

# Two new species of Himalayan and sub-Himalayan *Neuraphes* Thomson (Coleoptera: Staphylinidae: Scydmaeninae)

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## Abstract

*Neuraphes* (*Pararaphes*) *mephistopheles* **n. sp.** from Nepal (Taplejung), and *N. (P.) qinghaiensis* **n. sp.** from China (Qinghai) are described, illustrated, and compared to allied species.

**Key words:** Coleoptera, Staphylinidae, Scydmaeninae, *Neuraphes*, *Pararaphes*, Himalaya, Nepal, Tibet, China, taxonomy, new species.

## Zusammenfassung

*Neuraphes* (*Pararaphes*) *mephistopheles* **n. sp.** aus Nepal (Taplejung) und *N. (P.) qinghaiensis* **n. sp.** aus China (Qinghai) werden beschrieben, abgebildet und mit ähnlichen Arten verglichen.

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## 1 Introduction

The Himalayan species of *Neuraphes* Thomson, 1859 (Scydmaeninae: Cyrtoscydmini) were very recently revised by JAŁOSZYŃSKI (2008). As a result, several misidentifications and synonyms were found, and the presently known six members of the genus occurring in the Himalaya Mountains and Tibet were dealt with. The valid species are: *N. aruensis* Franz, 1979, *N. himalayanus* Franz, 1970, *N. jumlanus* Franz, 1974, *N. taksangensis* Franz, 1973, *N. khumbuanus* Jałoszyński, 2008 (all from Nepal), and *N. tibetanus* Jałoszyński, 2008 (from Tibet). All these species are members of the subgenus *Pararaphes* Reitter, 1891, characterized by lacking foveae on the vertex. Since most East Palearctic members of this genus seem to be associated with cool or mountainous areas (e. g., Himalaya Mountains, Russian Far East, Hokkaido), the very small number of species reflects the inadequate knowledge of the Scydmaeninae of this region rather than the actual biodiversity of the genus. Indeed, my further studies on Himalayan and sub-Himalayan taxa resulted in the discovery of two new species, which are described below.

Measurement methods and nomenclature follow JAŁOSZYŃSKI (2008).

### Acronym of depository

SMNS Staatliches Museum für Naturkunde, Stuttgart,  
Germany

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## 2 Taxonomy

*Neuraphes* (*Pararaphes*) *mephistopheles* **n. sp.**  
(Figs. 1, 3–6)

**Holotype** (♂): Nepal, Taplejung Distr., Lassetam, NW Yamputhin, 3300–3500 m, 6.–9.V.1988, leg. J. MARTENS & W. SCHAWALLER, SMNS.

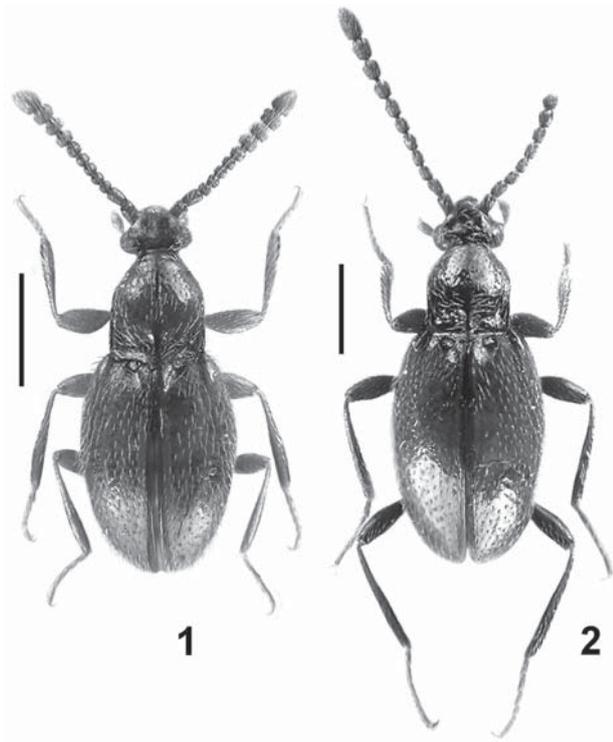
### Etymology

The species name is derived from the devil MEPHISTOPHELES in the FAUST legend, and refers to the pair of horns on the head of this species.

