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SHORT COMMUNICATION

Significant range expansion for the rove beetle genus *Deleaster*, based on a new species from Papua New Guinea (Coleoptera: Staphylinidae: Oxytelinae)

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Abstract. *Deleaster wilhelmensis* sp. nov (Staphylinidae: Oxytelinae: Deleastrini) is described and illustrated from Mount Wilhelm, Papua New Guinea. It is the first species of *Deleaster* Erichson, 1839 recorded from Oceania and represents a significant expansion of the known range of the genus.

Key words. Coleoptera, Staphylinidae, *Deleaster*, new species, Papua New Guinea

Zoobank: http://zoobank.org/urn:lsid:zoobank.org:pub:E556C40E-037D-432C-9CD6-2C3414E5C4C9

Introduction

Deleaster Erichson, 1839 is a small genus of distinctive but rarely collected Oxyteline rove beetles currently placed in the tribe Deleasterini (Khachikov 2012). The genus currently contains ten extant described species patchily distributed as follows: 5 in the Palearctic, 2 in the Nearctic and 3 in the Ethiopian Region (A. Newton, unpublished database, see Fig. 2). Also, there is one extinct species, *D. grandiceps* Wickham, 1912, from the Upper Eocene Florissant Formation, Colorado, USA (Wickham 1912, Herman 2001).

Until now *Deleaster* was unknown from the Oceanian realm (sensu Holt et al. 2013) while the south-easternmost border of the genus distribution in Asia was *D. taiwanensis* Hayashi, 1984 from Taiwan. Therefore the discovery of *Deleaster wilhelmensis* sp. nov from Papua New Guinea described here represents a significant and remarkable range expansion for the genus.

Material and methods

Label data is transcribed verbatim. Additional data not printed on the label is given in square brackets []. Two forward slashes // indicate a separate label. The habitus photograph was taken using a Canon EOS 5D Mark III with a Canon MP-E 65mm macro lens. The other photos were taken using a Canon EOS 6D and Leica M205 C stereomicroscope. Photos were stacked using Zerene Stacker (Zerene Systems LLC, 2012). The illustration in Fig. 1D was digitally inked using Adobe Illustrator CS6. The map was created using SimpleMappr (Shorthouse 2010) and edited in Adobe Photoshop CS6; distributions are based on data from the Global Biodiversity Information Facility (https://www.gbif.org), Herman (2001) and Cuccodoro & Makranczy (2013).

All measurements are given in millimetres (mm) and were taken using the ImageJ software (Rasband 2016). The following measurements were taken in accordance with Cuccodoro & Makranczy (2013), with 'shoulders' referring to the humeral angels of the elytra: HW = head width with eyes; TW = head width at temples; PW = maximum width of pronotum; sW = approximate width of shoulders; AW = maximum width of abdomen; Hl = head length (from front margin of clypeus to the beginning of neck in the mid-line); el = length of eye; Tl = length of temple; Pl = length of pronotum in the mid-line; sl = length of elytra from shoulder; sC = length of elytra from hind apex of scutellum; FB = forebody length (combined length of head, pronotum and elytra); Bl = approximate body length.

The holotype is deposited in the Australian National Insect Collection, CSIRO, Canberra, Australia (ANIC).

Results

Deleaster wilhelmensis sp. nov.

Type locality. Papua New Guinea, Eastern Highlands, Mt. Wilhelm, Pengal River, 9200 ft. [ca.2760 m], [approximate coordinates: 5°47′S 145°05′E.

Type material. HOLOTYPE: ♀: "New Guinea, Eastern Highlands, Mt. Wilhelm. Pengal River, 9200 ft., 16.5-9.6.1963. W. W. Brandt // Deleaster det. A.F. Newton 1987 // ANIC Specimen [green label] // HOLOTYPE *Deleaster wilhelmensis* sp. nov. Jenkins Shaw des. 2017". The holotype is deposited in the Australian National Insect Collection (ANIC).

