified.

Plate 83. *Schizonycha buettikeri* Sabatinelli & Pontuale, ♂, 9 mm, UAE, Wadi Shawkah, habitus, dorsal view.

Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 1 ex., 19–27.iii.2006, light trap, AvH, NMPC. Near Mahafiz, 25°12′N 55°44′E, 4 ex., 110 m, 11.iv–10.v.2006, AvH, BMNH. Sharjah–Khor Kalba, near tunnel, 24°59′N 56°14′E, 1♂, 1 ex., 17–24.v.2006, light trap, AvH, BMNH. Wadi Shawkah, 25°06′N 56°02′E, 250-280 m, 2♂, 3.x.2007, leg. J. Batelka & H. Pinda, JBCP.
Length: 8–13 mm.
Distribution: Widely distributed in Saudi Arabia (type locality: "Saudi Arabia, Wadi Batayn"), Oman (Bezděk, 2006b; Sabatineli & Pontuale, 1998) and the UAE.

Schizonycha scorteccii Decelle, 1982 Plates 84–85
Specimens examined: Wadi Hayl, 25°05.02′N E 56°13.11′E, 300 m, 5 ex., 30.xi.2013, leg. P. Kučera jr., PKCL (3 ex.), NMPC (2 ex.). Wadi Safad, near Qurayyah, 25°13.03′N 56°18.21′E, 170 m, 3 ex., 28.xi.2013, leg. P. Kučera jr., PKCL.
Length: 8–11 mm.
Distribution: Described from Yemen ("Hadramaut"); widely distributed in northern Oman (Bezděk, 2006b; Sabatineli & Pontuale, 1998). New for the UAE.

Tribe **Sericini** Kirby, 1837

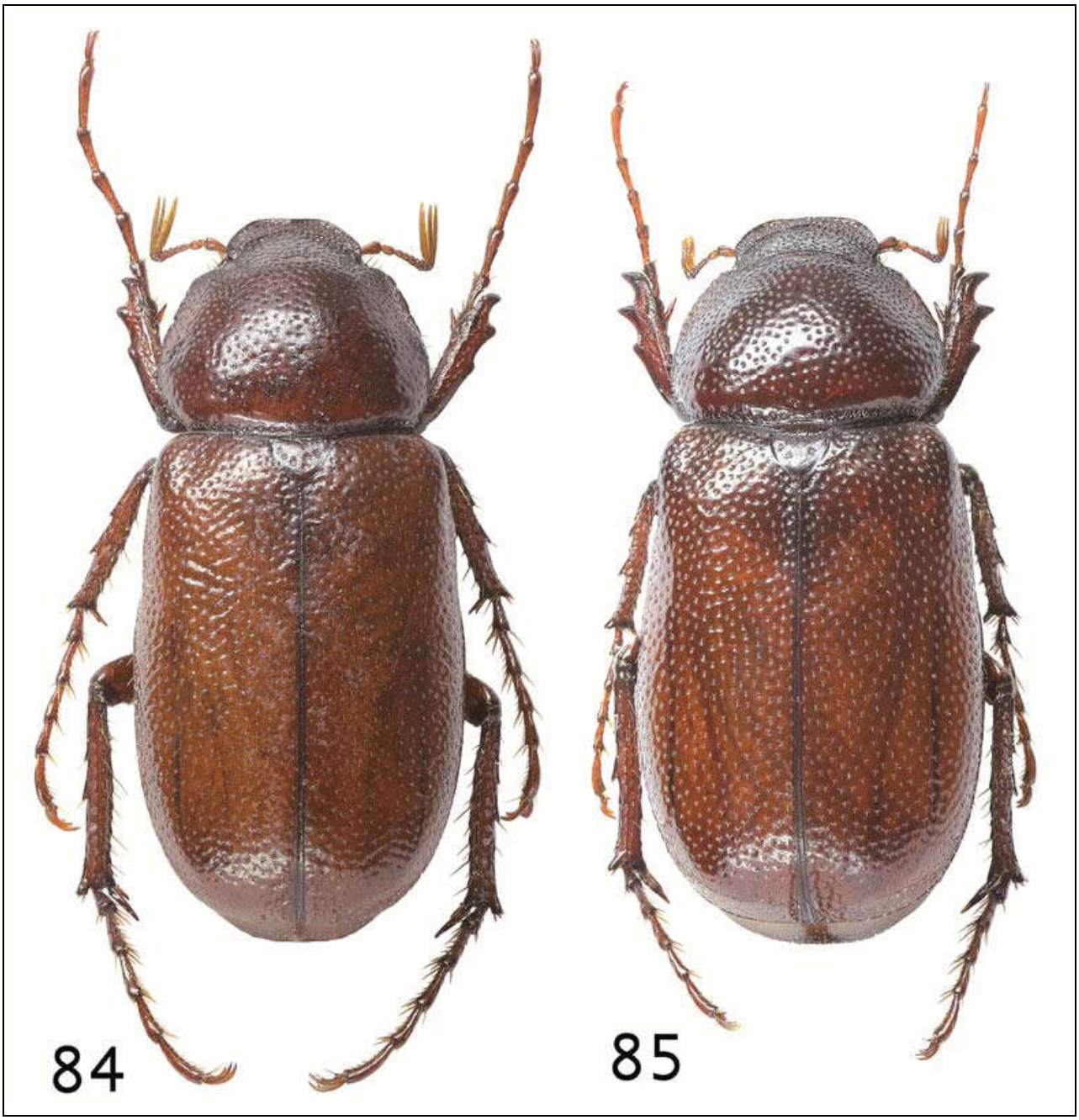
Genus ***Ablaberoides*** Blanchard, 1850

Ablaberoides abyssinicus (Brenske, 1902) Plates 86–87
Specimens examined: Ra's al-Khaimah, near river dam, 24°59′N 56°07′E, 1 ex., 23.ix.2007, leg. J. Batelka & H. Pinda (JBCP). Wadi Hayl, 25°05.02′N 56°13.11′E, 300 m, 8 ex., 30.xi.2013, leg. P. Kučera jr., PKCL (6 ex.), NMPC (2 ex.). Wadi Shawkah, 25°06′N 56°02′E, 250-280 m, 7 ex., 3.x.2007, leg. J. Batelka & H. Pinda, JBCP.
Length: 4.7–6.0 mm.
Distribution: Described from Ethiopia, known also from Chad, Egypt, Morocco, Somalia; widely distributed across the Arabian Peninsula (Oman, Saudi Arabia, Yemen) (Ahrens, 2000, 2006, 2007, Janikova, [undated]). New for the UAE.

Genus ***Maladera*** Mulsant & Rey, 1871

Subgenus ***Cephaloserica*** Brenske, 1900

Maladera (***Cephaloserica***) ***insanabilis*** (Brenske, 1894) Plate 90
Published records: Ahrens (2000): Sweihan; Howarth & Gillett (2004): Jebel Hafit, listed by van Harten (2005); Gillett & Gillett (2005): No locality specified. (All as *Autoserica insanabilis* Brenske, 1894).
Specimens examined: Al-Ajban, 24°36′N 55°01′E, 60 m, 3 ex., 12–19.ix.2006, light trap, AvH, BMNH. Bithnah, 25°11′N 56°14′E, 160 m, 3 ex., 23.iii–1.iv.2006, light trap, AvH, BMNH. Dubai, near Margham, 24°55′N 55°38′E, 163 m, 1♂, 19.xi.2006, at light, leg. J. Batelka & H. Pinda, JBCP. Fujairah, 25°08′N 56°21′E, 1 ex., 6–13.v.2006, at light, AvH, BMNH. Khor al-Khwair, 25°58′N 56°03′E, 7 ex., 16.vii–5.viii.2009, at light, AvH, BMNH. Near Mahafiz, 25°12′N 55°44′E, 110 m, 3 ex., 11.iv–10.v.2006, light trap, AvH, BMNH. Sharjah–Khor Kalba, near tunnel, 24°59′N 56°14′E, 3 ex., 17–24.v.2006, AvH, BMNH. NARC, near Sweihan, 24°24′N 55°26′E, 16.xi-21.xii.2005, light trap, AvH (2 spec. NMPC). Wadi Bih (dam), 25°48′N 56°04′E, 100 m, 3 ex., 8–22.iii.2007, light trap, AvH, BMNH. Wadi Maidaq, 25°19′N 56°08′E, 410 m, 4 ex., 2–30.iii.2006, light trap, AvH, BMNH; 4 ex., 26.v–6.vi.2006, light trap, AvH, BMNH; 4 ex., 11.viii–9.ix.2006, light trap, AvH, BMNH. Wadi



Plates 84–85. 84: *Schizonycha scorteccii* Decelle, ♂, 9 mm, UAE, Wadi Hayl; 85: Same, ♀, 9.5 mm, UAE, Wadi Safad. Both habitus, dorsal view.

Shawkah, 25°06′N 56°02′E, 250-280m, 1 ex., 3.x.2007, leg. J. Batelka & H. Pinda, JBCP. Wadi Wurayah farm, 25°24′N 56°17′E, 165 m, 5 ex., 16.vii–12.viii.2009, light trap, AvH, BMNH.

Length: 7.1–10.3 mm.

Remarks: The species is often considered a pest, for example in India (Bhavane et al., 2012; Regupathy et al., 1995) and in Israel (Gol'berg et al., 1986, 1989).

Distribution: Widely distributed from North Africa (Morocco, Libya) across the Near East (Israel, Jordan, Palestine), Iran (Sistan), Afghanistan, Pakistan to India (Kashmir, Uttarakhand) and Nepal (Ahrens, 2000, 2006, 2007; Chikatunov & Pavlíček, 1997). In the

Arabian Peninsula recorded from Kuwait, Oman, Qatar, Saudi Arabia, Yemen, and the UAE (Ahrens, 2000, 2006, 2007; Al-Houty, 1989, 2004; Janikova, [undated], Katbeh-Bader & Barbero, 1999; Keith & Bordat, 2011).

Genus ***Sphaerotrochalus*** Brenske, 1900

Sphaerotrochalus somalicola (Frey, 1960) Plates 88–89
Specimens examined: Wadi Maidaq, 25°19′N 56°08′E, 410 m, 4 ex., 2–30.iii.2006, light trap, AvH, BMNH; 4 ex., 26.v–6.vi.2006, light trap, AvH, BMNH. Wadi Hayl, 25°05.02′N 56°13.11′E, 300 m, 9 ex., 30.xi.2013, leg. P. Kučera jr., PKCL (7 ex.), NMPC (2 ex.).
Length: 5.4–6.5 mm
Distribution: Species restricted to north-eastern Africa (Ethiopia, Somalia) and the Arabian Peninsula where is relatively often recorded from Oman, Saudi Arabia and Yemen (Ahrens, 2000, 2006, 2007; Janikova, [undated]). New for the UAE.

