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Nebria (*Patrobonebria*) *megalops* sp. n. from Yunnan (China) (Coleoptera, Carabidae)

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Nebria (*Patrobonebria*) *megalops* sp. n. from Cang Shan near Dali/Yunnan (China) is described. The new species is related to *N.* (*Patrobonebria*) *desgodinsi* Oberthür, 1883, and is the species with the easternmost distribution in the Himalayan range of the subgenus.

Keywords: Coleoptera, Carabidae, *Nebria*, *Patrobonebria*, taxonomy, new species, Yunnan, China.

INTRODUCTION

The subgenus *Patrobonebria* Bänninger, 1923 is a small group of only six species of the genus *Nebria* Latreille, 1802 comprising *N. desgodinsi* Oberthür, 1883, *N. himalayica* Bates, 1889, *N. elegans* Andrewes, 1925, *N. capillosa* Ledoux & Roux, 1992, *N. pertinax* Huber & Schmidt, 2009, and *N. assidua* Huber & Schmidt, 2009. All species are restricted to the Himalayan range sensu stricto covering an area from Afghanistan to Sikkim.

Huber & Schmidt (2009) gave new records of *N. desgodinsi* Oberthür, 1883, which is known up to now to be the *Patrobonebria* species with the easternmost distribution (Eastern Nepal, Sikkim). Newly collected specimens by the junior author on the Cang Shan near Dali/Yunnan (China) turned out to be a new *Patrobonebria* species outside of the known distribution area of the subgenus. The new species is described below.

MATERIAL AND METHODS

The type series was collected at the southern slope of Cang Shan, a chain of the Yunlin Mountains on the southern fringes of the Hengduan Mountains system, which for its part forms the eastern extent of the Himalayan range sensu lato. Although the eastern slope of Cang Shan near Dali city has been visited by naturalists since the 19th century, hardly any entomologists have ever visited the southern slope.

Abbreviations and material depository:

NMB: Natural History Museum Basel, Switzerland
NMBE: Natural History Museum Bern, Switzerland
IZAS: Institute of Zoology, Chinese Academy of Sciences, Beijing, China

Fig 1: Head of *Nebria* (*Patrobonebria*) *megalops* sp. n. Scale bar: 1 mm.

The photographs were made with a digital camera Leica DFC 425, and the images were processed by the automated multifocus software (Imagic Image Access, Version 10).

DESCRIPTION

Nebria (*Patrobonebria*) *megalops* sp. n.

Material examined. Holotype male: China, Yunnan prov., Dali, Cang Shan, Da Po Qing vill., 2000–2200 m, 25° 34' N, 100° 08' E, 15. 4. 2011, Michael Geiser leg. (NMB).— Paratypes: 3 males, 4 females, same data as holotype (NMB, NMBE, IZAS).

Diagnosis. By reason of the collar impression of the head, the bisetose penultimate labial palpomere, and the dilated protarsomeres 1–2 in the male, *N. megalops* sp. n. belongs of the subgenus *Patrobonebria* defined by Bänninger (1923).

Description. Body length: 13.5–15 mm. Colour black, mandibulae und appendages of the head brown. Head usually with two small brown spots on the vertex. Antennae brown, the four basal antennomeres lightened brown. Legs black, except tibia and tarsus lightened brown.

Head large, with a distinct transverse collar impression of the neck behind the eyes (fig 1). Mandibles conspicuously long. Labrum with anterior margin distinctly trisinuate, medially deeply notched, bearing 6 setae. Apical margin of clypeus slightly concave. Supraorbital impression distinct, obliquely wrinkled. Head near supraorbital seta longitudinally wrinkled. Vertex and collar impression distinctly

Fig 2: Pronotum of *Nebria* (*Patrobonebria*) *megalops* sp. n. lip: lateral impression of the pronotum; blip: basolateral impression of the pronotum. Scale bar: 1 mm.

punctate. Hemispheric eyes very prominent. Temples long, regularly rounded towards the neck. Antennae long and slender, extending to the middle of the elytra. Antennal scape subcylindrical, basally narrowed, shorter than the eye's diameter, with 1 dorsal seta (rarely bisetose). 4th antennomere only with an apical collar of long setae and only few additional short setae. Ligula blunt with 2 long setae apically. Maxillary stipes basolaterally with 5–7 robust setae. Penultimate labial palpomere bisetose. Mentum with bifid medial tooth. Submentum with a row of 4–8 setae. Microsculpture of the head isodiametric.

