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Nanoscydmus gen.n. from China and Nepal (Coleoptera: Staphylinidae: Scydmaeninae)

P. JAŁOSZYŃSKI

Abstract

Nanoscydmus gen.n. (Coleoptera: Staphylinidae: Scydmaeninae: Cyrtoscydmini) is described and based on two new species: *N. baoshanus* from China (type species), and *N. nepalensis* from Nepal. Important characters, including the aedeagi, are illustrated, and an identification key for the Palearctic genera of Cyrtoscydmini is provided.

Key words: Coleoptera, Staphylinidae, Scydmaeninae, Cyrtoscydmini, *Nanoscydmus*, new genus, Palearctic, China, Nepal, Himalaya, taxonomy, new species.

Introduction

Eight genera of the tribe Cyrtoscydmini (Staphylinidae: Scydmaeninae) have been known to occur in the Palearctic Region: *Euconnus* THOMSON, *Horaeomorphus* SCHAUFUSS, *Leptocharis* REITTER, *Syndicus* MOTSCHULSKY, *Microscydmus* SAULCY & CROISSANDEAU, *Neuraphes* THOMSON, *Scydmoraphes* REITTER, and *Stenichnus* THOMSON (NEWTON & FRANZ 1998). During my survey of East Palearctic materials accumulated in museums and private collections, two species of extremely small scydmaenine beetles showing a set of characters not known in any other genus of the tribe were encountered. This new genus, distributed in mountainous areas of southern China and Nepal, is described below under the name *Nanoscydmus*.

Acronyms:

CAP Coll. Andreas Pütz, Eisenhüttenstadt, Germany
PCPJ Coll. Paweł Jałoszyński, Poznań, Poland
SMNS Staatliches Museum für Naturkunde, Stuttgart, Germany

Nanoscydmus gen.n.

TYPE SPECIES: *Nanoscydmus baoshanus* JAŁOSZYŃSKI

DESCRIPTION: Body (Fig. 1a–c) extremely small, ca. 0.7 mm in length, light brown. Head (Fig. 1d, i) in both sexes with raised triangular median region distinctly delimited from lateral areas, and with median longitudinal groove, also occiput bears longitudinal groove; occipital constriction very broad; antennal sockets located on anterior margin of head, relatively narrowly separated; eyes well developed, located in posterior part of head; tempora short; antennae (Fig. 1e) with 3-segmented club; labrum (Fig. 1i) with pair of median teeth; mandibles (Fig. 1i) large, strongly curved, each with single subapical tooth; maxillary palpomere III with short stalk.

Pronotum (Fig. 1a) subrectangular with rounded margins, without lateral carinae, with ante-basal transverse groove and pair of lateral foveae. Prosternum (Fig. 1b) with very short basisternum and with very short prosternal intercoxal process not separating procoxae.

Elytra (Fig. 1a) oval, entire, each with very small basal fovea.

Mesoscutellum visible, very small, subtriangular.

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Mesoventrite (Fig. 1b, f) with low and narrow intercoxal process divided into anterior and posterior parts, each with subtriangular posterior tip; internal and anterior margins of mesocoxal cavities with row of long straight setae.

Metaventrite (Fig. 1b) with short lateral longitudinal carina running posteriorly from near posterior margin of mesepimeron; metaventral intercoxal process narrow and short.

Legs (Fig. 1a–b) moderately long, robust, procoxae nearly spherical, meso- and metacoxae distinctly elongate; protrochanters non-modified, meso- and metatrochanters in both sexes enlarged, nearly semicircular in shape; tibiae in males non-modified; tarsi short and stout.

Aedeagus (Fig. 1g–h, j–k) very small, moderately elongate, median lobe in lateral view strongly narrowing toward dorsally curved apex, in ventral view apical part gradually narrowing, toward rounded or tapered apex; internal sac simple and lightly sclerotized, composed of broad, elongate median structure; parameres short but slender, each with single, very long apical seta.

Sexual dimorphism distinct; females differ from males in much smaller eyes.

DIAGNOSIS: Triangular median region on head with longitudinal median groove; mesoventral process divided into two parts and provided with a row of long lateral setae that extends to anterior margins of mesocoxal cavities; enlarged meso- and metatrochanters (autapomorphic characters of *Nanoscydmus*).