Subfamily **Rutelinae** MacLeay, 1819

Tribe **Adoretini** Burmeister, 1844

Subtribe **Adoretina** Burmeister, 1844

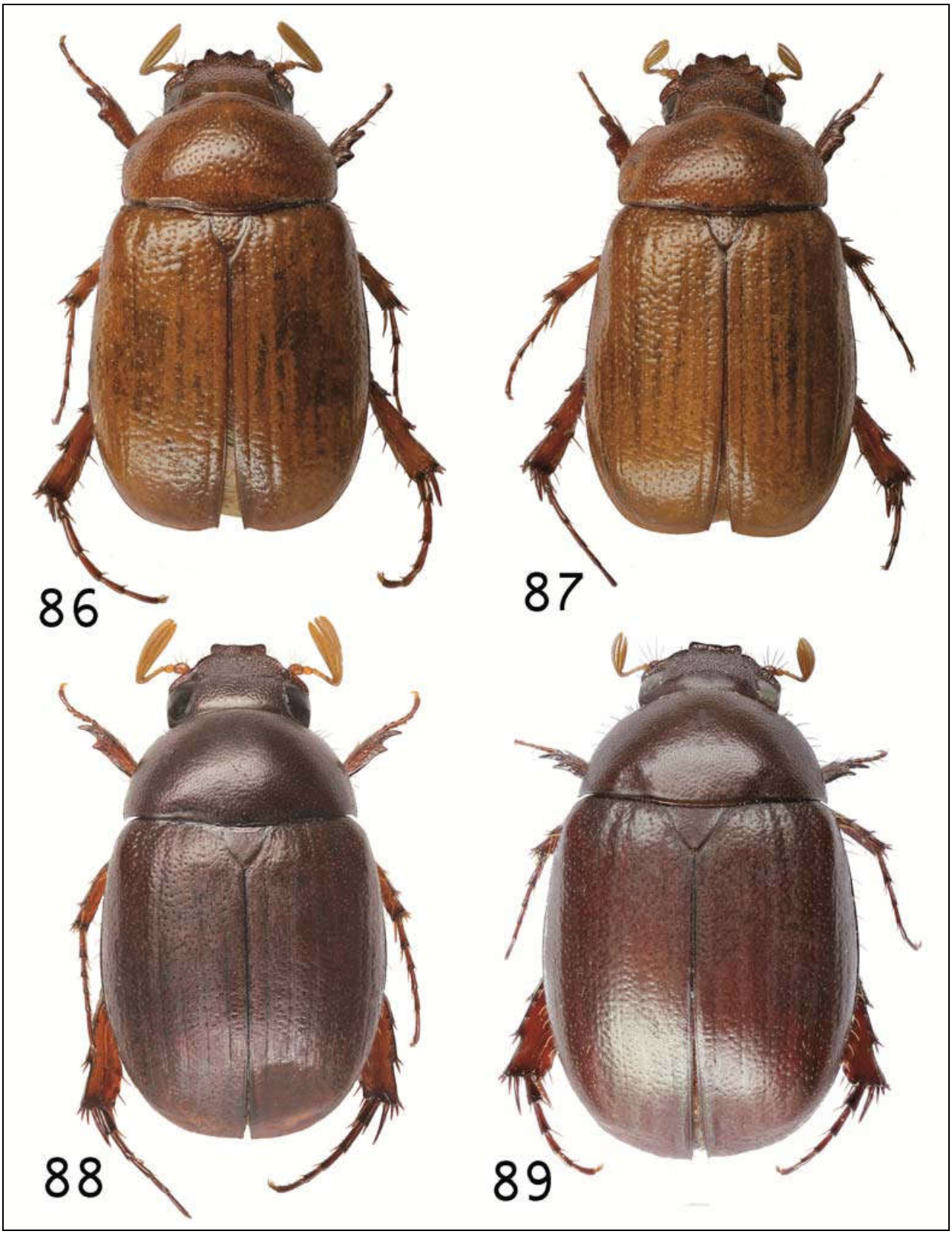
Genus ***Adoretus*** Dejean, 1833

Subgenus ***Lepadoretus*** Reitter, 1909

Adoretus (***Lepadoretus***) ***vastus*** Petrovitz, 1958 Plate 91
Specimens examined: Wadi Safad, near Qurayyah, 25°13.03′N 56°18.21′E, 170 m, 10 ex., 28.xi.2013, leg. P. Kučera jr., PKCL (8 ex.), NMPC (2 ex.).
Length: 11.5–16.0 mm.
Distribution: So far known only from the Iranian Provinces of Kerman and Sistan & Baluchistan (Petrovitz, 1958; Machatschke, 1972; Král & Smetana, 2006b). New for the Arabian Peninsula.

Genus ***Pseudadoretus*** Semenov, 1889

Pseudadoretus pokornyi Král **sp. nov.** Plates 92–93, 101–102; Figures 23–24
Type locality: United Arab Emirates, Dubai, Nazwa, 153 m, 25°04′25.1″N 55°42′49.7″E.
Specimens examined (63 ex.): Holotype ♂ and allotype ♀ (NMPC), "U.A.E., DUBAI, 30. ix. 2007 / Nazwa, 153 m, / N25°04'25.1", E55°42'49.7" / J. Batelka & H. Pinda lgt. [p]"; Paratypes, 1♂, 1♀ (IECA), 4♂, 4♀ (NMPC) and 38 ex. (JBCP), same locality data as holotype; Paratypes, 5 ex. (BMNH), "United Arab Emirates / Nr. Mahafiz, 110m / Light trap, 25°12′N 55°44′E / 11.iv.–10.v.2006 / leg. A. van Harten [p]"; Paratypes, 2 ex. (BMNH), "United Arab Emirates / Al-Ajban, 60 m / Light trap, 24°36′N 55°01′E / 12.–19.ix.2006 / A. van Harten leg. [p]"; Paratypes, 2 ex. (BMNH), "United Arab Emirates / Khor al-Khwair / Light trap, 25°58′N 56°03′E / 16.vii.–5.viii.2009 / A. van Harten leg. [p]".
Description of the holotype (♂): Body oblong oval, weakly convex. Dorsal and ventral surface moderately shiny, yellowish, macrosetation pale.



Plates 86–89. 86: *Ablaberoides abyssinicus* (Brenske), ♂, 4.9 mm; 87: Same, ♀, 5.0 mm; 88: *Sphaerotrochalus somalicola* (Frey), ♂, 5.2 mm; 89: Same, ♀, 5.3 mm; all UAE, Wadi Hayl, habitus, dorsal view.

Plate 90. *Maladera* (*Cephaloserica*) *insanabilis* (Brenske), ♂, 8.5 mm, UAE, Wadi Bih (dam), habitus, dorsal view.

Head. Labrum transverse, serrate on each side of its posterior part and produced into smooth, flat and broad process, mandibles completely separated by labral process. Clypeus large, semicircular, with anterior margin remarkably upturned, outline uniformly rounded. Frontoclypeal suture present, forming continuous shallowly bisinuate line. Clypeus and frons densely, almost regularly, coarsely granulate, each granula with short, minute erect macroseta (Plate 92). Occiput glabrous. Eyes considerably prominent, eye-canthus narrow, short, macrosetaceous. Antenna with eight antennomeres; club with three antennomeres, almost straight, approximately as long as antennal shaft (antennomeres 1–5 combined). Antennomeres 1–5 with sparse long macrosetae, club sparsely, shortly macrosetaceous. Terminal maxillary palpomere elongate, apically subacute, approximately as long as palpomeres 2 and 3 combined. Pronotum transverse, relatively narrow, narrower than elytra at humeri, moderately convex, widest approximately at middle, all around bordered. Lateral outline regularly rounded, margins not crenate, macrosetaceous. Anterior margin regularly, broadly sinuate. Anterior angles moderately produced, obtuse-angular; posterior angles weakly produced posteriad, regularly rounded. Punctation consisting of coarse, almost regularly spaced punctures becoming somewhat denser laterad, each puncture bearing very short, recumbent macroseta (Plate 92). Scutellar plate, almost equilaterally triangular, apex acute; bare.

Elytra weakly convex, weakly broadened posteriad, rounded apically, apical angle rounded. Striae missing, excepting feebly visible sutural stria. Humeral umbones present. Punctation coarse, almost regularly spaced, punctures separated by 1–2 their diameter. Each puncture bearing short, recumbent macroseta. Macropterous.

Pygidium convex, all around bordered, scabrous, covered by dense, recumbent macrosetation. Femora plump, shiny, macrosetaceous. Protibia narrow, distinctly tridentate, terminal spur inserted against emargination between medial and terminal tooth. Meso- and metatibia expanded apicad, with two macrosetiferous oblique carinae. Tarsi short, approximately as long as tibiae. Larger claws of pro- and mesotibiae distinctly cleft, that of metatibiae simple; small claws of all legs simple.

Male genitalia: Parameres as in Figures 23–24.

Variability: Paratypes only slightly vary in length (see measurements), colour and punctation of dorsal surface, length and distribution of macrosetation of pronotum and elytra.

Sexual dimorphism: Female differs from male in the following characters (Plate 93): body more broadened posteriad; antennal club, shorter than antennal shaft; metatibia more strongly expanded apicad; tarsomeres of all legs shorter.

Measurements: Total body length: 5.0–6.4 mm (holotype (♂) 5.5 mm; allotype (♀) 5.7 mm).

Differential diagnosis: *Pseudadoretus pokornyi* Král sp. nov. is classified in the genus *Pseudadoretus* mainly by possessing combination of the following characters: body rather compact and convex; dorsal surface yellowish coloured, with relatively sparse macrosetation; head large with clypeus uniformly rounded; eyes considerably prominent; labrum serrate on each side of its posterior part and produced into smooth, flat and broad process; mandibles completely separated by labral process; pronotum relatively narrow, narrower than elytra at humeri; all femora remarkably plumb; meso- and metatibiae distinctly dilated apicad; tarsi shortened (for more details see also Arrow, 1917; Baraud, 1985 and Nikolajev, 1987). The new species can be distinguished from four so far known Middle Asian species of the genus mainly by antennae consisting of eight antennomeres in both sexes and cleft pro- and mesotarsal large claw (Plates 92–93) (in contrast to antennae either with ten antennomeres in

both sexes (*P. validus* Semenov, 1899) or males with ten antennomeres and females with nine antennomeres (*P. dilutellus* Semenov, 1899; *P. fallax* Semenov, 1890 and *P. phthisicus* (Dohrn, 1882) and simple large claw of pro- and mesotarsi in all these four species. *Pseudadoretus* species with cleft pro- and mesotarsal large claw are *P. koechlini* (Marseul, 1867) and *P. arabicus* Reitter, 1903. *Pseudadoretus koechlini*, distributed in the Saharan regions of Algeria, Mauritania and Morocco, posses antennae with nine antennomeres in both sexes and clearly bidentate protibiae in male (in contrast to trindentate protibiae in the new species – Plates 92–93).The only so far known specimen (female holotype) of *Pseudadoretus arabicus* labelled "Arabia, Halaib [nowadays settlement Hala'ib or Halayeb, correctly in the region of Hala'ib triangle, currently claimed by both Egypt and Sudan]" clearly differs from *P. pokornyi* Král sp. nov. in having larger size (8 mm) and antennae with nine antennomeres in female (body length of the new species smaller: 5.0–6.4 mm) (see Reitter, 1903: 34, for more details in *P. arabicus* original description).

Collecting circumstances: Type locality was situated in the area of flat sand dunes with bushes of *Calotropis procera* and *Leptadenia pyrotechnica* (both Asclepiadaceae) (Plates 101–102). Mating specimens were collected on the dunes before the sunset with 'stormy' sky, later in the night numerous specimens of unknown sex came to the light.

Distribution: So far known only from the UAE.

Name derivation: Patronymic; named in honour of our long-time friend Svatopluk Pokorný (Praha, Czech Republic), an outstanding specialist on scarab beetles.

