

# *Glareis hespericula* sp. n. from the Cape Verde Islands (Coleoptera, Scarabaeoidea, Glaresidae)

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## Abstract

*Glareis hespericula* sp. n. from the Cape Verde Islands (Boa Vista Island) is described and its diagnostic characters are illustrated. The new species is compared with similar and probably closely related species *Glareis walzlae* Scholtz, 1983. The differential diagnosis is mainly based on the different shape of meso- and metatibiae.

## Keywords

Afrotropical region, Coleoptera, Glaresidae, *Glareis*, new species, Republic of Cabo Verde, Scarabaeoidea

## Introduction

The scarabaeoid family Glaresidae includes only the single genus *Glareis* Erichson, 1848 widespread in all zoogeographical regions except Australia and Antarctica. The genus comprises more than eight dozen of described species of small, uniformly looking beetles that usually prefer sandy, often arid habitats. Adults are active in the evening, often attracted by light sources. The immature stages and biology of this hidden living group are not yet known (e.g., Scholtz and Grebennikov 2016). In a phylogenetical analysis based on morphology, *Glareis* was placed as the sister taxon of the remaining Scarabaeoidea (Browne and Scholtz 1999). Fossil records of seven mesozoic glaresids

are classified in three genera (*Cretoglaresis* Nikolajev, 2007; *Glaresis* and *Lithoglaresis* Nikolajev, 2007) (Bai et al. 2014). Currently 82 extant species are assigned to the genus *Glaresis* (Král and Bezděk 2016; Gordon and Hanley 2014; Král and Batelka 2017; Král et al. 2017; Paulsen 2016; Zidek 2015).

The Afrotropical fauna of the family Glaresidae is inadequately known. Only 19 species have been formally described from this region (see e.g., Scholtz 1982, 1983; Zidek 2015) and the only two comprehensive works (Petrovitz 1968; Scholtz 1983) have been published in the last century.

Recently collected *Glaresis* material from the Boa Vista Island, Cape Verde Archipelago, revealed another, undescribed species whose formal description we present below.

## Materials and methods

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 lens attached to a Canon EOS 550D camera. Partially focused images of each specimen were combined using Zerene stacker software. Male genitalia images were taken with a Provis AX70 (Olympus) microscope with digital image processing capability using Micro Image (Olympus) software.

Specimens of the newly described species are provided with one printed red label: “*Glaresis* | *hespericula* sp. nov. | HOLOTYPUS ♂ [or] PARATYPUS ♀ | David Král & Lucie Hrůzová 2018”. Both type specimens are deposited in the National Museum Praha, Czech Republic.

Exact label data are cited for the type material examined. Lines within each label are separated by a single vertical bar “|”. Information in quotation marks indicates the original spelling. Our remarks and additional comments are placed in brackets.

For morphological terms used in the description we largely follow Gordon and Hanley (2014) and Král et al. (2017).