Additionally, the following combination of synapomorphies distinguishes *Nanoscydmus* from any other Palearctic genus of Cyrtoscydmini: mesoventral intercoxal process very weakly expanded ventrally (strongly expanded in *Euconnus*); antennae clearly 11-segmented (pseudo-10-segmented in *Syndicus*); pronotum with rounded sides, without lateral carinae (with sharp lateral carinae in *Neuraphes* and *Scydmoraphes*); head without pair of pits (with pits in *Horaeomorphus*); base of pronotum with the posterior phragma clearly marked externally by a groove and pits (without any macrosculpture in *Leptocharis*); antennae with well separated club (gradually thickened in *Stenichnus*); elytra without basal impressions (each elytron with very large basal impression in *Microscydmus*).

DISTRIBUTION: High mountains in southern China (Yunnan) and Nepal.

ETYMOLOGY: The genus name is derived from the Latin word nanus, dwarf (Greek: nanos), and the subfamily name Scydmaeninae; analogous to *Microscydmus*.

Key to Palearctic genera of Cyrtoscydmini

1 Mesocoxae separated high mesoventral keel..... ***Euconnus***

– Mesocoxae contiguous or separated by inconspicuous, low mesoventral carina 2

2 Antennomeres 10 and 11 not separated, antennae may appear 10-segmented. ..... ***Syndicus***

– Antennae clearly 11-segmented, antennomeres 10 and 11 separated..... 3

3 Pronotum with sharp lateral edges at least in posterior third..... 4

– Sides of pronotum rounded, without lateral carinae 5

4 Pronotum with transverse ante-basal groove or impression clearly interrupted in middle by gap or longitudinal carina; basal pit on each elytron filled with dense, short setae ..... ***Neuraphes***

– Ante-basal groove on pronotum entire; basal pit on each elytron asetose..... ***Scydmoraphes***

5 Head with pair of pits near internal margins of supraantennal tubercles..... ***Horaeomorphus***

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– Head without pits 6

6 Base of pronotum without transverse groove, pits or row of punctures ..... ***Leptocharis***

– Base of pronotum with ante-basal groove, pits or row of punctures 7

7 Antennae gradually thickened toward apices ..... ***Stenichnus***

– Antennae with 3-segmented club 8

8 Head with V-shaped raised median area and median longitudinal groove; base of pronotum with lateral ante-basal pits connected by groove; elytra without basal impressions. ... ***Nanoscydmus***

– Head without separated median area and groove; base of pronotum with two large, adjacent or nearly fused median pits; each elytron with very large basal impression..... ***Microscydmus***

***Nanoscydmus baoshanus* sp.n.**

TYPE LOCALITY: China, Yunnan, Baoshan, Gaoligong Shan, Xiaoheishan env.

TYPE MATERIAL: **Holotype** ♂ (CAP): "CHINA: Yunnan [CH07-11], \ Baoshan Pref., Gaoligong Shan, \ nr. Xiaoheishan N.R., 35 km SE \ Tengchong, 2110 m, \ 24°50'16"N, 98°45'43"E, decid. \ forest, litter, sifted, 30.V.2007, \ leg. A. Pütz" [white, printed], "*NANOSCYDMUS* \ *baoshanus* m. \ HOLOTYPUS \ det. P. JAŁOSZYŃSKI, '08" [red, printed].

Paratype ♀ (PCPJ): same data label as for holotype, "*NANOSCYDMUS* \ *baoshanus* m. \ PARATYPUS \ det. P. JAŁOSZYŃSKI, '08" [yellow, printed].

DESCRIPTION: Male: 0.75 mm in length. – Body (Fig. 1a–c) extremely small, slender, very convex, pigmentation yellowish brown, head slightly darker than remaining body parts, eyes nearly black; vestiture slightly lighter than cuticle.

Head (Fig. 1d) broadest at eyes, length 0.13 mm, width 0.15 mm; occipital constriction as broad as vertex; tempora very short, arcuate; vertex and large posterior part of frons confluent, longitudinally subrectangular, with triangular median area slightly but distinctly raised and sharply separated from lateral regions, posterior tip of median area connected to very narrow line crossing occipital constriction and running posteriorly as median longitudinal line on occiput; median area of frons and vertex with shallow and narrow longitudinal median groove; very short anterior part of frons abruptly and steeply lowering toward clypeus, which is not delimited from frons; antennal sockets moderately large, located on anterior margin of head, antennal insertions moderately broadly separated; supraantennal tubercles barely marked; eyes very large, strongly convex, nearly circular, coarsely faceted, located in posterior part of head. Vertex and frons covered with very dense, slightly coarse, but shallow and small punctures adjacent one to another, so that cuticle is matt and appears to be shagreened; setae on dorsal surface of head very short, sparse and suberect except for several slightly longer and postero-laterally erect setae behind each eye. Antennae (Fig. 1e) short and slender, length 0.30 mm.