Subtribe **Prodoretina** Ohaus, 1912

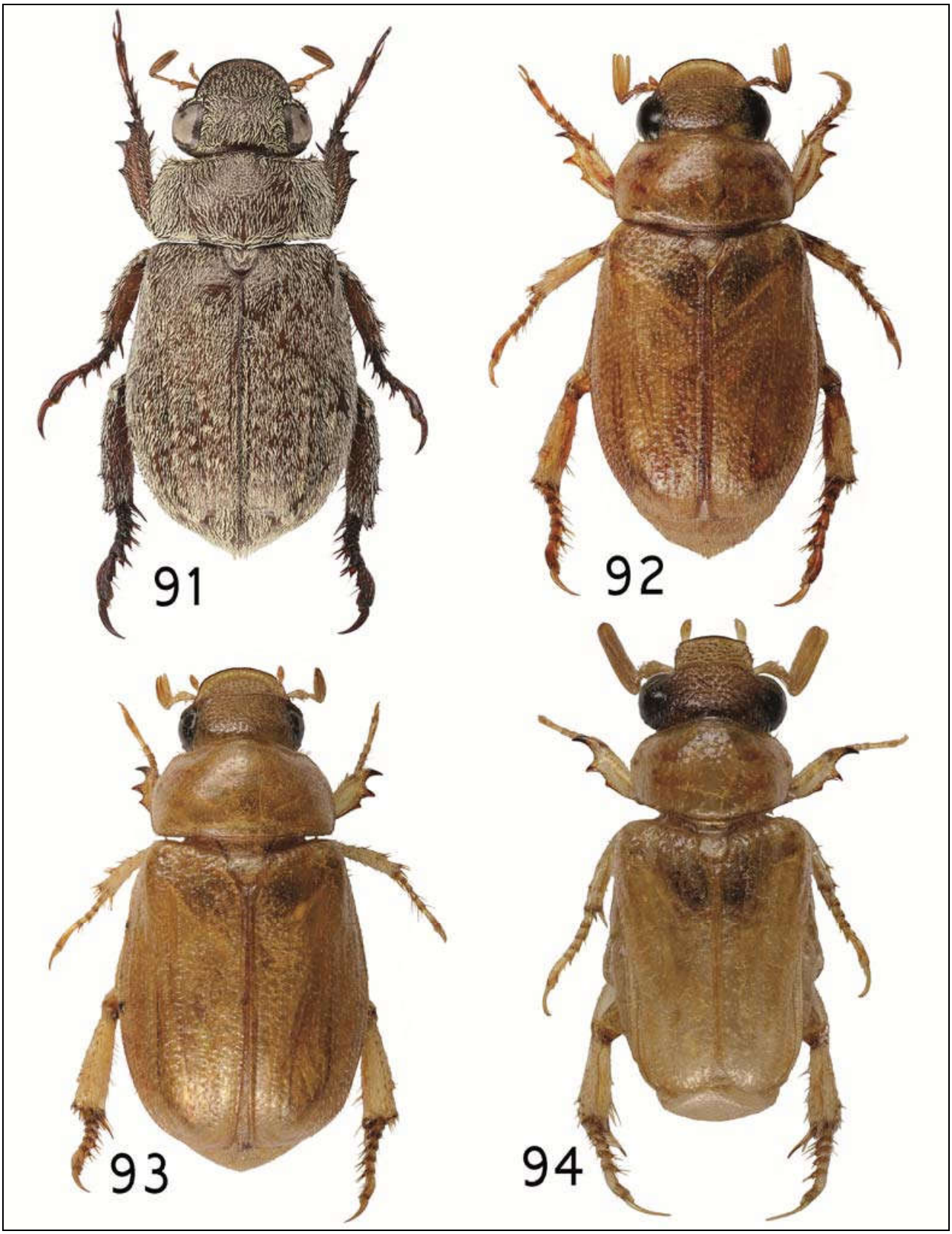
Genus ***Clipadoretus*** Ohaus, 1941

Clipadoretus habibi Král **sp. nov.** Plates 94, 101–102; Figures 25–26

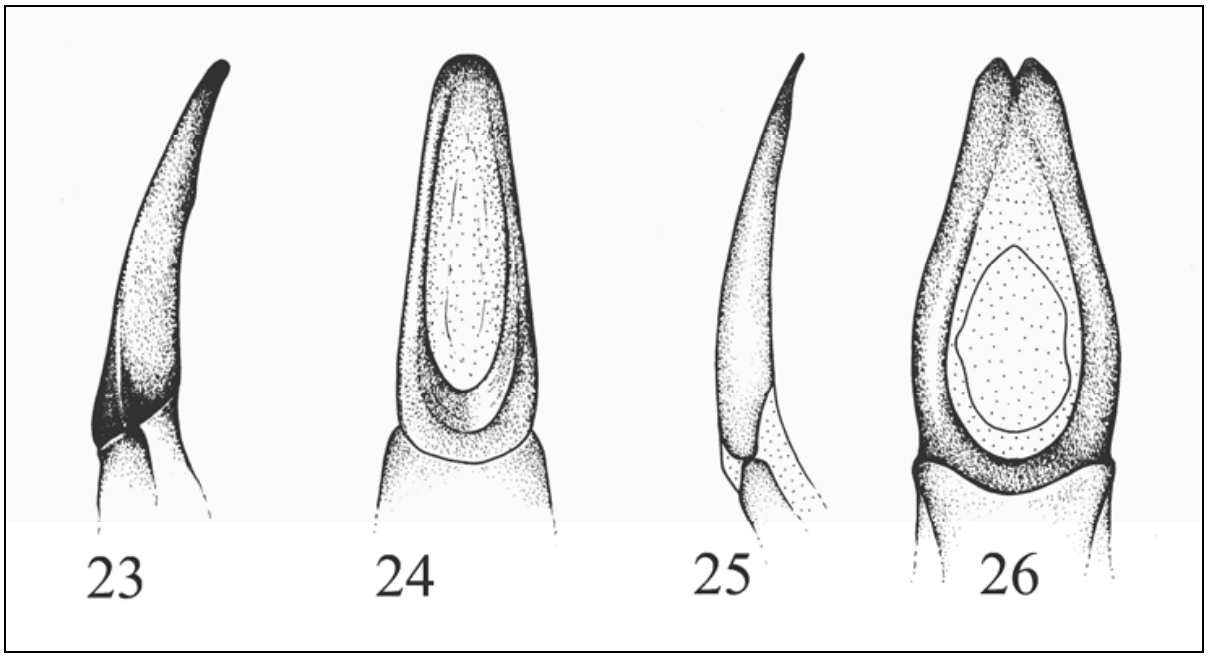
Type locality: United Arab Emirates, Dubai, Nazwa, 153 m, 25°04′25.1′′N 55°42′49.7′′E.

Specimens examined (18 ex.): Holotype, ♂ (NMPC), "U.A.E., DUBAI, 30. ix. 2007 / Nazwa, 153 m, / N25°04'25.1", E55°42'49.7" / J. Batelka & H. Pinda lgt. [p]"; Paratypes, 2♂ (JBCP), same locality data as holotype; Paratype, 1♂ (JBCP), "U.A.E., RAS AL KHAIMAH / 27. ix. 2007 Intl. Airport env. / Ghaf forest / J. Batelka & H. Pinda lgt. [p]"; Paratypes, 4♂♂ (NMPC), "UAE, NARC [= National Avian Research Centre], near Sweihan, 24.24N 55.26E, 01.02-14.iii.2005, light trap, Antonius van Harten lgt. [p]"; Paratypes, 2♂ (IECA), same collecting data; Paratypes, 2♂ (BMNH), "United Arab Emirates / Nr. Mahafiz, 110m / Light trap 25°12′N 55°44′E /, 11.iv.–10.v.2006 / leg. A. van Harten [p]"; Paratypes, 2♂ (NMPC), "UAE, Um al Quain / Industrial Park / 25°31'54"N / 55°41'45 E / 15 m, 27.ix.2013 / Roland Breithaupt lgt. [p]"; Paratypes, 2♂ (NMPC), "UAE, Ras Al Khaimah / Esfai garbage dump / 25°06'19" N / 56°07'52 E / 488 m, 12.x.2013 / Roland Breithaupt lgt. [p]". SAUDI ARABIA: Paratype, 1♂ (NHMB), "Saudi Arabia / Büttiker // Khusm Dibi [printed] / 16.vi.[19]78 [hw]"; Paratype, 1♂ (NHMB), "Saudi Arabien / W. Büttiker // Wadi Nissah [p] / 5.VI.1981 [hw]".

Description of the holotype (♂): Body elongate, almost parallel, considerably convex. Dorsal and ventral surface moderately shiny, yellowish, macrosetation pale; dorsal surface of head darkened. Head. Labrum transverse, smooth on each side of its posterior part and produced into short, flat process, mandibles completely separated by labral process. Clypeus almost quadrate, little shorter than long, anterior corners approximately rectangular, anterior margin weakly upturned, outline finely serrate (Plate 94). Frontoclypeal suture present, forming continuous shallowly sinuate line. Clypeus and frons densely, almost regularly, coarsely granulate, granula confluent in short rows, each with short, minute, erect macroseta. Occiput glabrous. Eyes considerably prominent, eye-canthus dilatate, shortly macrosetaceous.



Plates 91–94. 91: *Adoretus* (*Lepadoretus*) *vastus* Petrovitz, ♂, 12.5 mm, UAE, Wadi Safad; 92: *Pseudadoretus pokornyi* Král sp. nov., holotype, ♂, 9.8 mm, UAE, Nazwa; 93: Same, allotype, ♀, 10.1 mm; 94: *Clipadoretus habibi* Král sp. nov., holotype, ♂, 5.2 mm, UAE, Nazwa. All habitus, dorsal view.



Figures 23–26. 23: *Pseudadoretus pokornyi* Král sp. nov., parameres, lateral aspect, schematically; 24: Same, dorsal aspect; 25: *Clipadoretus habibi* Král sp. nov., parameres, lateral aspect, schematically; 26: Same, dorsal aspect.

Antenna with eight antennomeres; club with three antennomeres, almost straight, distinctly longer than antennal shaft (antennomeres 1–5 combined) (Plate 94). Antennomeres 1–5 with sparse long macrosetae, club sparsely, shortly macrosetaceous. Terminal maxillary palpomere elongate, apically subacute, approximately as long as palpomeres 2 and 3 combined. Pronotum transverse, relatively narrow, considerably narrower than elytra at humeri, moderately convex, widest anteriorly of middle, all around bordered. Lateral outline regularly, considerably broadly rounded, margins not crenate, macrosetaceous (Plate 94). Anterior margin regularly, broadly sinuate; basal outline convex. Anterior angles moderately produced, obtuse-angular; posterior corners regularly rounded. Punctation consisting of coarse, shallow, irregularly spaced punctures intermixed with sparse, fine granula; bare. Scutellar plate, pentagonal, sides parallel, apex acute; bare and smooth.
Elytra convex, lateral margin broadly emarginate, rounded apically, apical angle rounded (Plate 94). Striae missing, excepting feebly visible sutural stria. Humeral umbones present. Punctation coarse, almost regularly spaced, punctures separated by 1–2 their diameter. Each puncture bearing short, erect macroseta. Macropterous.
Pygidium convex, all around bordered, scabrous, covered by dense, recumbent macrosetation. Femora plump, shiny, macrosetaceous. Protibia narrow, distinctly tridentate, terminal spur absent (Plate 94). Meso- and metatibia expanded apicad, with two macrosetiferous oblique carinae. Tarsi short, approximately as long as tibiae (Plate 94). Larger claws of pro- and mesotibiae distinctly cleft, that of metatibiae simple; small claws of all legs simple.
Male genitalia: Parameres as in Figures 25–26.
Variability: Paratypes only slightly vary in length (see measurements), colour and punctation of dorsal surface, length and distribution of macrosetation of pronotum and elytra.
Female unknown.

Measurements: Total body length: 4.8–6.2 mm (holotype 5.0 mm).
Differential diagnosis: *Clipadoretus habibi* Král sp. nov. is classified in the genus *Clipadoretus* mainly by possessing combination of the following characters: body shape cylindrical, convex; dorsal surface yellowish coloured, moderately shining, sparsely macrosetaceous; head considerably large, with prominent eyes; shape of clypeus trapezoidal or almost quadrate, with considerably upturned anterior margin; head surface covered with macrosetigerous tubercles; eye canthus dilated; legs (especially tibiae) considerably plump (see Baraud, 1985; Ohaus, 1941; Machatschke, 1965, for more details). Males of the new species can be distinguished from males of all five previously known species mainly by absence of terminal spur of protibia and antennae with eight antennomeres (Plate 94) (in males of all so far known species protibia with distinct terminal spur and antennomeres with either nine or ten antennomeres). Additionally, almost all of *Clipadoretus* species exert different distribution areas than the new species: *C. dentatus* Machatschke, 1965 (Iran: Kerman Prov., Pakistan), *C. epistomalis* (Chobaut, 1899) (Algeria, Morocco), *C. persicus* (Ohaus, 1941) (Iran: "Persien") and *C. quadridentatus* Petrovitz, 1967 (Pakistan: Quetta). Only *C. ehrenbergeri* (Ohaus, 1912) is distributed in the Arabian Peninsula ("Arabia felix" [= approximately Yemen]) (see Baraud, 1985; Machatschke, 1965, 1972, and Král & Smetana, 2006b, for more details).
Collecting circumstances: Type locality is identical with the type locality of *P. pokornyi* Král sp. nov. (Plates 101–102). Holotype with two paratypes (all males) came to the light. Also specimens collected by A. van Harten elsewhere were attracted by the light of light traps.
Distribution: So far known only from the UAE and Saudi Arabia.
Name derivation: 'Habibi' is a Syriac-Aramaic and Arabic word whose literal meaning is "my beloved" and also has the meaning of friend or darling; noun in apposition.

Subtribe **Trigonostomusina** Ohaus, 1912

Genus ***Phaeadoretus*** Reitter, 1903

Phaeadoretus iranicus iranicus Machatschke, 1960 Plates 95–96
Specimens examined: Wadi Safad, near Qurayyah, 25°13.03′N 56°18.21′E, 170 m, 8 ex., 28.xi.2013, leg. P. Kučera jr., PKCL (6 ex.), LMCT (2 ex.).
Length: 10–14 mm.
Remarks: Howarth & Gillett (2004) recorded *Phaeadoretus comptus* (Ménétriés, 1849) from Jebel Hafit (UAE), listed by van Harten (2005) and also by Gillett & Gillett (2005) with no further locality specified. This species is widely distributed in Middle Asia, NW Afghanistan and N Iran (Golestan and Khorasan regions) (Machatschke, 1960; Král & Smetana, 2006b; Nikolajev, 1987). We are of the opinion that these records actually belong to another species, most likely to *P. i. iranicus* or the following species *P. syriacus* (Blanchard, 1851). Therefore *P. comptus* is excluded from the fauna of the UAE.
Distribution: So far known only from the Iranian Provinces of Bushehr, Hormozgan and Sistan & Baluchistan (Machatschke, 1960; Král & Smetana, 2006b). New for the Arabian Peninsula.

Phaeadoretus syriacus (Blanchard, 1851) Plate 97
Specimens examined: Sharjah-Khor Kalba, near tunnel, 24°59′N 56°14′E, 1 ex., 17–24.v.2006, AvH, BMNH). Wadi Bih (dam), 25°48′N 56°04′E, 100 m, 1♂, 8–22.iii.2007, light trap, AvH, BMNH. Wadi

Maidaq, 25°19′N 56°08′E, 410 m, 1 ex., 2–30.iii.2006, light trap, AvH, BMNH.
Length: 9–14 mm.
Remarks: The species is probably recorded from the territory of modern Syria erroneously based on Blanchard (1851), though in the original description (Blanchard, 1851: 231) the type locality sounds "Baghdad" and we did not trace any additional published record from today Syria.
Distribution: So far known from Iran, Iraq and Syria (Chikatunov & Pavlíček, 1997; Machatschke, 1960; Král & Smetana, 2006b). New for the Arabian Peninsula.