Pronotum cordate (fig 2), transverse, widest at apical fifth; ratio width/length of the pronotum 1.39 (1.34–1.42). Lateral margin convex, with a distinct concave lateral impression at the insertion site of the midlateral seta deforming the curve of the lateral margin. Pronotum narrowed towards the anterior angles, strongly and almost in a straight line narrowed towards the posterior angles, concavely and sharply angled before the posterior angles. Posterior angles acute, slightly protruding outwards. Posterior angles distinctly narrower than the anterior ones (0.78 (0.76–0.81)). Lateral groove narrow, narrowest at the insertion site of the midlateral seta, apically distinctly broadened. Anterior angles large, of triangular shape, protruding. Basal margin bisinuate. Pronotal disc convex, transversally wrinkled. Basal fovea deep, not reaching the basal margin. Anterior and posterior transverse impressions deep, median longitudinal impression weak. Basal fovea, the anterior and the posterior transverse impressions and the narrow lateral groove tightly and coarsely punctate.

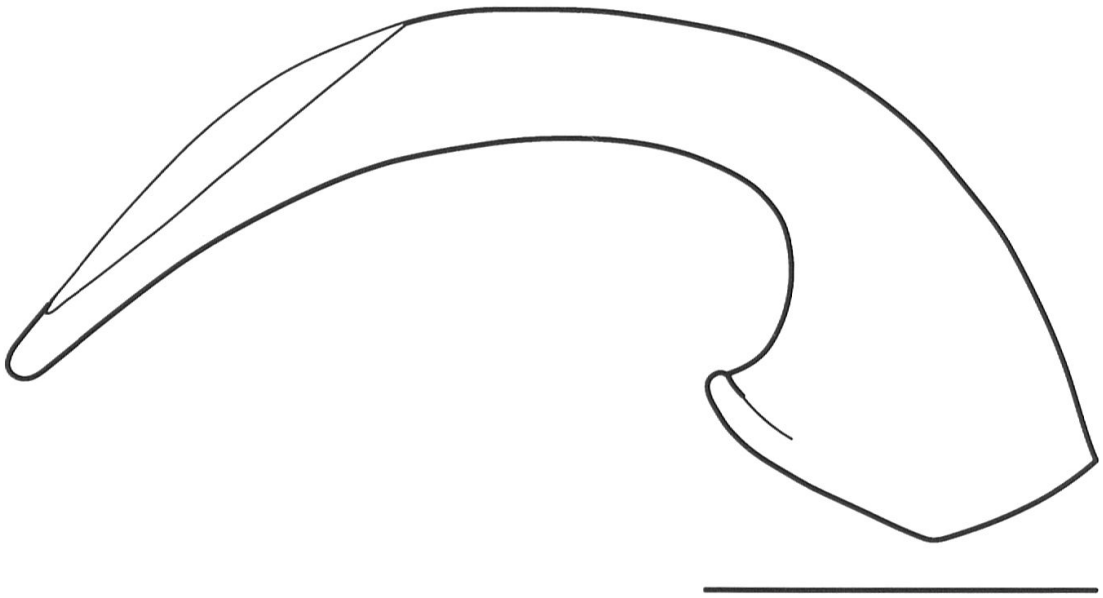

Fig 3. Median lobe of *Nebria* (*Patrobonebria*) *megalops* sp. n. Scale bar: 1 mm.

Apical and basal margination absent. 1 midlateral and 1 basolateral seta present. Microsculpture of the pronotum isodiametric. Pronotal disc faintly and sparsely punctate. Proepisternum punctate. Prosternal process broad, triangular, longitudinally bulged, unmargined.

Elytral silhouette parallel-elongate. Lateral margin at the basal fourth with a faint concave impression, subapically faintly sinuate. Elytral apex rounded. Basal margination curved, joined at an obtuse angle with the lateral margination. Humeral carina faint. Striae distinct, distinctly punctate. Striae 1–3 reaching the apex, the other striae obliterated just before the apex. Intervals faintly convex, interval 3 with 6–8 setae. Scutellar seta present. Microsculpture isodiametric. Mesepisterna tightly punctate. Metepisterna 2.5 times as long as wide, coarsely and tightly punctate. Metacoxa with 3–4 basal and 1 apical setae. Hindwings fully developed. 2nd sternum (sensu Ledoux & Roux 2005) laterally rough, coarsely punctate. 3rd abdominal sternum medially asetose. Sterna 4–6 each with 2–3 posterior paramedial setae. Anal sternum with 1 paramedial seta in the male and 2 in the female. All sterna with faint impressions laterally.