## Taxonomy

### *Glaresis hespericula* sp. n.

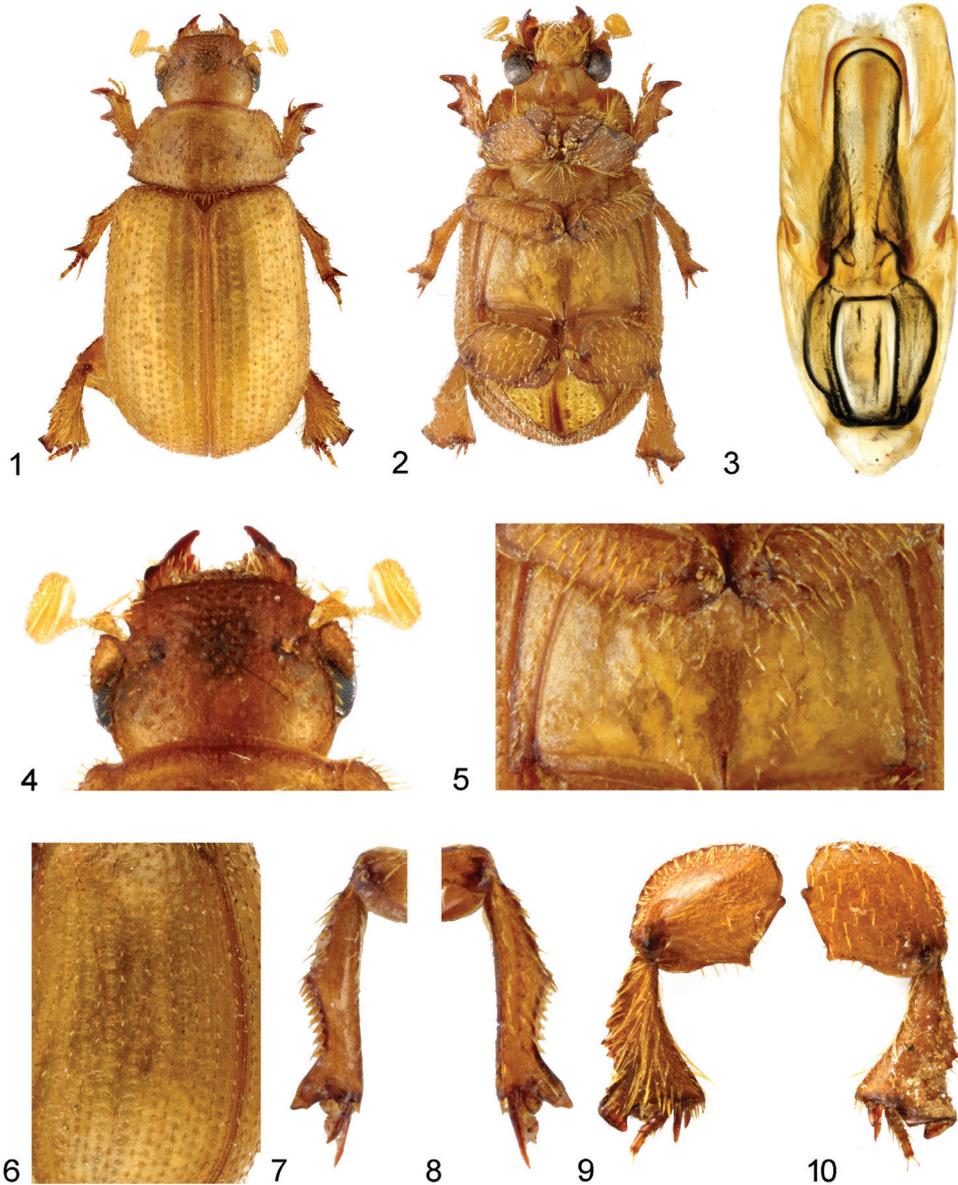
<http://zoobank.org/27201324-EB3E-4B2A-902E-C26F7DBC94A9>

Figures 1–10

**Type locality.** Cape Verde, Boa Vista Island, 10 km S of Sal Rei, near Praia de Chavez 16.12°N 22.91°W, [ca. 7 m a. s. l.].

**Type material.** Holotype (♂) and paratype (♀), “CAPE VERDE Boa Vista | Isl., 10 km S of Sal Rei, N | 16°12' W22°91'; near Praia | de Chavez, 28.-29.x.2015, | on light, V. Novák lgt.”

**Description of male holotype.** *Body* robust, strongly convex, weakly widened posteriad, brownish yellow coloured, weakly shining, macrosetation pale (Figs 1, 2).



**Figures 1–10.** *Glaresis hespericula* sp. n. **1** habitus, holotype, ♂, dorsal view **2** habitus, paratype, ♀, ventral view **3** aedeagus, dorsal view **4** head, dorsal view **5** meso-metaventral area, ventral view **6** detail of left elytron, dorsal view **7, 8** – left middle leg (**7** dorsal view, **8** ventral view) **9, 10** right hind leg (**9** dorsal view, **10** ventral view). Not to scale.

*Head* (Figs 1, 4) surface finely rugose, semialutaceous. Mandibles robust, with strong lateral prominence, external margins sinuate. Anterior margin of clypeus shallowly sinuate, distinctly upturned, smooth, lateral angles rounded; lateral margin shallowly sinuate; posterior angles acutely angular. Surface of frons and clypeus covered with sparsely,

irregularly spaced, shiny tubercles, some of them bearing stout, semi-erect macrosetae. Genae transversal, lateral margin rounded, smooth and bare. Epistomal grooves distinct. Occiput with irregularly spaced tubercles, tubercles somewhat smaller than on clypeus and frons. Each tubercle bearing very short, indistinguishable macroseta.

*Pronotum* (Figure. 1) transverse, moderately convex, pronotal grooves absent, medial longitudinal groove shallow; margins not bordered; anterolateral, lateral and basal margins serrate and with row of approximately clavate macrosetae, posterior corners rectangular; surface covered with densely almost regularly longitudinal carinae, each carina bearing thick, recumbent macroseta.

*Scutellar* plate small, almost triangular, alutaceous, smooth, and bare.

*Elytra* (Figs 1, 6) strongly convex, with ten striae and ten intervals; each stria with a row of coarse, simple punctures; intervals 1–7 and 10 remarkably costate, 8, 9 flat, all bearing a row of short, simple to weakly clavate, erect macrosetae.

Macropterous.

*Pygidium* weakly shining, scabrous.