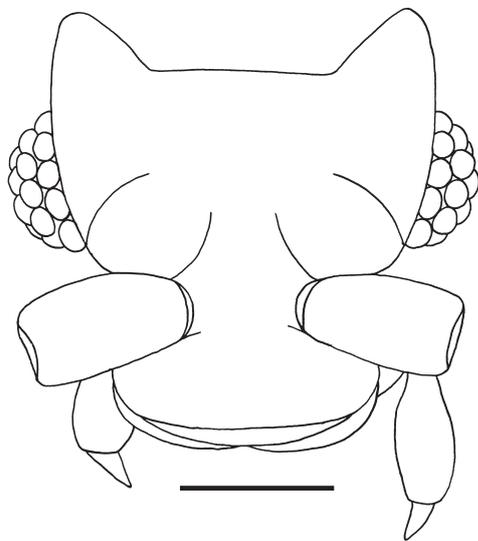
### Description of male (female unknown)

Body (Fig. 1) light brown, with slightly lighter tarsi and palps, moderately slender in dorsal view, strongly convex, covered with a light brown vestiture; body length 1.58 mm.

Head (Fig. 3) small, length 0.20 mm, width 0.30 mm; occipital constriction much broader than half width of head; posterior margin of vertex developed as a transverse ridge, which is strongly expanded at each side, and forms a pair of prominent, subconical lateral horns; median part



**Figs. 1–2.** *Neuraphes* spp. – 1. *N. mephistopheles* n. sp., holotype ♂. 2. *N. qinghaiensis* n. sp., holotype ♂. – Scales: 0.5 mm.



**Fig. 3.** *Neuraphes mephistopheles* n. sp., holotype ♂, simplified outline of head in frontal view. – Scale: 0.1 mm.

of vertex and posterior part of frons concave; anterior part of frons convex between antennal insertions; clypeus convex; supra-antennal tubercles large and well-marked; eyes large, strongly convex, coarsely faceted. Punctures on median part of vertex very fine, moderately distinct, very sparse; setae on median part of vertex and on entire frons short, sparse and suberect, those on lateral horns slightly longer, directed dorsally. Antennae short, moderately slender, length 0.75 mm; antennomere I twice as long as broad; II distinctly narrower and shorter than I, 1.8 times as long as broad; III slightly narrower than II and very short, distinctly transverse; IV–V equal in length and width, each as broad as III but slightly longer, only slightly broader than long; VI slightly broader but not longer than V, distinctly broader than long; VII distinctly broader and longer than VI, slightly broader than long; VIII larger than VII, distinctly broader than long; IX–X each of the same shape as VIII but gradually larger; XI slightly narrower than X, distinctly shorter than IX–X together.

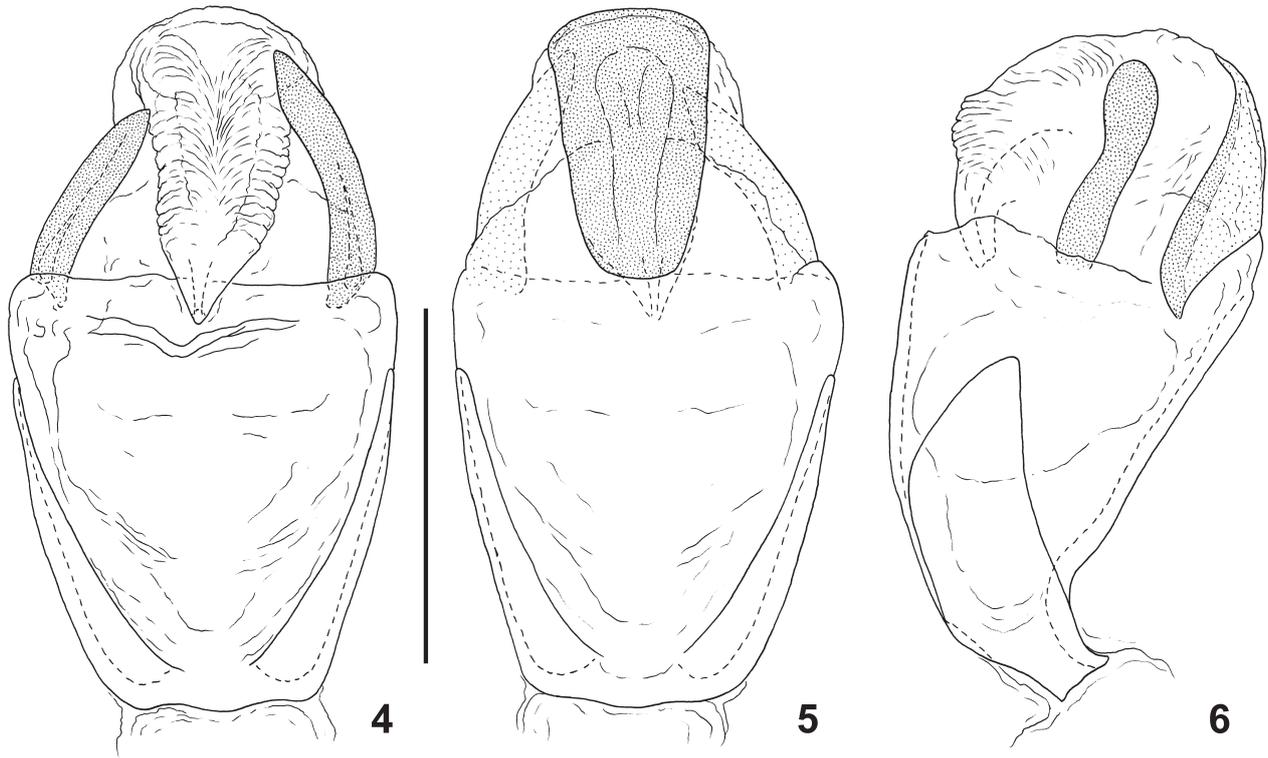
Pronotum elongate in dorsal view, subtrapezoidal, broadest at base, length 0.45 mm, width 0.38 mm; anterior margin broadly and strongly rounded; lateral margins strongly rounded in anterior third, straight in posterior half, slightly divergent towards slightly obtuse, acute hind angles; posterior margin arcuate; base with two transversally elongate lateral pits and a pair of shallow median pits which are separated by a very distinct median longitudinal carina nearly reaching to anterior fifth of pronotum. Punctures on narrow area along each side of median carina large but shallow, separated by spaces which are equal to or slightly shorter than puncture diameters; punctures on sides of pronotal disc similarly dense, but much smaller and indistinct; setae sparse, moderately long, suberect on disc, and erect on anterior and lateral margins of pronotum.