Pronotum in dorsal view subrectangular, elongate, broadest between anterior third and middle, length 0.23 mm, width 0.18 mm; anterior margin regularly rounded; front angles indistinct, blunt and obtuse; lateral margins rounded up to shallow constriction located in posterior 1/6 of pronotum, sides posterior to constriction parallel; hind angles relatively distinct but rounded; posterior margin regularly, weakly arcuate; base of pronotum with pair of moderately large and deep circular lateral foveae connected by narrow transverse groove. Punctures on disc inconspicuous, very fine and sparse; setae short, sparse, suberect on dorsum and erect on sides of pronotum.

Elytra nearly regularly oval, more convex than pronotum, broadest near middle, length 0.40 mm, width 0.29 mm, elytral index (length / width) 1.39; humerus on each elytron moderately distinct,

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forming short longitudinal wrinkle; base with extremely small, barely noticeable fovea, without basal impression; apices of elytra separately rounded. Punctures and setae similar to those on pronotal disc. Hind wings well developed, about twice as long as elytra. Scutellum very small, subtriangular.

Legs relatively short and robust, with very stout, short tarsi, without modifications.

Venter as in Fig. 1b.

Aedeagus (Fig. 1g–h) extremely small, only 0.09 mm in length.

Female. Similar to male, differs in much smaller eyes and more stout elytra. Body length 0.78 mm, length of head 0.15 mm, width of head 0.15 mm, length of antennae 0.25 mm, length of pronotum 0.23 mm, width of pronotum 0.20 mm, length of elytra 0.40 mm, width of elytra 0.28 mm, elytral index 1.45.

DIAGNOSIS: This species is externally hardly distinguishable from *N. nepalensis* described below; males differ in more elongate elytra (elytral index nearly 1.4), and the unique aedeagus with rhomboidal apical part of internal sac.

DISTRIBUTION: So far known only from the type locality.

ETYMOLOGY: Locotypical; after Baoshan Prefecture.

***Nanoscydmus nepalensis* sp.n.**

TYPE LOCALITY: Nepal, Kathmandu Distr., Sheopuri Mts.

TYPE MATERIAL: **Holotype** ♂ (SMNS): "NEPAL, Kathmandu Distr. \ Sheopuri Mts., 2100-2300 m \ 25.VI.1988 \ J. Martens & W. Schawaller leg." [white, printed], "*NANOSCYDMUS* \ *nepalensis* m. \ HOLOTYPUS \ det. P. JAŁOSZYŃSKI, '08" [red, printed]. **Paratypes:** 1 ♂, 1 ♀ (SMNS, PCPJ), same data label as for holotype, "*NANOSCYDMUS* \ *nepalensis* m. \ PARATYPUS \ det. P. JAŁOSZYŃSKI, '08" [yellow, printed].

DESCRIPTION: Morphologically, this species is nearly identical with *N. baoshanus*; the only differences are proportions of body parts and the structures of the aedeagus.

Male: body length 0.74–0.78 mm; head as in Fig. 1i, length of head 0.15 mm, width of head 0.15 mm, length of antennae 0.26–0.28 mm, length of pronotum 0.21–0.23 mm, width of pronotum 0.18 mm, length of elytra 0.38–0.40 mm, width of elytra 0.30–0.31 mm, elytral index 1.25–1.28. Aedeagus extremely small, only 0.10 mm in length, as in Fig. 1j–k.

Female. Similar to male, differs in much smaller eyes and more stout elytra. Body length 0.73 mm, length of head 0.13 mm, width of head 0.13 mm, length of antennae 0.25 mm, length of pronotum 0.21 mm, width of pronotum 0.18 mm, length of elytra 0.39 mm, width of elytra 0.28 mm, elytral index 1.41.

DIAGNOSIS: Males of this species differ from *N. baoshanus* in more stout elytra (elytral index below 1.3), and the unique aedeagus with deeply, roundly emarginate apical part of internal sac.

DISTRIBUTION: So far known only from the type locality.

ETYMOLOGY: Locotypical; after Nepal.

REMARKS: Two more females of *Nanoscydmus* from Nepal are preserved at the SMNS; they have been collected in Paniporua (Panchthar Distr.) and Pahakhola env. (Sankhua Sabah Distr.). They are externally indistinguishable from *N. nepalensis*, but no males have been collected together with females, and therefore it is not possible to unambiguously identify them.