Legs long and slender. All tarsi without a dorsal pubescence. Protarsus of the male with tarsomeres 1–2 dilated, ventrally with pads of adhesive setae. Metatarsomere 4 with a short ventroapical tooth, bearing long setae. Metatarsomere 5 slender, ventrally with 2 rows of only 1–2 short setae. Metatarsomere 5 shorter than the metatarsomeres 3+4. Metatarsomeres 2–4 laterally compressed.

Median lobe (fig 3): Basal part of the median lobe large. Mid-shaft slender, narrowed directly after the basal part, slightly curved to the apex. Apex slender, acute, faintly deflected towards the left.

Etymology: The specific epithet refers to the distinctly protruding hemispheric eyes.

Affiliation. Due to the parallel sided elytra and the faintly punctate vertex, *N. megalops* sp. n. belongs to the *N. desgodinsi* group (*N. desgodinsi* Oberthür, 1883 and *N. capillosa* Ledoux & Roux, 1992). *N. megalops* sp. n. is closely related to *N.*

desgodinsi from which it is separated by the distinct concave impression of the pronotum at the insertion site of the midlateral seta, by the narrow lateral groove of the pronotum, and by the blackish legs. *N. capillosa* differs from *N. megalops* sp. n. and from *N. desgodinsi* by the polypilose apex of antennomere 4 and by the slender pronotum.

Ecology. *N. megalops* sp. n. is a hydrophilic, riparian species.

Collecting circumstances. The vicinity of Da Po Qing village, at slightly over 2000 m a. s. l., is mainly covered by dry *Pinus* forests and irrigated, small-scale agricultural fields. All specimens of the new species were found under stones directly beneath a waterfall (see fig 4), accompanied by other Carabidae species (*Bembidion eurydice* Andrewes, 1926; *Onycholabis* sp.) and large numbers of *Dianous* sp. (Staphylinidae). Further searching along the course of the same stream remained unsuccessful, which may indicate that *N. megalops* sp. n. is restricted to these extremely wet microhabitats.

Distribution. *N. megalops* sp. n. is known from the *locus typicus* only.

The new species is the species with the south-easternmost distribution of the subgenus *Patrobonebria*. There is a large distributional gap of more than a thousand kilometers between the area of *N. desgodinsi* in Eastern Nepal and Sikkim and *N. megalops* sp. n. in Yunnan. Due to the fully developed hind wings, a wide distribution area of *N. megalops* sp. n. is to be expected, as it is the case in *N. himalayica*, *N. elegans* and *N. capillosa* (Ledoux & Roux 2005).

Remarks. The lateral concave impression of the pronotum is very pronounced in *N. megalops* sp. n. (Fig. 2), less pronounced in *N. himalayica*, *N. capillosa* and *N. elegans* (Ledoux & Roux 2005), and only covertly present in *N. desgodinsi* and *N. assidua* (see fig. 2 in Huber & Schmidt 2009). This deformation of the marginal curve is a unique and synapomorphic character of this species group. The lateral pronotal deformation is absent only in *N. pertinax*.

Ledoux & Roux (2005, p. 616) mentioned a unique and immature (and therefore hardly determinable) specimen similar to *N. desgodinsi* from Daxue Shan/Gongga Shan (Sichuan), which is north of the area of *N. megalops* sp. n. and which is situated right in the middle of the large distributional gap along the mountain ranges between these two species. This single record indicates that further populations or even taxa of *Patrobonebria* are to be expected in the south-eastern extensions of the Himalayas sensu lato in the Chinese provinces of Sichuan and Yunnan.

The record of *N. megalops* sp. n. seriously enlarges the distribution area of the subgenus *Patrobonebria* and proves the occurrence of the subgenus in the whole Himalayan range sensu lato from Afghanistan to Yunnan/China.

Fig 4: Habitat of *Nebria* (*Patrobonebria*) *megalops* sp. n. near Da Po Qing village near Dali/Yunnan (China). Photo: M. Geiser.

KEY

The steps 2 and 4 of the determination key in Huber & Schmidt (2009) have to be modified:

2 Legs and appendices of the head yellow, distinctly brighter than the body . . 3
– Legs and appendices of the head brown to black, scarcely brighter than the body 4
4 Outline slender. Shoulder less distinct, elytra ovoid-elongate. Kashmir to Kumaon Himalaya . . . . . ***N. elegans*** Andrewes, 1925
– Outline robust. Shoulder distinctly produced, elytra parallel or subparallel . .4a
4a Pronotum flat. Lateral groove of the pronotum large, lateral margin evenly rounded. Afghanistan to Central Nepal . . . . . ***N. himalayica*** Bates, 1889
– Pronotum strongly convex. Lateral groove of the pronotum narrow, lateral margin with a distinct concave impression at the insertion site of the mid-lateral seta. Cang Shan/Yunnan . . . . . ***N. megalops*** sp. n.