Elytra oval, broadest between middle and anterior third, length 0.93 mm, width 0.65 mm, elytral index (length/width) 1.42. Humeral calli well-marked as elongate, longitudinal wrinkles; basal pit on each elytron moderately large, closer situated to scutellum than to humerus; short adsutural area at base raised, round circumsutural area posterior to raised region slightly flattened; apices of elytra separately rounded; each elytron bears a large pore on subapical region, surrounded by slightly raised cuticle, and separated from apex of elytron by a space as long as pore diameter, and from suture by a space shorter than pore diameter. Punctures on flattened median area large but very shallow, with slightly diffused margins, separated by spaces about equal to puncture diameters; punctures gradually smaller and less distinct towards lateral and posterior margins of elytra; setae similar to those on pronotum, but slightly thicker.

Hind wings well-developed, functional.

Legs long and slender, without modifications.

Aedeagus (Figs. 4–6) 0.20 mm in length, stout, with very large and long, subtrapezoidal median apical plate



**Figs. 4–6.** *Neuraphes mephistopheles* n. sp., aedeagus in dorsal (4), ventral (5), and lateral (6) views. – Scale: 0.1 mm.

and narrow lateral apical plates; parameres short and very broad, with subtriangular apices.

#### Diagnosis

This conspicuous species can be easily distinguished from all congeners on the basis of the uniquely modified vertex with a pair of broadly separated “horns”. Moreover, in the Himalaya Mountains, only *N. taksangensis* and *N. aruensis* have uniformly brown bodies similar to that of the new species (all other Himalayan species have head and pronotum much darker than elytra), but they have a distinctly shorter median carina on the pronotum, different proportions of the body parts, and different structures of the aedeagi.

#### *Neuraphes (Pararaphes) qinghaiensis* n. sp. (Figs. 2, 7–9)

**Holotype** (♂): China, Qinghai Prov. (Tibetan Plateau), Bei Shan National Park, 120 km NE Xining, 23.V.–8.VI.1996, 2300–2700 m, leg. J. MARTENS, SMNS.

#### Etymology

Locotypical, after the type locality, Qinghai Province in Chinese Tibet.

#### Description of male (female unknown)

Body (Fig. 2) distinctly bicolorous, head and pronotum very dark brown, nearly black, elytra reddish-brown; antennae, maxillary palps and tarsi lighter than elytra; femora slightly darker than elytra; tibiae slightly lighter than femora in their basal half, distinctly lighter in their distal half; body slender, moderately convex; vestiture grayish on dark body parts, yellowish on light body parts; body length 2.08 mm.