Description. Measurements (all in millimeters): HW = 1.41; TW = 1.13; PW = 1.33; SW = 2.26; AW = 2.43; Hl = 1.03; el = 0.55; Tl = 0.27; Pl = 1.13; sl = 2.55; sC = 2.23; FB = 4.9; Bl = 7.6.

Habitus as in Fig. 1A. Overall dark brown with head appearing slightly darker, almost black. Antennae dark brown. Legs light brown; tarsi slightly paler than tibiae and femora.

Head excluding clypeus transverse; clypeus strongly produced with two pairs of small punctures situated laterally. Head and clypeus with linear microsculpture. Vertex with two punctate impressions extending from posterior edge of head to inner margin of eyes. Labrum weakly emarginate. Frontoclypeal (epistomal) suture distinct (Fig. 1B: fs). Temples with weak setiferous punctures. Neck with distinct transverse microsculpture. Antennae with first antennomere distinctly thickened compared to subsequent antennomeres; third antennomere as long as first antennomere. Antennal insertions almost obscured in dorsal view. All antennomeres with both macro and micro setae. Apical area of antennomeres six to ten with short, stout white setae (referred to as 'ciliae' by Hayashi (1984)).

Pronotum widest anteriorly, weakly narrowed posteriorly; front angles forming an evenly rounded right angle; hind angles evenly rounded. Dorsal surface with distinct linear microsculpture and weak punctures throughout, the distance between the punctures equal to the diameter of two or three punctures combined. Pair of larger punctures present towards anterior margin of pronotum. Laterobasal areas of pronotum each with impression extending halfway along edge of pronotum, with some micro setae at the posterior end of each impression. Central basal area with distinct transverse impression. Hypomeron large; covered with microsculpture (Fig. 1C: hy). Apex of basisternum acute. Scutellum slightly paler than elytra; with rugose microsculpture and pale pubescence. Elytra widest at apical third; confusely but weakly punctured with short pale setae; weak rugose microsculpture present between elytral punctures. Hind wings apparently present (not studied), folded under elytra. Legs rather long and slender; fifth tarsomere as long as one to four combined. Claws half the length of fifth protarsomere.

Abdomen broadest at tergite IV. Tergites covered in short pale setae; weak transverse microsculpture present except at medioapical area of each tergite. Tergites III to VI with