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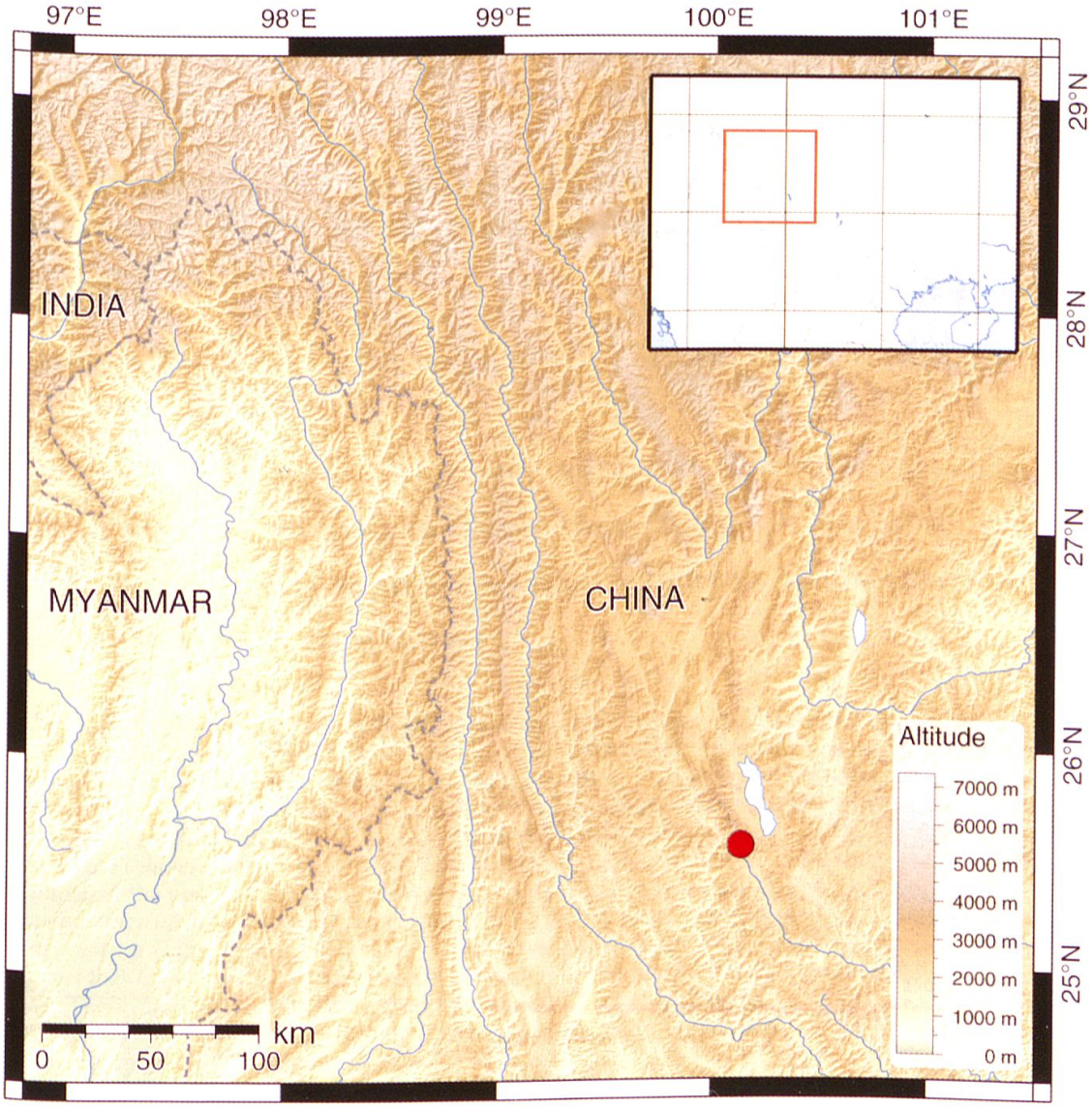

Fig 5: *Locus typicus* (Cang Shan) of *Nebria* (*Patrobonebria*) *megalops* sp. n. near Dali and near Erhai lake/Yunnan (China). Map design: Eva Feltkamp.

ZUSAMMENFASSUNG

Nebria (*Patrobonebria*) *megalops* sp. n. aus dem Cang Shan bei Dali/Yunnan (China) wird beschrieben. Die neue Art steht *N. desgodinsi* Oberthür, 1883 nahe und ist diejenige *Patrobonebria*-Art mit der östlichsten Verbreitung im Himalaya.

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