Head moderately small, length 0.33 mm, width 0.40 mm; occipital constriction as broad as two-thirds of head width; vertex convex, with a pair of small, slightly oval and very shallow impressions located on its anterior part just posterior to supra-antennal tubercles, separated by a space as long as 3 times their diameter; frons subtrapezoidal, steeply lowering towards convex clypeus; supra-antennal tubercles small but distinct; eyes very large, strongly convex, coarsely faceted. Punctures on vertex and frons indistinct, surface of cuticle slightly uneven; setae short, sparse, suberect to erect. Antennae very long, slender, length 1.25 mm; antennomere I 2.3 times as long as broad; II slightly narrower and much shorter than I, twice as long as broad; III slightly narrower and much shorter than II, 1.5 times as long as broad; IV as broad as II but slightly longer, 1.7 times as long as broad; V slightly

broader and distinctly longer than IV, 1.8 times as long as broad; VI as broad as V but slightly shorter, 1.5 times as long as broad; VII slightly broader and longer than VI, 1.6 times as long as broad; VIII–IX subequal in size, each about as long as VII but slightly broader, 1.5 times as long as broad; X slightly broader and distinctly longer than IX, 1.8 times as long as broad; XI slightly broader than X, much shorter than IX–X together.

Pronotum elongate in dorsal view, subtrapezoidal, broadest in anterior third, length 0.50 mm, width 0.46 mm; anterior margin broadly and distinctly rounded; lateral margins distinctly rounded in anterior third, straight in posterior two-thirds, distinctly convergent towards slightly obtuse, blunt hind angles; posterior margin arcuate; base with distinct transverse groove which is disrupted in the middle by a narrow median longitudinal carina slightly longer than one-third of pronotal length; carina constricted at crossing with the transverse groove, lateral ends of groove deepened and anteriorly bent forming lateral grooves which are parallel to lateral margins of pronotum, about one-third of pronotum length. Punctures on pronotal disc moderately large, very shallow and slightly irregular

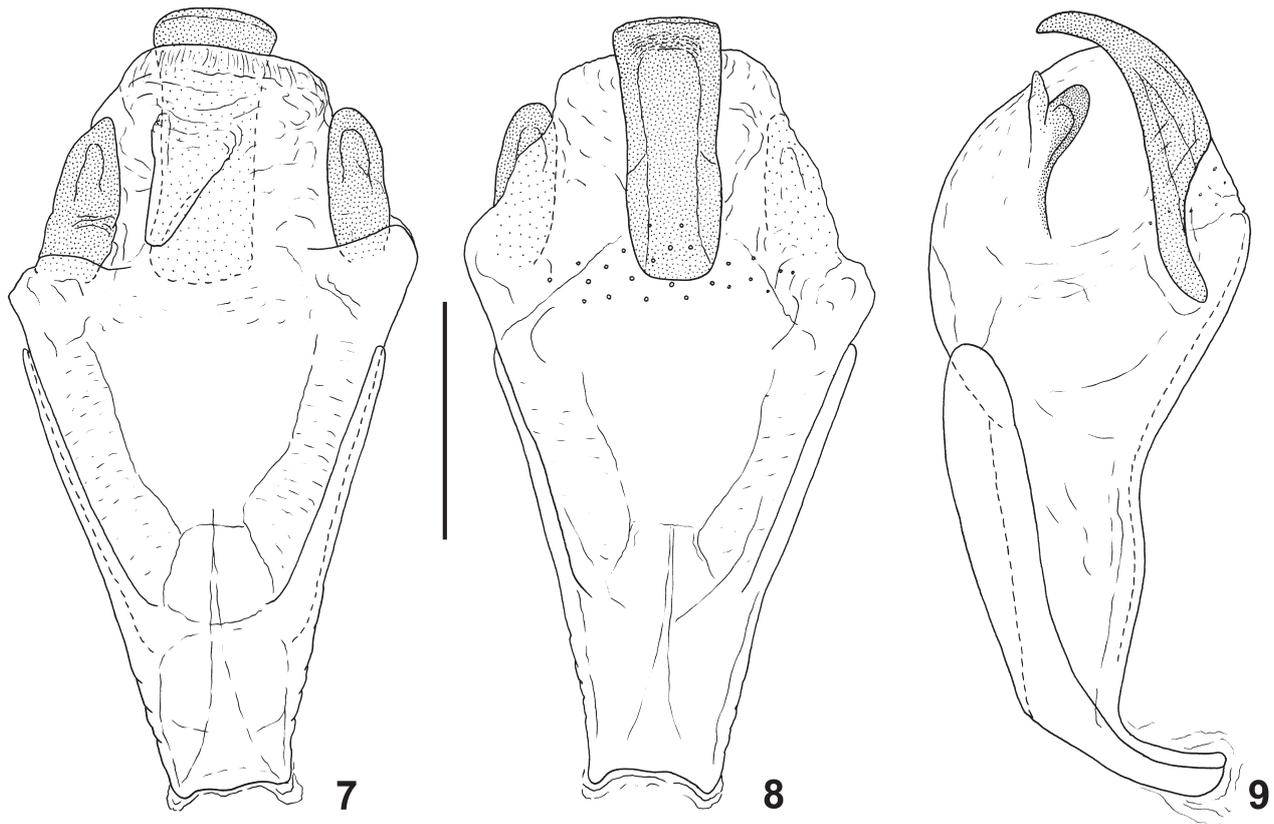
in shape, so that surface of cuticle appears uneven; setae moderately long, sparse, suberect.