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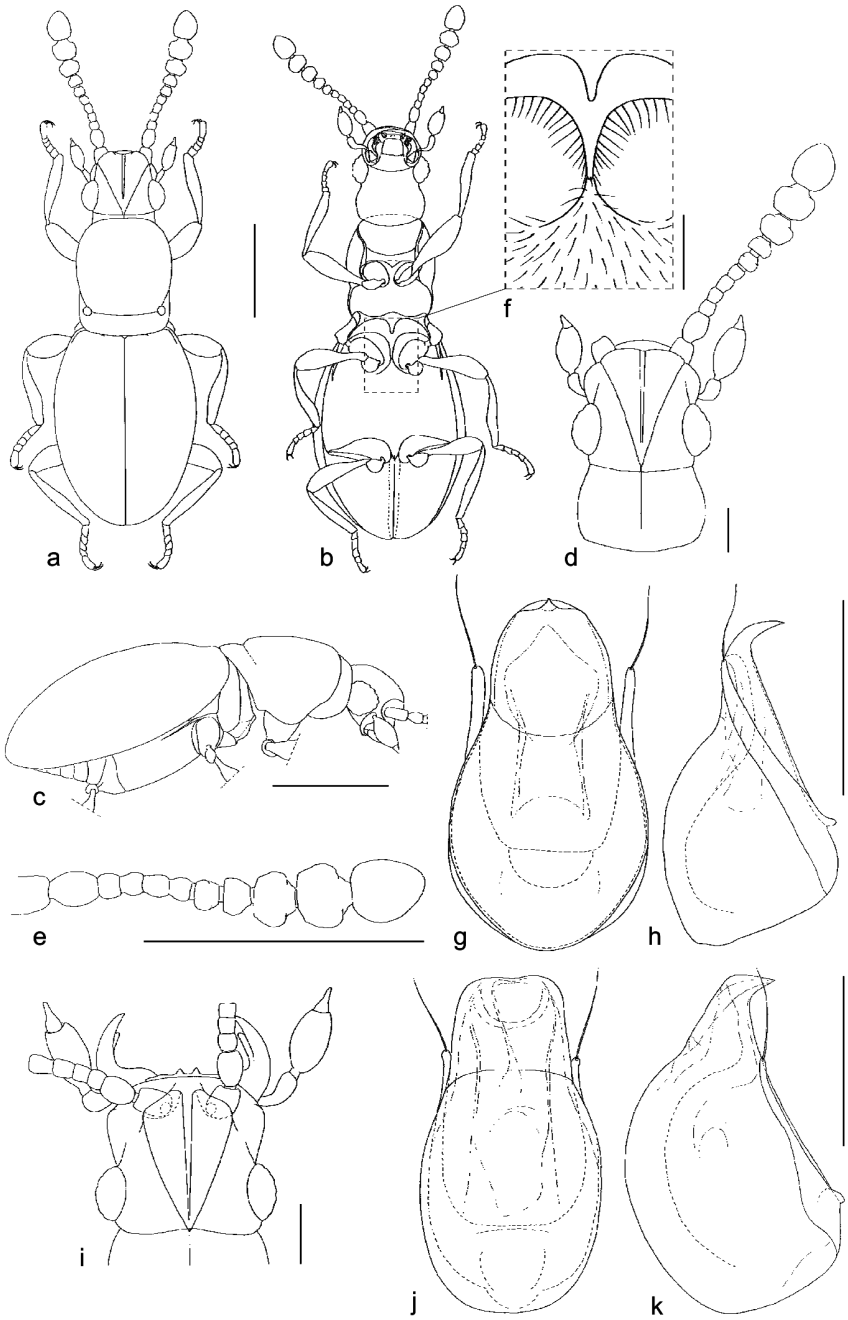

Fig. 1: *Nanoscydmus baoshanus* (a–h), and *N. nepalensis* (i–k); a) male, dorsal view, b) male, ventral view (abdominal sternites removed), c) male, lateral view, d) head of male, dorsal view, e) right antenna of male, dorsal view, f) mesoventral intercoxal process, ventral view, g, j) aedeagus, ventral view, i) head of male, dorso-frontal view, h, k) aedeagus, lateral view. Scale bars: 0.2 mm (a–c, e), 0.05 mm (d, f–k).

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Dr. Paweł JAŁOSZYŃSKI
Os. Wichrowe Wzgórze 22/13, 61-678 Poznań, Poland (scydmaenus@yahoo.com)

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