*Ventral surface* (Figs 2, 5) alutaceous, abdominal ventrites covered with sparse fine macrosetae. Metaventral plate flat, bare and smooth, bearing row of stout macrosetae all around and with darkened translucent, longitudinal endocarina basally. Metaventral oblique grooves absent (Figure 5).

*Legs.* Posterior-superior margin of metafemora with blunt, broadly triangular teeth, anterior-superior margin of metafemora with a row of long macrosetae (Figs 9–10). Protibia distinctly tridentate (Figs 1, 2). Mesotibia (Figs 7, 8) long, nearly straight, with prominent median projection situated approximately in middle of length of mesotibia, distal part of outer edge broadly, shallowly emarginate, bearing nine short, stout spines; basal external tooth of mesotibia slightly emarginate basally. Metatibia (Figs 9, 10) broadly triangular, outer margin irregularly serrate, with faint median projection and faint median ridge, strongly macrosetaceous; row of four spine-bearing tubercles extending from base to apex medially; inner margin smooth, macrosetaceous; apex of metatibia with outer horseshoe shaped portion sub-equal than inner spur-bearing portion; inner margin of the horseshoe portion with a row of contiguous short macrosetae.

*Male external genitalia* (Figure 3). Aedeagus with parameres distinctly longer than phallobasis; parameres sclerotized in whole length, lateral margin regularly arcuate to almost regularly rounded tips; phallus sclerotised, sides straight, weakly divergent anteriorly.

**Sexual dimorphism and variability.** Female paratype differs from male by body indistinctly broader posteriorly (Figure 2) and by row of ten spines on outer edge of distal part of mesotibia.

**Measurements.** Total body length: 4.0–4.3 mm (holotype 4.2 mm; paratype 4.3 mm).

**Differential diagnosis.** The new species is similar to *Glareis walzlae* Scholtz, 1983, described from Sudan, mainly in having the following characters: absence of the pronotal grooves beside the medial longitudinal groove (Figure 1), absence of the metaventral oblique grooves (Figure 5), protibia with three prominent teeth (Figs 1,

2), and smooth anterior clypeal margin (Figs 1, 4); for more details see also Petrovitz (1968) and Scholtz (1983). From this species, *Glaresis hespericula* sp. n. clearly differs in the following characters:

- mesotibia with prominent median projection situated approximately in middle of length of mesotibia (Figs 1, 2, 7, 8) (mesotibia with small median projection situated before middle of length of metatibia in *G. walzlae* (Scholtz 1983: fig. 8));
- distal part of outer edge of mesotibia broadly, shallowly emarginate, with row of 9–10 spines (Figs 1, 2, 7, 8) (distal part of outer edge of mesotibia straight, with row of 7–9 spines (Scholtz 1983: fig. 8));
- metatibia with faint median projection on outer margin, with faint median ridge (Figs 1, 2, 9, 10) (metatibia with prominent median projection on outer margin, with distinct median ridge (Scholtz 1983: fig. 19)).

**Collecting events.** The material was collected on sand dunes using a light trap approximately between 7–9 p.m., the temperature was around 24 °C and two days before it rained very strongly.

**Etymology.** *Hespericula* means a small, yet juvenile hesperid; noun in apposition.

**Distribution.** So far known only from the Boa Vista Island, the Cape Verde Islands.

## Discussion

Cape Verde Archipelago is classified together with other volcanic archipelagos (Azores, Madeira, Salvagens Islands and Canary Islands) and a thin strip of the Atlantic coast in southern Portugal, Morocco and the Western Sahara as the Macaronesian biogeographic subregion (e.g., Oromí 2004). Although Cape Verde harbours a high proportion of Afrotropical species, aside from its numerous endemic taxa, its insect fauna is poor both in endemic forms and in total number of species. Their fauna is considered unique and in some aspects deserves protection (e.g., Arechavaleta et al. 2005; Batelka and Straka 2011). Fauna of Coleoptera of the individual archipelagos and islands were treated as follows: Azores (Borges et al. 2005), Madeira and related islands (Borges et al. 2008), the Salvagens Islands (Erber and Wheeler 1987), the Canary Islands (Machado and Oromí 2000) and the Cape Verde Archipelago (Oromí et al. 2005). No Glaresidae have been reported from these islands and archipelagos so far. Hence, the newly described species represents the first record of the family Glaresidae from the volcanic islands west of Africa.