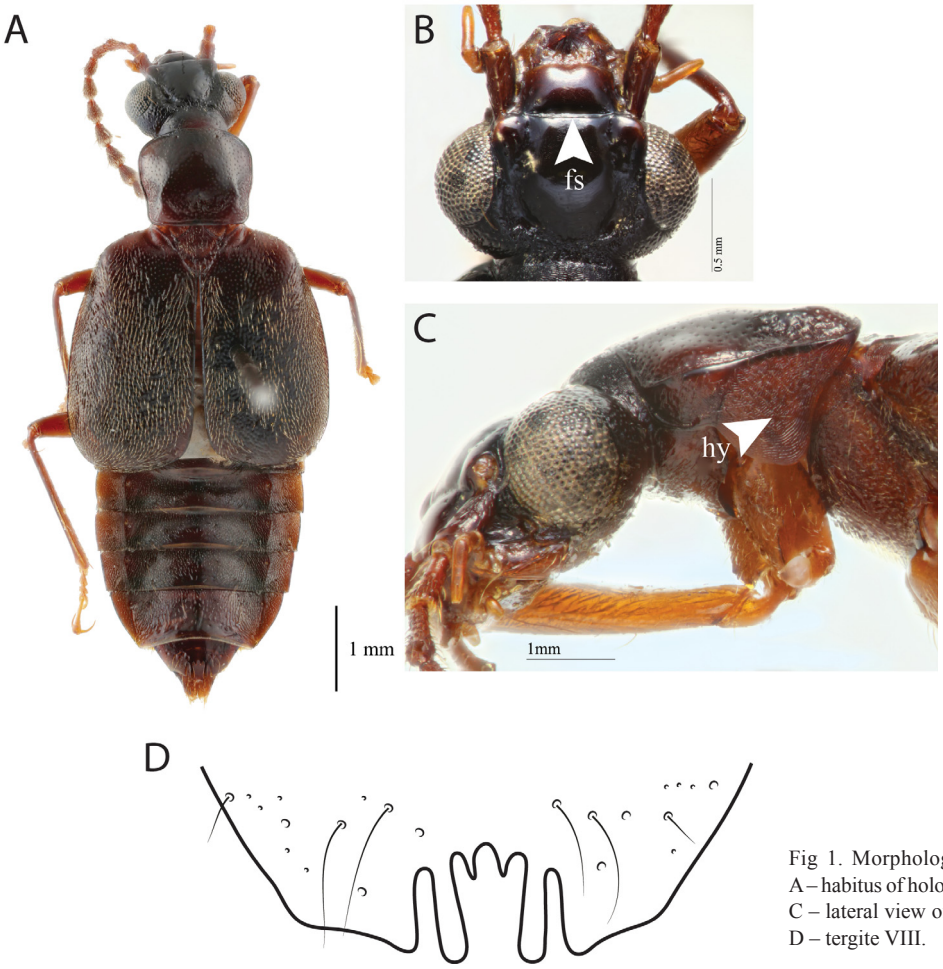

Fig 1. Morphology of *Deleaster wilhelmensis* sp. nov. A – habitus of holotype. B – head (fs – frontoclypeal suture). C – lateral view of head and prothorax (hy – hypomeron). D – tergite VIII.

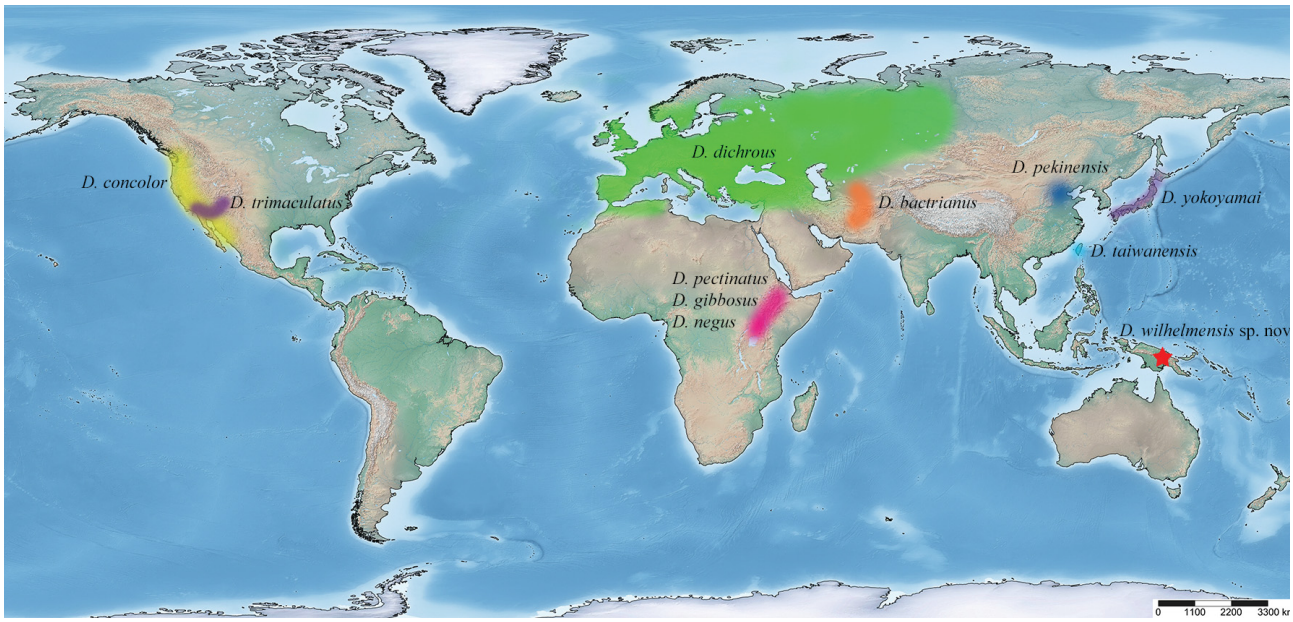

Fig 2. Distribution of extant *Deleaster* Erichson, 1839.

widely separated pair of long golden macro setae situated close to posterior margin; tergite VII with two pairs of widely seperated long golden macro setae situated close to posterior margin. Tergite VIII with middle of apical margin deeply incised, forming pair of small teeth, each bordered by a long lobe (Fig. 1D).