Elytra oval, broadest between middle and anterior third, length 1.25 mm, width 0.85 mm, elytral index 1.47. Humeral calli clearly marked as elongate, longitudinal wrinkles; basal pit on each elytron moderately large, much closer situated to scutellum than to humerus; suture in anterior one-sixth of elytra distinctly raised; elytral apices separately rounded; each elytron bearing an extremely small, barely discernible pore on subapical region, surrounded by slightly raised cuticle, and separated from elytral apex by a space as long as about three pore diameters, and from suture by a space slightly longer than pore diameter. Punctures on elytra very shallow, diffused, moderately large, separated by spaces 1.5 times as long as puncture diameters; setae similar to those on pronotum, but slightly thicker.

Hind wings well-developed, functional.

Legs very long and slender, without modifications.

Aedeagus (Figs. 7–9) 0.33 mm in length, relatively slender, with very long and narrow subrectangular median apical plate, and short lateral apical plates; parameres long and slender, with rounded apices.



**Figs. 7–9.** *Neuraphes qinghaiensis* n. sp., aedeagus in dorsal (7), ventral (8), and lateral (9) views. – Scale: 0.1 mm.

### Diagnosis

This large species of *Neuraphes* belongs to a Far Eastern group sharing a distinctly bicolorous body, with a dark brown, nearly black head and pronotum and much lighter, reddish-brown elytra. It differs from all similar congeners in having extremely long antennae which are equal in length to the elytra, and all antennomeres being much longer than broad. Furthermore, the subapical pore on each elytron, a secondary sexual structure found in males in this poorly known species group, is extremely small in *N. qinghaiensis*, surrounded by only slightly raised cuticle, so that it is barely visible under 80 times magnification. This pore is large and located on a diffused but distinct tubercle in the remaining species of this lineage, and is always easily recognizable under 40 times magnification. A combination of the very slender and long median apical plate with short lateral plates in the aedeagus is also not found in any other Himalayan and sub-Himalayan *Neuraphes*.

### Remarks

An interesting and unique character of *N. qinghaiensis* is a pair of very shallow impressions on the vertex located in a similar place where the foveae in *Neuraphes* s. str. are developed. The presence or lack of these pits is

the only diagnostic character differentiating the subgenera in *Neuraphes*. However, the foveae in *Neuraphes* s. str. are deep, and they are not tentorial pits but possibly openings of glands (the pits are connected to a subcuticular cluster of vesicular structures, according to observations of the author). The pits in the newly described species are very shallow and seem to be rather well-defined impressions. Besides, very similar Himalayan and Far Eastern species are known (*N. jumlanus*, *N. himalayanus*, *N. khumbuanus*, *N. tibetanus*, and *N. niponensis* Franz, 1976), which share with *N. qinghaiensis* the general body form, the bicolorous pigmentation, male secondary sexual characters, and structures of the aedeagus; but none of these bearing pits on the vertex. Therefore, *N. qinghaiensis* is placed in the subgenus *Pararaphes*. However, a more comprehensive study is necessary to clarify the functional importance of the foveae on the head of *Neuraphes* and to validate the current, traditional views on the evolution of the genus reflected by the existing subgeneric division.

### 3 References

- JAŁOSZYŃSKI, P. (2008): Revision of *Neuraphes* Thomson of the Himalaya Mts. (Coleoptera: Scydmaenidae). Genus, Wrocław **19**: 619–637.

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