Subfamily **Dynastinae** MacLeay, 1819

Tribe **Oryctini** Mulsant, 1842

Genus ***Oryctes*** Hellwig, 1798

Oryctes agamemnon arabicus Fairmaire, 1896
Dealt with by Krell & Král (2015).

Oryctes elegans Prell, 1914
Dealt with by Krell & Král (2015).

Oryctes rhinoceros (Linnaeus, 1758)
Dealt with by Krell & Král (2015).

Tribe **Pentodontini** Mulsant, 1842

Genus ***Pentodon*** Hope, 1837

Pentodon algerinus (Fuessly, 1778)
Dealt with by Krell & Král (2015).

Genus ***Phyllognathus*** Eschscholtz, 1830

Phyllognathus excavatus (Forster, 1771)
Dealt with by Krell & Král (2015).

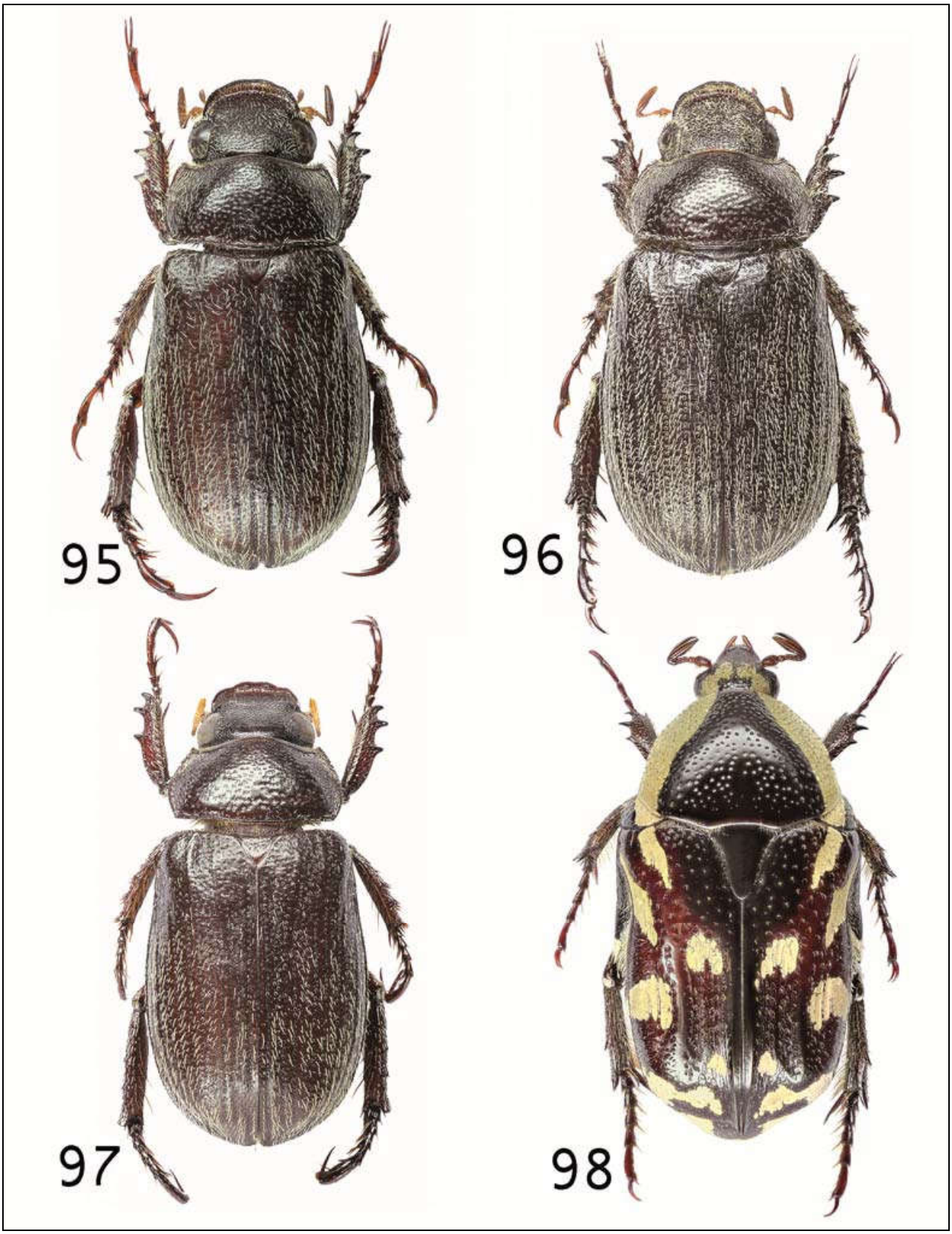
Genus ***Podalgus*** Burmeister, 1847

Podalgus cuniculus arabicus Fairmaire, 1895
Dealt with by Krell & Král (2015).

Subfamily **Cetoniinae** Leach, 1815

Tribe **Cetoniini** Leach, 1815

Subtribe **Cetoniina** Leach, 1815



Plates 95–98. 95: *Phaeadoretus iranicus iranicus* Machatschke, ♂, 13.0 mm, UAE, Wadi Safad; 96: Same, ♀, 13.5 mm; 97: *P. syriacus* (Blanchard), ♂, 14.0 mm, UAE,Wadi Bih (dam); 98: *Stalagmosoma cynanki* (Gory & Percheron), ♂, 10.5 mm, UAE, Jebel Hafit. All habitus, dorsal view.

Genus ***Stalagmosoma*** Burmeister, 1842

Stalagmosoma cynanki (Gory & Percheron, 1833) Plates 98–100

Published records: Howarth & Gillett (2004): Jebel Hafit, listed by van Harten (2005) (as *Stalagmosoma cynanchi* – incorrect subsequent spelling); Gillett & Gillett (2005): No locality specified; Gillett & Gillett (1997): Al-Ain al-Faydah (as *Stalagmosoma albellum* (Pallas, 1781)).

Specimens examined: Dubai, near Margham, 24°55′N 55°38′E, 163 m, 1 ex., 19.xi.2006, at light, J. Batelka & H. Pinda lgt., JBCP. Jebel Hafit, Wadi Tarabat, 24°06′13″N 55°46′00″E, 7 ex., 24.iii.2007, J. Batelka lgt., JBCP (6 ex.), NMPC (1 ex.). Sharjah–Khor Kalba, near tunnel, 24°59′N 56°14′E, 1♂, 17–24.v.2006, AvH, BMNH. Wadi Hayl, 25°04′E 56°13′N, 225 m, 4 ex., 28.iii.2007, J. Batelka lgt., JBCP. Wadi Shawkah, 25°06′N 56°02′E, 250-280 m, 4 ex., 26.iii.2007, J. Batelka lgt., JBCP (2 ex.), NMPC (2 ex.).

Additional specimen not from the UAE: SUDAN: "Dongola", 1♂, NMPC.

Length: 8–11 mm.

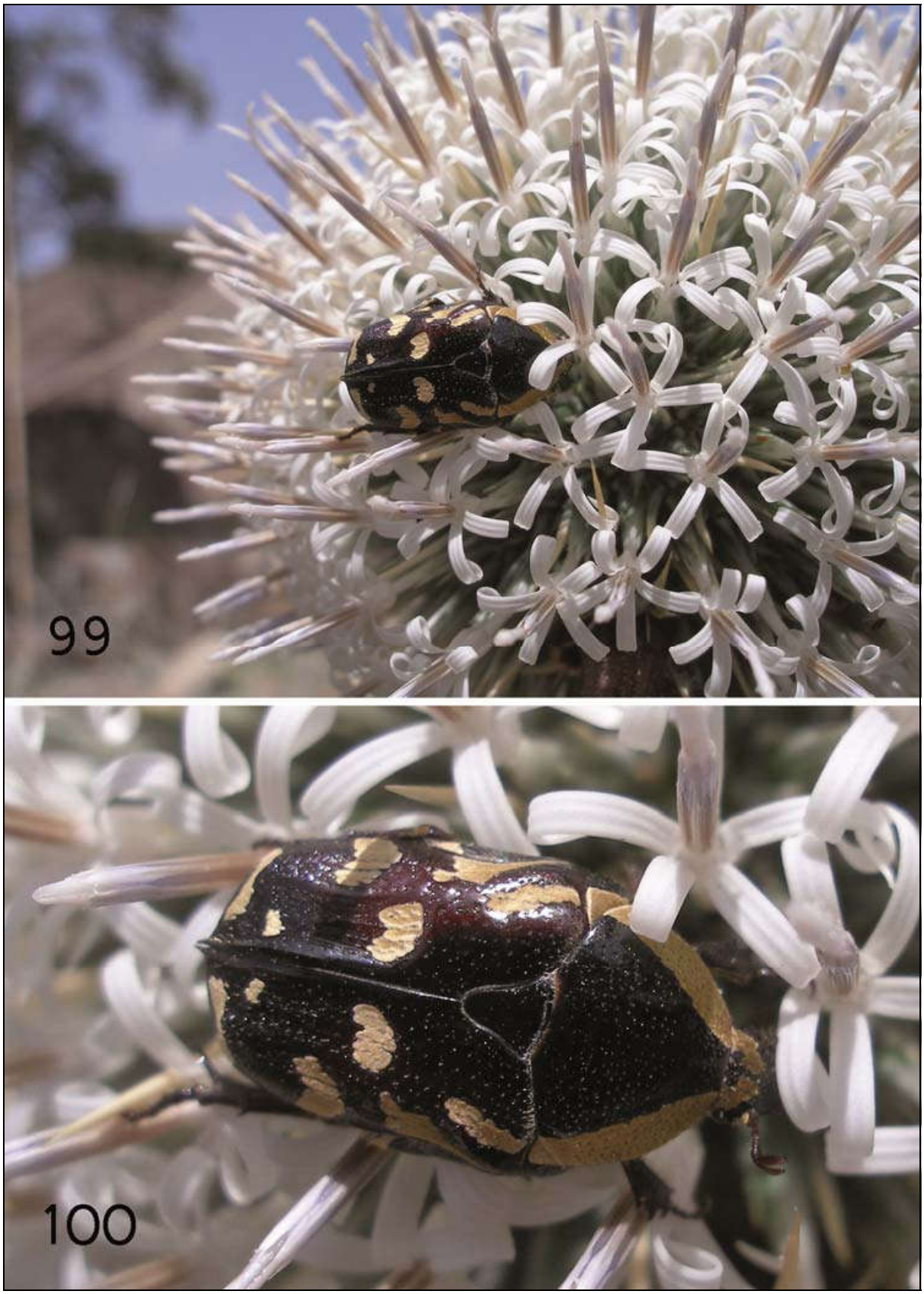
Collecting circumstances: Specimens from Wadi Tarabat were collected on the inflorescences of *Haplophyllum tuberculatum* (Rutaceae), specimens from Wadi Hayl on the inflorescences of *Echinops* sp. (Asteraceae) (Plates 99–100).

Remarks: Gillett & Gillett (1997) recorded *Stalagmosoma albellum* (Pallas, 1781) from "al-Ain al-Faydah" (UAE). This species is widely distributed from Middle Asia, NW Afghanistan across Armenia, Azerbaijan, NW and C Iran, SE Turkey and NW Iraq to Near East (Israel, Jordan, Sinai and Syria) (Chikatunov & Pavlíček, 1997; Nikolajev, 1987; Smetana, 2006; Tauzin & Rittner, 2012). We believe that the record from the UAE relate to the species *S. cynanki*. Therefore *S. albellum* is excluded from the fauna of the UAE.

Distribution: Described from Sudan ("Dongola") (Gory & Percheron, 1833); distributed in southern (Saharan) regions of northern Africa (Algeria, Egypt, Libya) (Baraud, 1985; Smetana, 2006) and recorded in the Arabian Peninsula from Oman ("Jebel Hatta"), Saudi Arabia ("Jeddah") (Beccari, 1971), Oman (Nikolajev, 2003), and the UAE.