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## References

- Arechavaleta M, Zurita N, Marrero MC, Martín JL (2005) Lista preliminar de espécies silvestres de Cabo Verde. Fungos, Plantas e Animais Terrestres. Consejería de Medio Ambiente y Ordenación Territorial, Gobierno de Canarias, 155 pp.
- Bai M, Beutel RG, Liu WG, Li S, Zhang MN, Lu YY, Song KQ, Ren D, Yang XK (2014) Description of a new species of Glaresidae (Coleoptera: Scarabaeoidea) from the Jehol Biota of China with a geometric morphometric evaluation. *Arthropod Systematics & Phylogeny* 72: 223–236.
- Batelka J, Straka J (2011) *Ripiphorus caboverdianus* sp. nov. – the first ripiphorid record from the Macaronesian volcanic islands (Coleoptera: Ripiphoridae: Ripiphorinae). *Zootaxa* 2795: 51–62.
- Borges PAV, Abreu C, Aguiar AMF, Carvalho P, Jardim R, Melo I, Oliveira P, Sérgio C, Serano ARM, Vieira P (2008) A list of the terrestrial fungi, flora and fauna of Madeira and Selvagens archipelagos. Direcção Regional do Ambiente da Madeira and Universidade dos Açores, Funchal and Angra do Heroísmo, 440 pp.
- Borges PAV, Oromí P, Dinis F, Jarroca S (2005) Coleoptera. In: Borges PAV, Cunha R, Gabriel R, Martins AF, Silva L, Vieira V (Eds) A list of the terrestrial fauna (Mollusca and Arthropoda) and flora (Bryophyta, Pteridophyta and Spermatophyta) from Azores. Direcção Regional do Ambiente and Universidade dos Açores, Horta, Angra do Heroísmo and Ponta Delgada, 197–206.
- Browne J, Scholtz CH (1999) A phylogeny of the families of Scarabaeoidea (Coleoptera). *Systematic Entomology* 24: 51–84. <https://doi.org/10.1046/j.1365-3113.1999.00067.x>
- Erber D, Wheeler CP (1987) The Coleoptera of the Salvagem Islands, including a catalogue of the specimens in the Museu Municipal do Funchal. *Boletim do Museu Municipal do Funchal* 39: 156–187.
- Gordon RD, Hanley GA (2014) Systematic revision of American Glaresidae (Coleoptera: Scarabaeoidea). *Insecta Mundi* 333: 1–91.
- Král D, Batelka J (2017) Arthropod Fauna of the UAE: Order Coleoptera, superfamily Scarabaeoidea. *Arthropod Fauna of the UAE* 6: 78–168.
- Král D, Bezděk A (2016) Family Glaresidae. In: Löbl I, Löbl D (Eds) Catalogue of Palaearctic Coleoptera. Volume 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea. Revised and Updated Edition. E. J. Brill, Leiden–Boston, 58.
- Král D, Hružová L, Lu YY, Bai M (2017) First records of Glaresidae (Coleoptera) in China, with the description of a new species from Inner Mongolia and Shaanxi. *Zootaxa* 4306: 145–150. <https://doi.org/10.11646/zootaxa.4306.1.11>
- Machado A, Oromí P (2000) Elenco de los Coleópteros de las Islas Canarias (Catalogue of the Coleoptera of the Canary Islands). Instituto de Estudios Canarios, La Laguna, 308 pp.
- Oromí P (2004) Biospeleology in Macaronesia. *AMCS Bulletin 19 / SMES Boletín* 7: 98–104.
- Oromí P, Martín E, Zurita N, Cabrera A (2005) Coleoptera. In: Arechavaleta M, Zurita N, Marrero MC, Martín JL (Eds) Lista preliminar de espécies silvestres de Cabo Verde. Fungos, Plantas e Animais Terrestres. Consejería de Medio Ambiente y Ordenación Territorial, Gobierno de Canarias, 78–86.
- Paulsen MJ (2016) Two new species of South American Glaresidae (Coleoptera: Scarabaeoidea). *Zootaxa* 4154: 595–600. <https://doi.org/10.11646/zootaxa.4154.5.9>

- Petrovitz R (1968) Die Afrikanischen Arten der Gattung *Glaresis* Erichson nebst einer mit dieser nahe verwandten neuen Gattung. Entomologische Arbeiten aus dem Museum G. Frey 19: 257–271.
- Scholtz CH (1982) Catalogue of world Trogidae (Coleoptera, Scarabaeoidea). Entomology Memoir. Department of Agriculture and Fisheries Republic of South Africa 54: 1–27.
- Scholtz CH (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 CH, Grebennikov VV (2016) 12. Scarabaeiformia Crowson, 1960. In: Beutel RG, Leshen RAB (Eds) Coleoptera, Beetles. Volume 1: Morphology and systematics (Archostemata, Adepnaga, Myxophaga, Polyphaga partim). In: Kristensen NP, Beutel RG (Eds). Handbook of Zoology. A natural history of the phyla of the animal kingdom. Vol IV. Arthropoda: Insecta, Part 38, 2<sup>nd</sup> edn. Walter de Gruyter, Berlin, 367–425.
- Zidek J (2015) A review of the Glaresidae (Scarabaeoidea). *Animma.X* 6: 1–44.