Differential diagnosis. Aside from being a geographic outlier within the genus (Fig. 2), *D. wilhelmensis* may be distinguished from congeners based on the following combination of characters: overall dark brown colouration; pronotum without pubescence; distinctly wide and rounded lateral contour in apical third of elytra; abdomen widest at tergite III; tergite VIII with middle of apical margin deeply incised, forming pair of small teeth, each bordered by a long lobe (Fig. 1D). Cuccodoro & Makranczy (2013) were the first to mention and illustrate the structure of tergite VIII in the genus and in the Afrotropical *Deleaster* they noted the shape was similar in both sexes. *Deleaster wilhelmensis* can be distinguished from congeners based on the following: from *D. dichrous* (Gravenhorst, 1802) and *D. trimaculatus* Fall, 1910 by the dark colouration of the elytra; from *D. pectinatus* Fauvel, 1882, *D. gibbosus* Cuccodoro & Makranczy, 2013 and *D. negus* Cuccodoro & Makranczy, 2013 by the shape of tergite VIII (middle of apical margin deeply incised, forming pair of small teeth, each bordered by a long lobe); from *D. yokoyamai* Adachi, 1935 by the presence of microsculpture on the head, longer second antennomere compared to third and lack of pubescence on the pronotum; from *D. bactrianus* Semenow, 1900 by the longer second antennomere compared to third, front angles or pronotum evenly rounded (obtuse in *D. bactrianus*) and abdomen widest at tergite IV (tergite V in *D. bactrianus*); from *D. taiwanensis* Hayashi, 1984 by the abdomen widest at tergite IV (tergite V in *D. taiwanensis*) and shape of tergite VIII (described as 'shallowly emarginate' for *D. taiwanensis* by Hayashi (1984)).

Etymology. The species name refers to the fact that the only known specimen of *D. wilhelmensis* was collected from Mount Wilhelm, Papua New Guinea. It is an adjective derived from the mountain's name.

Distribution and bionomics. The single known specimen was collected from Mount Wilhelm at about 2760 m with the locality given as Pengal River (Fig 2). According to Bishop Museum (1966) and Sibatani (1974), Pengal River as referred to in Brandt's collection is 'Pengal R (upper), 5° 47' 145° 05', 2760 m' and is apparently on the east side of Mount Wilhelm and the northern slope of the Bismarck Range, upstream of the Imbrum River. Although the precise habitat or method of collecting for this specimen is unknown, most likely it is a riparian. It is notable that all known species of *Deleaster* are confined to wet habitats (e.g. stream banks, leaf litter, caves, under stones) and often in mountainous regions (Grebennikov 2002).

Discussion

The description here of *Deleaster wilhelmensis* sp. nov from Papua New Guinea extends the known range of the genus into a new biogeographic realm (Oceania) (Fig. 2). The disjunct distribution of *Deleaster* (Fig. 2) led Herman (1970) to suggest that the genus was 'old' in age. The type locality of *D. wilhelmensis* at ca. 2760 m gives support to the assertion that *Deleaster* is a cold adapted genus with species in the southern part of the range usually found in mountainous areas and those in the northern areas more generally distributed (Herman 1970). It is therefore also notable that the Afrotropical species are so far only known from altitudes above 2515 m (Cuccodoro & Makranczy 2013). Given that a robust molecular phylogeny of the entire subfamily Oxytelinae is still lacking, questions relating to the temporal and spatial evolution of *Deleaster* will remain unanswered for quite some time. However, the description here of *Deleaster*

wilhelmensis sp. nov further emphasize the phylogenetic and biogeographic importance of the lineage to which *Deleaster* belongs.

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