FINAL REMARKS

Altogether 77 species of the scarab families Trogidae, Glaresidae, Geotrupidae, Hybosoridae and Scarabaeidae are reported from the UAE in the present survey (Table 3). Of this number, findings of 23 species represent first records for the UAE fauna and findings of seven species, *Pseudoathyreus orientalis* (Laporte, 1840), *Trichiorhyssemus elegans* (Petrovitz, 1963), *Eremazus marmottani* (Fairmaire, 1871), *Scarabaeus* (*Scarabaeus*) *acuticollis* Motschulsky, 1849, *Adoretus* (*Lepadoretus*) *vastus* Petrovitz, 1958, *Phaeadoretus iranicus iranicus* Machatschke, 1960, and *P. syriacus* Blanchard, 1851) represent first records from the whole Arabian Peninsula. Among the material we have found also specimens which belong to the following nine new species described here and compared with closely related species: *Glaresis nestor* Král sp. nov., and *G. vanharteni* Král sp. nov. (both Glaresidae), *Pseudomothon pittinoi* Král sp. nov., and *Trigonoscelus hypi* Král sp. nov. (both Scarabaeidae: Aphodiinae: Didactyliini), *Anaetius vanharteni* Král sp. nov. (Scarabaeidae: Aphodiinae: Eupariini), *Leiopsammodius rakovici* Král sp. nov. (Scarabaeidae: Aphodiinae: Psammodiini), *Eremazus giganteus* Král sp. nov. (Scarabaeidae: Eremazinae) and *Clipadoretus habibi* Král sp. nov., and *Pseudadoretus pokornyi* Král sp. nov. (both Scarabaeidae: Rutelinae: Adoretini). The following four new combinations are proposed (all



Plates 99–100. *Stalagmosoma cynanki* (Gory & Percheron), UAE, Wadi Hayl, imago on the inflorescence of *Echinops* sp. (Asteraceae). General aspect and detail.

reclassified from the genus *Aphodius* Hellwig, 1798): *Labarrus translucidus* (Petrovitz, 1961) comb. nov., *Mendidius beluchistanicus* (Petrovitz, 1962) comb. nov., *Mesontoplatys arabicus* (Harold, 1875) comb. nov., and *Nialosternus rendallii* (Wollaston, 1867) comb. nov. *Pseudosaprosites deplanatus* Balthasar, 1972, is considered a junior subjective synonym of *Anaetius kuijteni* Petrovitz, 1968, and *Aphodius sitiphoides* d'Orbigny, 1896, is considered a junior subjective synonym of *Nialosternus rendallii* (Wollaston, 1867) (all Scarabaeidae: Aphodiinae). *Dynamopus sudanicus* Balthasar, 1971 is considered a junior subjective synonym of *Orubesa semenowi* (Arrow, 1911) (Scarabaeidae: Dynamopodinae). In addition, first records of *Pseudoathyreus orientalis* (Laporte, 1840) from Iran (Bushehr and Hormozgan Prov.) and Nepal, and of *Nialosternus rendallii* from Iran, Mauritania, Oman, Syria and Yemen are presented.

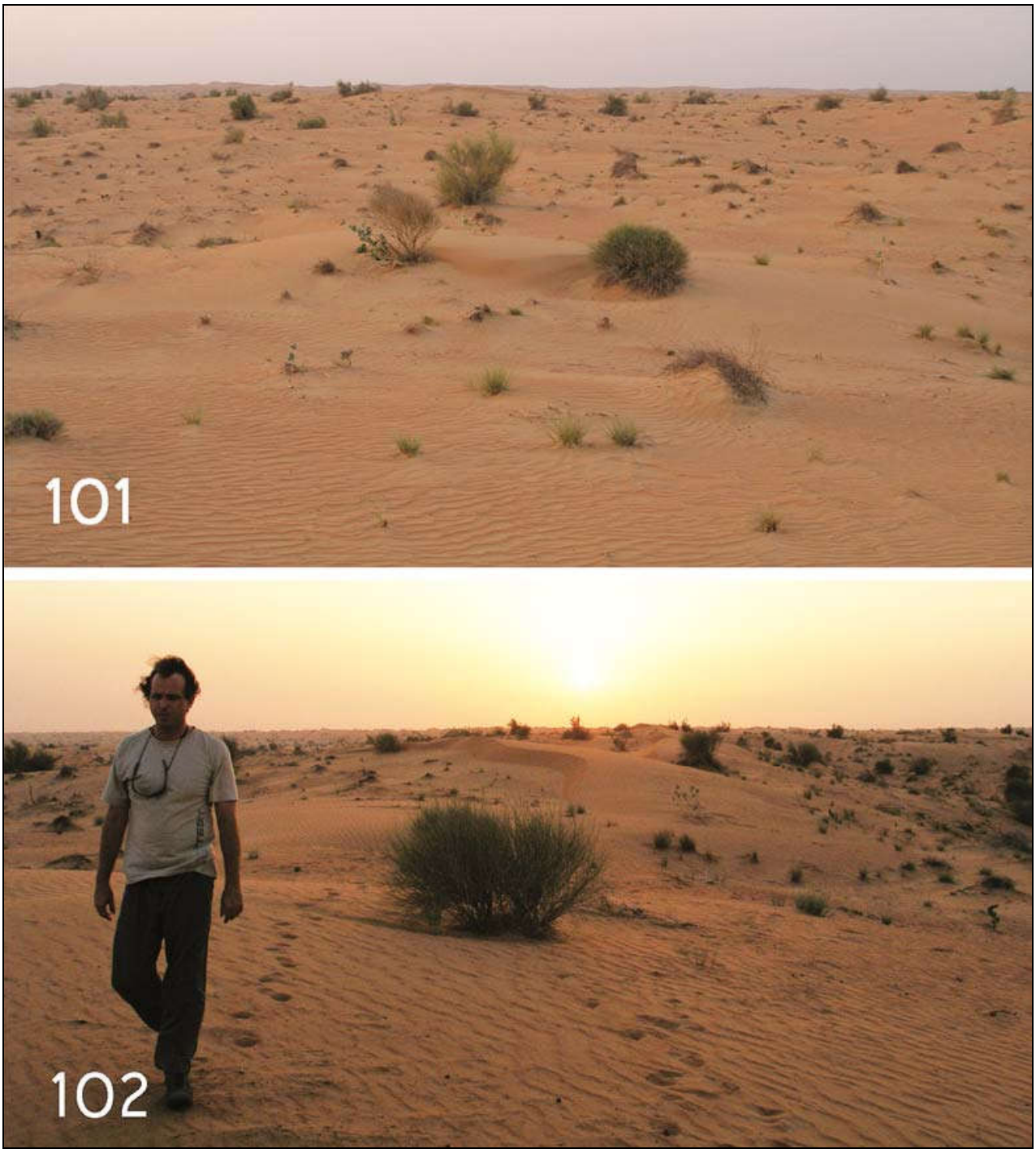
Table 3: List of Scarabaeoidea of the UAE (* – new for the UAE; ** – new for the Arabian Peninsula)

Trogidae: **Omorginae**
Afromorgus gemmatus (A. G. Olivier, 1789) *Afromorgus niloticus desertorum* (Harold, 1872) *Afromorgus procerus* (Harold, 1872) *Afromorgus verrucosus* (Reiche & Saulcy, 1856)
Trogidae: **Troginae**
Trox klapperichi Pittino, 1983 *Trox puncticollis* Haaf, 1953 *Trox squamiger* Roth, 1851
Glaresidae
Glaresis arabica (Paulian, 1980) * *Glaresis nestor* Král sp. nov. *Glaresis vanharteni* Král sp. nov.
Geotrupidae: **Bolboceratinae**: **Athyerini**
Pseudoathyreus orientalis (Laporte, 1840) **
Hybosoridae: **Hybosorinae**
Hybosorus roei Westwood, 1845
Hybosoridae: **Pachyplectrinae**
Brenskea coronata Reitter, 1891*
Scarabaeidae: **Aphodiinae**: **Aphodiini**
Apsteiniella naviauxi Baraud, 1977 *Erytus hormozensis* (Petrovitz, 1980) *Erytus pruinosus* (Reitter, 1892) * *Labarrus lividus* (A. G. Olivier, 1789) *Labarrus translucidus* (Petrovitz, 1961) nov. comb. *Mendidius beluchistanicus* (Petrovitz, 1962) nov. comb. *Mesontoplatys arabicus* (Harold, 1875) nov. comb. *Nialosternus rendallii* (Wollaston, 1867) nov. comb. * *Parabodilus wollastoni iranicus* (Balthasar, 1946)

Pseuderytus chobauti (Clouët des Pesruches, 1896) *
Pseudesymus lucidus (Klug, 1845) *
Scarabaeidae: **Aphodiinae**: **Didactyliini**
Didactylia arabica Pittino, 1984
Pseudomothon pittinoi Král sp. nov.
Trigonoscelus hypi Král sp. nov.
Scarabaeidae: **Aphodiinae**: **Eupariini**
Anaetius vanharteni Král sp. nov.
Ataenius garamas Peyerimhoff, 1929*
Scarabaeidae: **Aphodiinae**: **Psammodiini**: **Psammodiina**
Leiopsammodius indicus (Harold, 1877) *
Leiopsammodius pelluscens (Petrovitz, 1961) *
Leiopsammodius rakovici Král sp. nov.
Scarabaeidae: **Aphodiinae**: **Psammodiini**: **Rhyssemina**
Pararhyssemus coluber (Mayet, 1887)
Platytomus yadai (Ochi, Kawahara & Inagaki, 2006) *
Pleurophorus arabicus Pittino & Mariani, 1986*
Rhyssemodes orientalis (Mulsant & Godart, 1875) *
Rhyssemus brevitarsis Pittino, 1984*
Rhyssemus granosus (Klug, 1842)
Trichiorhyssemus elegans (Petrovitz, 1963) **
Scarabaeidae: **Dynamopodinae**: **Dynomopodini**
Orubesa semenowi (Arrow, 1911)
Scarabaeidae: **Eremazinae**
Eremazus giganteus Král sp. nov.
Eremazus marmottani (Fairmaire, 1871) **
Eremazus unistriatus Mulsant, 1851
Scarabaeidae: **Scarabaeinae**: **Coprini**
Metacatharsius inermis (Laporte, 1840)
Scarabaeidae: **Scarabaeinae**: **Gymnopleurini**
Gymnopleurus (*Gymnopleurus*) *elegans* (Klug, 1845)
Gymnopleurus (*Gymnopleurus*) *persianus* Reitter, 1909
Scarabaeidae: **Scarabaeinae**: **Oniticellini**
Euoniticellus pallens (A. G. Olivier, 1789)
Scarabaeidae: **Scarabaeinae**: **Onitini**
Cheironitis osiridis (Reiche, 1856)
Scarabaeidae: **Scarabaeinae**: **Onthophagini**
Onthophagus (*Eremonthophagus*) *sticticus* Harold, 1867
Onthophagus (*Eremonthophagus*) *transcaspicus* König, 1889
Onthophagus (*Furconthophagus*) *variegatus* (Fabricius, 1798)
Onthophagus (*Indonthophagus*) *nitidulus* Klug, 1845
Onthophagus (*Micronthophagus*) *ochreatus* d'Orbigny, 1897

Scarabaeidae: **Scarabaeinae**: **Scarabaeini**
Scarabaeus (*Escarabaeus*) *bannuensis* A. Janssens, 1940 *Scarabaeus* (*Escarabaeus*) *cristatus cristatus* Fabricius, 1775 *Scarabaeus* (*Scarabaeus*) *acuticollis* Motschulsky, 1849**
Scarabaeidae: **Melolonthinae**: **Pachydemini**
Buettikeria echinocephala Nikolajev, 2003 *Buettikeria graingeri* Sabatinelli & Pontuale, 1998 *Phalangonyx buettikeri* Sabatinelli & Pontuale, 1998 *Tanyproctoides* (*Tanyproctoides*) *arabicus* (Arrow, 1932)
Scarabaeidae: **Melolonthinae**: **Schizonychini**
Schizonycha buettikeri Sabatinelli & Pontuale, 1998 *Schizonycha scorteccii* Decelle, 1982*
Scarabaeidae: **Melolonthinae**: **Sericini**
Ablaberoides abyssinicus (Brenske, 1902) * *Maladera* (*Cephaloserica*) *insanabilis* (Brenske, 1894) *Sphaerotrochalus somalicola* (Frey, 1960) *
Scarabaeidae: **Rutelinae**: **Adoretini**: **Adoretina**
Adoretus (*Lepadoretus*) *vastus* Petrovitz, 1958** *Pseudadoretus pokornyi* Král sp. nov.
Scarabaeidae: **Rutelinae**: **Adoretini**: **Prodoretina**
Clipadoretus habibi Král sp. nov.
Scarabaeidae: **Rutelinae**: **Adoretini**: **Trigonostomusina**
Phaeadoretus iranicus iranicus Machatschke, 1960** *Phaeadoretus syriacus* (Blanchard, 1851) **
Scarabaeidae: **Dynastinae**: **Oryctini**
Oryctes agamemnon arabicus Fairmaire, 1896 *Oryctes elegans* Prell, 1914 *Oryctes rhinoceros* (Linnaeus, 1758)
Scarabaeidae: **Dynastinae**: **Pentodontini**
Pentodon algerinus (Fuessly, 1778) *Phyllognathus excavatus* (Forster, 1771) *Podalgus cuniculus arabicus* Fairmaire, 1895
Scarabaeidae: **Cetoniinae**: **Cetoniini**
Stalagmosoma cynanki (Gory & Percheron, 1833)

New synonymies:
Anaetius Petrovitz, 1968 = *Pseudosaprosites* Balthasar, 1972 **syn**. **nov**.
Anaetius kuijteni Petrovitz, 1968 = *Pseudosaprosites deplanatus* Balthasar, 1972 **syn**. **nov**.
Nialosternus rendallii (Wollaston, 1867) = *Aphodius sitiphoides* d'Orbigny, 1896 **syn**. **nov**.
Orubesa semenowi (Arrow, 1911) = *Dynamopus sudanicus* Balthasar, 1971 **syn**. **nov**.



Plates 101–102. UAE, Nazwa, 30.ix.2007, the type locality of *Pseudadoretus pokornyi* Král sp. nov., and *Clipadoretus habibi* Král sp. nov. 101: Habitat with bushes of *Calotropis procera* and *Leptadenia pyrotechnica* (both Asclepiadaceae) in the late afternoon ('stormy' dusty-grey sky is of note). 102: Hynek Pinda during sunset is looking for suitable microhabitats with mating specimens of *P. pokornyi* Král sp. nov.

Species excluded from the list of the UAE Scarabaeoidea:
Pseudoathyreus flavohirtus (Walker, 1871)
Pleurophorus anatolicus Petrovitz, 1961

Scarabaeus (*Scarabaeus*) *sacer* Linnaeus, 1758
Phaeadoretus comptus (Ménétriés, 1847)
Stalagmosoma albellum (Pallas, 1771)

Remarks about Table 3: We did not see any specimen of *Didactylia arabica* (although it is present in Eastern Province of Saudi Arabia), and *Tanyproctoides arabicus* (although it is present in Eastern Province of Saudi Arabia), both recorded from UAE only by Howarth & Gillett (2004) and Walker & Pittaway (1987) and of *Onthophagus sticticus* recorded by Gillett & Gillett (2005) without any data (although it is present in Oman and Saudi Arabia). Their occurrence in the UAE is possible, however need confirmation.
We exclude from the UAE fauna *Phaeadoretus comptus* reported by Howarth & Gillett (2004), *Pleurophorus anatolicus* reported by Gillett & Gillett (2005), *Psedoathyreus flavohirtus* reported by Gillett & Gillett (2005), *Scarabaeus sacer* reported by Cunningham & Aspinall (2001) and *Stalagmosoma albellum* reported by Gillett & Gillett (1997). Apparently, the last name was changed to *Stalagmosoma cynanchi* (sic!) in Gillett & Gillett (2005) without any comment. Their occurrence in UAE is not probable. Caution should be taken when referring to records published by Gillett & Gillett (1997), Howarth & Gillett (2004) and Gillett & Gillett (2005). They contain some doubtful and incorrect identifications.

ACKNOWLEDGEMENTS

We thank to all colleagues and institutions listed in the 'Materials and methods' section for enabling us to study the material in their care. Special thanks are due to the following persons: Antonius van Harten (Vaiamonte, Portugal) provided an opportunity to join the UAE arthropod project; Aleš Bezděk (IECA) read an earlier draft of this paper and made useful comments; Roland Breithaupt (Abu Dhabi, UAE) donated his material collected in the UAE to NMP collections; Vítězslav Kubáň (NMPC) assisted in obtaining some older and obscure literature; Hynek Pinda (Praha, Czech Republic/Dubai, UAE) was an excellent companion of JB during their UAE collecting trips, during which valuable scarabs material was gathered and scientific illustrator, Miss Zuzana Čadová (Liberec, Czech Republic) executed line drawings. In addition, we thank the following colleagues for their kind cooperation in various matters (productive discussions, gifts of material, etc.): Dirk Ahrens (ZFMK), Svatopluk Bílý (Czech University of Life Sciences in Prague, Czech Republic), Stanley Jákl (Praha, Czech Republic), Vítězslav Kubáň (NMPC), Pavel Kučera, jr. (Liberec, Czech Republic), Vladislav Malý (Prague, Czech Republic), Ladislav Mencl (Týnec nad Labem, Czech Republic) and Svatopluk Pokorný (Praha, Czech Republic). David Král would like to acknowledge the institutional support from resources of the Ministry of Education, Youth and Sports of the Czech Republic.

REFERENCES

Abdul Rassoul, M.S. (1976): Checklist of Iraq National History Museum Insects Collection. *Natural History Research Center of Iraq, Publication*, 30: 1–41.

Achtenberg, C. van & A. van Harten (2009): Order Hymenoptera, family Thynnidae. Pp. 298–334. In: A. van Harten (ed.), *Arthropod fauna of the United Arab Emirates*, *Volume 2*. Multiply Marketing Consultancy Services, Abu Dhabi, 786 pp.

Ahrens, D. (2000): Sericinae (Coleoptera: Scarabaeoidea: Melolonthidae) of Arabia. *Fauna of Arabia*, 18: 177–210.

Ahrens, D. (2006): Scarabaeidae: Sericinae. Pp. 229–247. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Ahrens, D. (2007): Taxonomic changes and an updated catalogue for the Palaearctic Sericini (Coleoptera: Scarabaeidae: Melolonthinae). *Zootaxa*, 1504: 1–51.

Alfieri, A. (1976): The Coleoptera of Egypt. *Mémoires de la Société Entomologique d'Égypte*, 5: 1–361.

Al-Houty, W. (1989): *Insect Fauna of Kuwait*. University of Kuwait, 178 pp.

Al-Houty, W. (2004): A faunistic account of beetles of the state of Kuwait. *Kuwait Journal of Science & Engineering*, 31: 59–76.

Arrow, G.J. (1911): Upon the Dynamopinae, a new subfamily of Lamellicorn beetles. *The Annals and Magazine of Natural History, including Zoology, Botany and Geology*, 8 (7): 610–612.

Arrow, G.J. (1917): *The Fauna of British India, including Ceylon and Burma. Coleoptera Lamellicornia part II* (*Rutelinae, Desmonycinae, and Euchirinae*). Taylor & Francis, London, 387 pp., 5 pls.

Arrow, G.J. (1931): *The Fauna of British India including Ceylon and Burma. Coleoptera Lamellicornia. Part III* (*Coprinae*). Taylor and Francis, London, xii + 428 pp.

Balthasar, V. (1936): Monographie der Subfamilie Troginae der palaearktischen Region. *Festschrift zum 60 Geburtstag von Prof. Embrik Strand, Riga*, 1: 407–459.

Balthasar, V. (1963a): *Monographie der Scarabaeidae und Aphodiidae der palaearktischen und orientalischen rgion. Coleoptera: Lamelicornia. Band 1. Scarabaeinae.*Verlag der Tschechoslowakischen Akademie der Wissenschaften, Prag, 391 pp.

Balthasar, V. (1963b): *Monographie der Scarabaeidae und Aphodiidae der palaearktischen und orientalischen region. Coleoptera: Lamelicornia. Band 2. Coprinae* (*Onitini, Oniticellini, Onthophagini*). Verlag der Tschechoslowakischen Akademie der Wissenschaften, Prag, 627 pp.

Balthasar, V. (1964): *Monographie der Scarabaeidae und Aphodiidae der palaearktischen und orientalischen Region. Coleoptera Lamellicornia. Band 3. Aphodiidae*. Prag: Verlag der Tschechoslowakischen Akademie der Wissenschaften, 652 pp., 2 pls.

Balthasar, V. (1971): Eine neue *Dynamopus*-Art. *Opucula Zoologica*, 121: 1–3.

Balthasar, V. (1972): Coleoptera aus Nordostafrika. Scarabaeoidea: Scarabaeidae und Aphodiidae. *Notulae Entomologicae*, 52: 18–32.

Baraud, J. (1977): Nouvelles espèces d'Aphodiidae paléarctiques. *Nouvelle Revue d'Entomologie*, 7: 53–57.

Baraud, J. (1985): *Coléoptères Scarabaeoidea. Faune du Nord de l'Afrique du Maroc au Sinaï. Encyclopédie Entomologique*, *46*. Editions Lechevalier, Paris, 651 pp.

Beccari, F. (1971): Contributo alla conoscenza dell'entomofauna dell'Arabia Saudita. Primo elenco di insetti, acari e nematodi. *Rivista di Agricoltura Subtropicale e Tropicale*, 65: 243–258.

Bezděk, A. (2006a): Scarabaeidae: Melolonthinae: Schizonychini. P. 228. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Bezděk, A. (2006b): Scarabaeidae: Scarabaeinae: Gymnopleurini. Pp. 154–156. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Bezděk, A. & F.-T. Krell (2006a): Scarabaeidae: Scarabaeinae: Oniticellini. Pp. 156–158. In: I. Löbl & A. Smetana (eds.), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Bezděk, A. & F.-T. Krell (2006b): Scarabaeidae: Scarabaeinae: Onitini. Pp. 158–159. In: I. Löbl & A. Smetana (eds.), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Blanchard, C.É. (1851): I^{er} Famille – Scarabaeidae. Pp. 129–240. In: H. Milne-Edwards, C.É. Blanchard & H. Lucas (eds): *Catalogue de la Collection Entomologique du Muséum d'Histoire Naturelle de Paris. Classe des Insectes. Ordre des Coléoptères. I, Deuxième livraison*. Gide et Baudry, Paris, 240 pp.

Bodenheimer, F.S. (1937): Prodromus Faunae Palestinae. *Mémoirs de l'Institut d'Égypte*, 23: 1–135.

Bordat, P. (2007): Une nouvelle espèce de *Platytomus* du Qatar (Coleoptera, Aphodiidae). *Nouvelle Revue d'Entomologie*, 24: 80–81.

Bouchard P., Y. Bousquet, A.E Davies., M.A. Alfonso-Zarazaga, J. F. Lawrence, C.H.C. Lyal, A.F. Newton, C.A.M. Reid, M. Schmitt, S.A. Ślipiński & A.B.T. Smith (2011): Family-group names in Coleoptera (Insecta). *ZooKeys*, 88: 1–972.

Carpaneto, G.M., R. Mignani & E. Piatella (2000): A taxonomic overview of the genus *Pseudoathyreus*, and redescription of two related species from southern Africa (Coleoptera: Geotrupidae: Bolboceratinae). *The Coleopterists Bulletin*, 54: 239–247

Cunningham, P.L. & S. Aspinall (2001): The diet of Little Owl *Athene noctua* in the UAE, with notes on Barn Owl *Tyto alba* & Desert Eagle *B*. (*b*.) *ascalaphus*. *Tribulus*, 11 (2): 13–17.

Dellacasa, G., P. Bordat & M. Dellacasa (2001): A revisional essay of world genus-group taxa of Aphodiinae. *Memorie della Società Entomologica Italiana*, 79 (2000): 1–482.

Dellacasa, M. & G. Dellacasa (2002): Systematic revision of the genus *Erytus* Mulsant & Rey, 1870, and description of the new genus *Sahlbergianus*. *Frustula Entomologica* (*Series Nova*), 23 (2000): 109–130.

Dellacasa, M. & G. Dellacasa (2006): Scarabaeidae: Aphodiinae: Aphodiini. Pp. 105–142. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Derwesh, A.I. (1965): *A preliminary list of identified insects and some arachnids of Iraq*. The Government Press, Baghdad, 123 pp.

El-Hariri, G. (1971): A list of recorded insects fauna of Syria. *Aleppo*, 2: 149–159.

El-Hawagry, M.S., M.W. Khalil, M.R. Sharaf, H.H. Fadl & A.S. Aldawood (2013): A preliminary study on the insect fauna of Al-Baha Province, Saudi Arabia, with descriptions of two new species. *ZooKeys*, 274: 1–88.

El-Shafie, H.A.F. (2014): Overview of the biology and management of date palm dynastid beetles (Coleoptera: Scarabaeidae: Dynastinae). *Agriculture and Biology Journal of North America*, 5: 33–42.

Endrődi, S. (1964): Die Aphodiinae des Congogebietes in Rahmen der fauna von Zentral-Afrika (Coleoptera Scarabaeidae). *Annales du Musée Royal de l'Afrique Centrale, Série 8°, Sciences Zoologiques*, 123: 1–415.

Endrődi, S. (1970): Coleoptera aus Nordafrika, Melolonthidae: Dynastinae, Scarabaeidae: Hybosorinae, Orphninae, Dynamopinae. *Notulae Entomologicae*, 50: 73–80.

Frey, G. (1956): Liste der von S. Nathan in der Wüste Thar im Jahre 1955 gesammelten Lamellicornien mit der Beschreibung einer neuen *Catharsius* Art. *Entomologische Arbeiten aus dem Museum G. Frey*, 7: 654–656.

Gahan, C.J. (1896): On Coleoptera from Aden and Somaliland. *The Annals and Magazine of natural History, including Zoology, Botany and Geology*, (6) 18: 448–461.

Gahan, C.J. (1903): Arthropoda. Insecta: Coleoptera: Beetles. I. The beetles of Sokotra. Pp. 263-288. II. The beetles of Abd-el-Kuri. Pp. 289-291. In: H.O. Forbes (ed.), *The Natural History of Socotra and Abd-el-Kuri. Being the report upon the results of the conjoint expedition to these islands in 1898-9, by Mr. W. R. Ogilvie-Grant, of the British Museum, and Dr H. O. Forbes, of the Liverpool Museums, together with information from other available sources. Forming a monograph of the Islands.* Liverpool: xlvii + 598 pp., 27 pls.

Garetta, L. (1914): Description d'espèces nouvelles de *Gymnopleurus* s. str. et note synonymiques (Col. Scarabaeidae). *Bulletin de la Société Entomologique de France*, 1914: 357–359.

Gassouma, M.S.S. (1991): [*Agricultural pests in the United Arab Emirates. Part 1. Fruit trees*]. UAE: Ministry of Agriculture, 148 pp (in Arabic).

Gharib, A. (1970): *Oryctes elegans* Prell. (Coleoptera, Dynastidae). *Entomologie et Phytopatologique Appliquées*, 29: 10–19.

Gillett, M.P.T. & C.P.D.T. Gillett (1997): A solitary representative of the flower chafer beetles in the Al Ain Region: *Stalagmosoma albella* (Pallas, 1781) (Coleoptera: Scarabaeidae). *Tribulus*, 7 (1): 22.

Gillett, M.P.T. (1995a): Scarab dung beetles in the Al Ain region of the UAE and neighbouring areas of Oman (Coleoptera: Scarabaeidae). *Tribulus*, 5 (1): 14–23.

Gillett, M.P.T. (1995b): *Apsteiniella naviauxi* Baraud 1977 – an extremely rare scarab dung beetle from Al Ain (Coleoptera: Scarabaeidae: Aphodiinae). *Tribulus*, 5 (2): 22.

Gillett, M.P.T. (2005): A return to Al Ain, its beetles and other wildlife. *The ENHG Al Ain Chapter Newsletter*, 227: 1–4.

Gillett, M.P.T. & C.P.D.T. Gillett (2002): A winter survey of insects and other terrestrial invertebrates on Marawah Island, Abu Dhabi. *Tribulus*, 12 (2): 12–19.

Gillett, M.P.T. & C.P.D.T. Gillett (2005): Insects & other arthropods. Pp. 168–194, Species checklist. Pp. 352–356. In: S. Aspinall & P. Hellyer (eds), *The Emirates. A natural history.* P. Vine, Trident Press, London, 428 pp.

Gol'berg, A., G, Gamliel, M. Wolfovich, T. Sando & A. Amoji (1986): Preliminary observations on the biology of *Maladera* sp. (Coleoptera: Scarabaeidae). *Phytoparasitica*, 17: 81–89.

Gol'berg, A., S. Yathom, N. Almugi-Labin & F. Wunder (1989): Diurnal and seasonal occurrence, feeding habits and mating behavior of *Maladera matrida* adults in Israel, *Phytoparasitica*, 20: 2–15.

Gory, H.L. & A.R. Percheron (1833): *Monographie des Cétoines et genres voisins, formant dans les familles naturelles de Latreille la division des Scarabées Mélitophiles*. Baillière, Paris, 403 pp., 77 pl.

Haaf, E. (1953): Die afrikanischen Arten der Gattung *Trox* F. (Col. Scarab.). 1. Beitrag zur Kenntnis der Subfam. Troginae. *Entomologische Arbeiten aus dem Museum G. Frey*, 4: 309–346.

Haaf, E. (1954): Die afrikanischen und orientalischen Arten der Gattung *Trox* (Col. Scarab.). 2. Beitrag zur Kenntnis der Subfam. Troginae. *Entomologische Arbeiten aus dem Museum G. Frey*, 5: 326–393.

Hanski, I. & Y. Cambefort (1991): *Dung Beetle Ecology*. Princeton University Press, New Jersey, 481 pp.

Harten, A. van (2005): *The Insects of the United Arab Emirates. A Checklist of Published Records*. Multiply Marketing Consultancy Services, Abu Dhabi, 86 pp.

Harten, A. van (2008): Collecting methods and localities. Pp. 14–32. In: A. van Harten (ed.), *Arthropod fauna of the United Arab Emirates*, *Volume 1*. Multiply Marketing Consultancy Services, Abu Dhabi, 754 pp.

Howarth, B. & M. Gillett (2004): The insects of Jebel Hafit. Pp. 94–143. In: S. Aspinall & P. Hellyer (eds), *Jebel Hafit, a Natural History*. Abu Dhabi: Emirates Natural History Group, 465 pp.

Howarth, B. & M.P.T. Gillett (2008): The terrestrial and freshwater Arthropods of Abu Dhabi Emirate. Pp. 378–465. In: R.J. Perry (ed.), *Terrestrial environment of Abu Dhabi Emirate.* Environment Agency, Abu Dhabi, 465 pp.

Ilčíková, A. & D. Král (2004): A review of the genus *Trigonoscelus* (Coleoptera: Scarabaeoidea: Didactyliini). *Acta Societatis Zoologicae Bohemicae*, 68: 83–89.

Janikova, M. [undated]: *Coleoptera. Beetles Checklist.* Sultanate of Oman, Ministry of Heritage and Culture, Natural History Museum, Muscat, 39 pp.

Kabakov, O.N. (2006): *Plastinchatousye zhuki podsemeystva Scarabaeinae (Insecta: Coleoptera: Scarabaeidae) fauny Rossii i sopredelennykh stran* [*Scarab beetles of the subfamily Scarabaeinae (Insecta: Coleoptera: Scarabaeidae) of Russia and adjacent countries*]. Tovarishchestvo nauchnykh izdaniy KMK, Moskva, 374 pp.

Katbeh-Bader, A. & E. Barbero (1999): Contribution to the knowledge of the Scarabaeoidea (Coleoptera) of Jordan. *Zoology in the Middle East*, 18: 77–90.

Keith, D. (2002): Contribution à la connaissance des Scarabaeoidea du proche et moyen Orient (6meme Note): taxons meconnus et description de deux espèces nouvelles de Melolonthinae d'Irak, d'Arabia Saoudite et de Syrie (Coleoptera Scarabaeoidea). *Lambillionea*, 102: 140–148.

Keith, D. (2002): Sur quelques Pachydeminae (Coleoptera Melolonthidae). *Lambillionea*, 102: 36–42.

Keith, D. (2006): First record of Melolonthidae from Qatar. *Kogane*, 7: 52.

Keith, D. & P. Bordat (2011): Sur la faune des Scarabaeoidea du Qatar. *Nouvelle Revue d'Entomologie* (*Nouvelle Série*), 27: 183–189.

Keith, D. & A. Drumont (2004): Mission du Dr. Michel Jangoux dans le Sultanat d'Oman: Hybosoridae, Glaresidae, Melolonthidae et Dynastidae. *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique, Entomologie*, 74: 85–87.

Klug, J.C.F. (1843): Die Coleopteren-Gattungen: *Athyreus* und *Bolboceras*, dargestellt nach den in der Sammlung der hiesiger Königlich Universität davon vorhandenen Arten.

Abhandlungen der Königlich-Preussischen Akademie der Wissenschaften, *Berlin*, 1843: 21–57.

Klug, J.C.F. (1845): *Symbolae physicae seu icones et descriptiones insectorum, quae ex itinere per Africam borealem et Asiam occidentalem. Friderich Guilelmi Hemprich et Christiani Godofredi Ehrenberg Medicinae et Chirurgiae Doctorum. Studio novae aut illustratae redierunt. Precensuit Dr. Fr. Klug. Regis iussu et impensis eddit Dr. C.G. Ehrenberg. Decas quinta.* ex Officina Academia, Impensis G. Reimer, Berolini, [185] pp., pls 41–50.

Král, D. & I. Löbl (2006a): Glaresidae. Pp. 81–82. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Král, D. & I. Löbl (2006b): Hybosoridae. Pp. 96–97. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Král, D., I. Löbl & G.V. Nikolajev (2006): Bolboceratidae . Pp. 82–84. In: I. Löbl & A. Smetana (eds.), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Král, D. & A. Smetana (2006a): Scarabaeidae: Melolonthinae: Pachydemini. Pp. 199–207. In: I. Löbl & A. Smetana (eds.), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Král, D. & A. Smetana (2006b): Scarabaeidae: Rutelinae: Adoretini. Pp. 248–251. In: I. Löbl & A. Smetana 2006 (eds.), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Král, D. & P. Šípek (2013): Aphodiinae (Coleoptera: Scarabaeidae) of the Goa, Maharashtra and Rajasthan (India) with description of *Aphodius* (*Gilletianus*) *rajawatorum* sp. nov. *Acta Entomologica Musei Nationalis Pragae*, 53: 633–648.

Krell, F.-T. & D. Král (2015): Order Coleoptera, family Scarabaeidae. Subfamily Dynastinae. *Arthropod fauna of the UAE*, 6: 169–185.

Kuijten, P.J. (1980): Insects of Saudi Arabia. Coleoptera: Fam. Scarabaeidae, Subfam. Hybosorinae. *Fauna of Saudi Arabia*, 2: 155–156.

Kuijten, P.J. (1983): Revision of the genus *Hybosorus* MacLeay (Coleoptera: Scarabaeidae: Hybosorinae). *Zoologische Verhandelingen*, 203: 1–49.

Landin, B.-O. (1963): The Lamellicorn Beetles of the Cape Verde Islands. With some biogeographical aspects. *Societas Scientiarum Fennica, Commentationes Biologicae*, 26 (2): 1–27.

Laporte [de Castelnau] F.L.N. Caumont de (1840): *Histoire Naturelle des Insectes Coléoptères*. *Tome deuxième. Histoire Naturelle des animaux articuleés, annelides, crustacés, arachnides, myriapodes et insectes. Tome troisème.* P. Duménil, Paris, 564 pp., 38 pls.

Lacroix, M. (1994): Pachydeminae des regione limitrophes du Golfe d'Aden et description de *Canudema socotrae* n. gen., n. sp. (Coleoptera, Scarabaeoidea, Melolonthinae). *Revue Française d'Entomologie* (*Nouvelle Série*), 16: 153–170.

Lacroix, J.-P. & O. Montreuil (2013): Révision du genre *Perrindema* Lacroix 1997 (Coleoptera, Scarabaeidae). *Annales de la Société Entomologique de France* (*Nouvelle Série*), 49: 355–365.

Lawrence, J.F. & A. Ślipiński (2013): *Australian beetles. Morphology, Classification and Keys. Volume 1*. CSIRO Publishing, Collingwood, 374 pp.

Lepesme, P., J. Ghesquière, J. Bourgogne, E. Cairaschi, R. Paulian & A. Villiers (1947): *Les Insectes des Palmiers*. Paul LeChevalier, Paris, 904 pp.

Löbl, I., F.-T. Krell & D. Král (2006b): Scarabaeidae: Scarabaeinae: Scarabaeini. Pp. 176–178. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Löbl, I., F.-T. Krell & D. Král (2006a): Scarabaeidae: Scarabaeinae: Coprini. Pp. 151–154. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Löbl, I., F.-T. Krell, S. Ziani & D. Král (2006): Scarabaeidae: Scarabaeinae: Onthophagini. Pp. 159–176. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Löbl, I. & A. Smetana (2006): *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Machatschke, J.W. (1960): Revision der Gattung *Phaeadoretus* Reitter (Coleoptera: Lamellicornia, Melolonthidae, Rutelini). *Beiträge zur Entomologie*, 10: 843–855.

Machatschke, J.W. (1965): Ein neuer *Clipadoretus* aus Persien und kristische Bemerkungen zur Gattung *Clipadoretus* Ohaus (Coleoptera: Lamellicornia, Melolonthidae, Rutelinae orthochilidae, Adoretini). *Entomologische Arbeiten aus dem Museum Frey,* 16: 131–138.

Machatschke, J.W. (1972): *Coleopterorum Catalogus Supplementa, Pars 66, fascicle 1, Scarabaeoidea: Melolnthidae, Rutelinae*. Gravenhage, Dr. W. JUnk, 361 pp.

Martin-Piera, F. (1987): Review of the genus *Chironitis*. I: Taxonomy Phylogeny and zoogeography of the Palearctic species. *Entomologische Arbeiten aus dem Museum G. Frey*, 35/36: 203–245.

Montreuil, O. (2009): *Gymnopleurus persianus* Reitter, 1909, n. stat., et description d'une nouvelle espèce d'Irak (Coleoptera, Scarabaeidae). *Bulletin de la Société Entomologique de France*, 114: 419–422.

Montreuil, O. (2011): Les Gymnopleurini d'Iran (Coleoptera, Scarabaeidae). *Bulletin de la Société Entomologique de France*, 116: 405–419.

Müller, G. (1942): Nuovi coleotteri dell'Africa Orientale. Seconda serie (1). *Atti del Museo Civico di Storia Naturale di Trieste*, 15: 63–86.

Nikolajev, G.V. (1987): *Plastinchatousye zhuki* (*Coleoptera, Scarabaeoidea*) *Kazakhstana i Srednei Azii* [*Scarabaeoidea* (*Coleoptera*) *of Kazakhstan and Middle Asia*]. Izd. Nauka KazSSR, Alma-Ata, 232 pp.

Nikolajev, G.V. (2003): Two lamellicorn beetles (Coleoptera, Scarabaeidae) new to the Arabian Peninsula fauna. *Evraziyatskiy Entomologicheskiy Zhurnal*, 2: 117–118 (in Russian, English abstr.).

Ocampo, F. & A. Ballerio (2006): Catalog of the Subfamilies Anaidinae, Ceratocanthinae, Hybosorinae, Liparochrinae, and Pachyplectrinae (Scarabaeoidea: Hybosoridae). *Bulletin of the University of Nebraska State Museum*, 19: 178–209.

Ohaus, F. (1941): Neue palaearktische Rutelinen (Col. Scarabaeid.). *Entomologische Blätter*, 37: 111–115.

Orbigny, H. d' (1896): Description des deux nouveaux *Aphodius* méditerranéens. *Bulletin de la Société Entomologique de France*, 1896: 149–150.

Paulian, R. (1948): 12. Coleoptera, Scarabaeidae: Trogidae, Geotrupinae, Dynamopinae, Hybosorinae, Coprinae, Aphodiinae. Pp. 141–155. In: *British Museum (Natural History) Expedition to south-west Arabia 1937-8*. British Museum (Natural History), London.

Paulian, R. (1980): Insects of Saudi Arabia. Coleoptera: Scarabaeoidea (1re contribution). *Fauna of Saudi Arabia*, 2: 141–154.

Petrovitz, R. (1958): Beitrag zur Kenntnis der Scarabaeiden-Fauna des Iran. (Ergebnisse der entomologischen Reisen Willi Richter, Stuttgart, im Iran, 1954 und 1956 – Nr. 15). *Stuttgarter Beiträge zur Naturkunde*, 8: 1–12.

Petrovitz, R. (1962): Neue und verkannte Aphodiinae aus allen Erdteilen. 3. *Entomologische Arbeiten aus dem Museum Georg Frey*, 13: 101–131.

Petrovitz, R. (1963): Neue Arten der Gattung *Rhyssemus* Mulsant (Coleoptera, Scarabaeidae, Aphodiinae). *Reichenbachia*, 2: 33–45.

Petrovitz, R. (1968a): Die afrikanischen Arten der Gattung *Glaresis* Erichson nebst einer mit dieser nahe verwandten neuen Gattung (Troginae, Scarabaeidae, Coleoptera). *Entomologische Arbeiten aus dem Museum G. Frey*, 19: 257–271.

Petrovitz, R. (1968b): Neue Aphodiinae aus dem äthiopischen Faunengebiet. *Koleopterologische Rundschau*, 46/47: 55–80.

Pet Ovitz, R. (1980): Österreichische entomologische Expeditionen nach Persien und Afghanistan. Beiträge zur Coleopterenfauna. Teil XII, Weiteres über Lamellicornia aus Iran. *Annalen des Naturhistorischen Museums in Wien*, 83: 597–638.

Pittino, R. (1983): *Trox* (s. str.) *granulipennis* Fairm. and allied "taxa", with two new species from Mediterranean area (Coleoptera: Trogidae). *Giornale Italiano di Entomologia*, 1: 265–284.

Pittino, R. (1984a): Insects of Saudi Arabia Coleoptera: Scarabaeoidea: a revision of the family Aphodiidae. *Fauna of Saudi Arabia*, 6: 267–360.

Pittino, R. (1984b): Taxonomic considerations on types revisions, lectotypes designations and descriptions of new or little known Psammodiini from Palaearctic, Oriental and Ethiopian Regions (Coleoptera, Aphodiidae) (XXVI contribution to the knowledge of Coleoptera, Scarabaeidae). *Giornale Italiano di Entomologia*, 2: 13–98.

Pittino, R. (1990): Coléoptères Aphodiidae. Sous-famille Psammodiinae. Pp. 131–219. In: P. Bordat, R. Paulian & R. Pittino (eds), *Coléoptères Aphodiidae. Fauna de Madagascar 74*. Muséum national d'Histoire naturelle, Paris, 255 pp.

Pittino, R. (2005): Four new Asian species of the genus *Omorgus* Erichson, 1847 (Coleoptera, Scarabaeoidea, Trogidae). *Kogane*, 6: 71–79.

Pittino, R. (2006): Trogidae. Pp. 79–81. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Pittino, R. & G. Mariani (1986): A revision of the Old World species of the genus *Diastictus* Muls. and its allies (*Platytomus* Muls., *Pleurophorus* Muls., *Afrodiastictus* n. gen., *Bordatius* n. gen.) (Coleoptera, Aphodiidae, Psammodiinae). *Giornale Italiano di Entomologia*, 3: 1–165.

Rakovič, M. & D. Král (1996): A review of the *Leiopsammodius* species of the Malayan subregion (Coleoptera: Scarabaeoidea: Aphodiidae). *Folia Heyrovskyana*, 4: 87–92.

Rakovič, M. & D. Král (1997): New taxa, new combinations and current taxonomic status of tribes and genera of Psammodiinae (Coleoptera: Scarabaeoidea: Aphodiidae). *Acta Societatis Zoologicae Bohemicae*, 61: 233–247.

Rakovič, M. (1984): Psammodiini of Sudan (Coleoptera: Scarabaeidae: Aphodiinae). *Annotationes Zoologicae et Botanicae*, 163: 1–20.

Rakovič, M. (1986): Complementary notes to my revision of old world *Psammodius* Fallén species (Coleoptera: Scarabaeidae: Aphodiinae). *Annotationes Zoologicae et Botanicae*, 174: 1–19.

Rakovič, M. (1990): Review of the genus *Leiopsammodius* Rakovič on the world basis with a key to species from the western hemisphere and description of a new species (Coleoptera, Scarabaeidae, Aphodiinae). *Annotationes Zoologicae et Botanicae*, 197: 1–18.

Rakovič, M., D. Král & I. Löbl (2006): Scarabaeidae: Aphodiinae: Psammodiini. Pp. 144–149. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Regupathy, A., P. Chandrashekharan, T. Manoharan & S. Kuttalam (1995): *Guide to Forest Entomology*. Sooriya Desktop Publications, Coimbatore, 206 pp.

Reitter, E. (1903): Bestimmungs-Tabelle der Melolonthidae aus der europäischen Fauna und den angrenzenden Ländern enthaltend die Gruppen der Rutelini, Hopliini und Glaphyrini. (Schluss.). *Verhandlungen des Naturforschenden Vereins in Brünn*, 41 (1902): 28–158.

Sabatinelli, G. & G. Pontuale (1998): Melolonthinae and Pachydeminae of Arabia (Coleoptera: Scarabaeoidea: Melolonthidae). *Fauna of Arabia*, 17: 107–146.

Semenov, A.P. & S.I. Medvedev (1932): Revisio synoptica speciarum palearcticum novae tribus Glaresini. *Société Entomologie de France, Livre Centenaire*, 1932: 337–342.

Schmidt, A. (1922): *Coleoptera Aphodiinae. Das Tierreich*. *Vol. 45*. W. de Gruyter & Co., Berlin & Leipzig, 614 pp.

Scholtz, C.H. (1980a): Insects of Saudi Arabia. Scarabaeoidea: Coleoptera: Fam. Trogidae (Genus *Trox*). *Fauna of Saudi Arabia*, 2: 137–140.

Scholtz, C.H. (1980b): Monograph of the genus *Trox* F. (Coleoptera: Trogidae) of Subsaharan Africa. *Cimbebasia*, 4: 7–104.

Scholtz, C.H. (1982): Catalogue of world Trogidae (Coleoptera: Scarabaeoidea). *Entomology Memoir, Department of Agriculture and Fisheries Republic of South Africa*, 54: 1–27.

Scholtz, C.H. (1983): A review of the genus *Glaresis* Erichson (Coleoptera: Trogidae) of subsaharan Africa. *Journal of the Entomological Society of Southern Africa*, 46: 209–225

Scholtz C.H. & V.V. Grebennikov (2005): Scarabaeiformia. Pp. 345–425. In: R.G. Beutel & A.B. Leschen (eds), *Handbook of Zoology. Volume IV, Arthropoda, Insecta, Part* 38. Walter de Gruyter, Berlin – New York, 567 pp.

Schulten, G.G.M. (2008): Order Hymenoptera, family Scoliidae. Pp. 388–392. In: A. van Harten (ed.), *Arthropod fauna of the United Arab Emirates*, *Volume 1*. Multiply Marketing Consultancy Services, Abu Dhabi, 754 pp.

Shalaby, F. (1961): A preliminary survey of the insect fauna of Saudi Arabia. *Bulletin de la Société Royale Entomologique d'Égypte*, 45: 211–228.

Sharaf, N., M. Akawi & I. Nazer (1983): A preliminary survey of Coleoptera Fauna of Jordan. *Dirasat*, 10: 57–65.

Smetana, A. (2006): Scarabaeidae: Cetoniinae. Pp. 283–313. In: I. Löbl & A. Smetana (eds.), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Stebnicka, Z. (1977): A revision of the world species of the tribe Aegialiini (Coleoptera, Scarabaeidae, Aphodiinae). *Acta Zoologica Cracoviensia*, 22: 397–505.

Stebnicka, Z. (1985): A revision of the Palaearctic species of the subgenus *Erytus* Muls. et Rey (Coleoptera, Scarabaeidae, Aphodiinae). *Acta Zoologica Cracoviensia*, 28: 221–244.

Stebnicka, Z. (2006a): Scarabaeidae: Aphodiinae: Aphodiini: Didactyliina. Pp. 142–143. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Stebnicka, Z. (2006b): Scarabaeidae: Aphodiinae: Eupariini. Pp. 143–144. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Stebnicka, Z. (2006c): Scarabaeidae: Eremazinae. Pp. 104–105. In: I. Löbl & A. Smetana (eds), *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Apollo Books, Stenstrup, 690 pp.

Stebnicka, Z. (2011): *Aegialiini and Eremazini of the World (Coleoptera: Scarabaeidae). Iconography*. Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków, 92 pp.

Swair, I.A., I.M. Dahib & H. Kadhum (1979): Investigations on palm fruit bunch borer *Oryctes elegans* Prell (Coleoptera: Dynastinae). *Yearbook of Plant Protection*, 2: 97–102.

Tesař, Z. (1963): Beitrag zur Kenntnis der Scarabaeiden (Col.). *Entomologische Arbeiten aus dem Museum G. Frey*, 14: 91–99.

Tigar, B.J. & P.E. Osborne (1999a): Patterns of biomass and diversity of aerial insects in Abu Dhabi's sandy desert. *Journal of Arid Environments*, 43: 159–170.

Tigar, B.J. & P.E. Osborne (1999b): The influence of the lunar cycle on ground-dwelling invertebrates in an Arabian desert. *Journal of Arid Environments*, 43: 171–182.

Tigar, B.J. (1998): *The role of invertebrates in the diet of the houbara bustard in Abu Dhabi.* PhD Thesis, University of London, London.

Walker, F. (1871): List of Coleoptera collected by J. K. Lord, Esq. in Egypt, Arabia and near the African shore of the Red Sea. With characters of the undescribed species. E.W. Janson, London, 19 pp.

Wollaston, T.V. (1867): *Coleoptera Hesperidium, being an enumeration of the Coleopterous Insects of the Cape Verde Archipelago.* J. van Voorst, London, 285 pp.

Ziani, S. & I. Gudenzi (2013): Commenti sulla sistematica generica degli Scarabaeini del bacino del Mediterraneo con una chiave dicotomica per il loro riconoscimento. *Quaderno di Studi e Notizie di Storia Naturale della Romagna*, 36 (2012): 115–158.

Zídek, J. & S. Pokorný (2004): Checklist of the genus *Scarabaeus* Linné. *Animma.x*, no. 5: 1–30.

Zídek, J. & S. Pokorný (2005): Supplemental comments on *Scarabaeus* Linné (Coleoptera: Scarabaeidae). *Animma.x*, no. 9: 1–12.

Zídek, J. & S. Pokorný (2008): Illustrated keys to Palearctic *Scarabaeus* Linné (Scarabaeidae). *Animma.x*, no. 27: 1–28.

Zídek, J. & S. Pokorný (2011): Replacement name for a subgenus of *Scarabaeus* Linné, and remarks on *Scarabaeus isidis* (Scarabaeidae: Scarabaeinae: Scarabaeini). *Klapalekiana*, 47: 89–90.

Zunino, M. (1979): Insects of Saudi Arabia Coleoptera: Fam. Scarabaeidae Tribus Onthophagini. *Fauna of Saudi Arabia*, 1: 289–292.

Zunino, M. (1981): Insects of Saudi Arabia Coleoptera: Fam. Scarabaeidae Tribe Onthophagini. *Fauna of Saudi Arabia*, 3: 408–416.

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