Genus	Vol. 20(2): 189-197	Wrocław, 15 VII 2009

Revision of *Cephennomicrus* Reitter of Sri Lanka (Coleoptera: Staphylinidae: Scydmaeninae)

Paweł Jałoszyński
Os. Wichrowe Wzgórze 22/13, 61-678 Poznań, Poland, email: scydmaenus@yahoo.com

Abstract. Three species of the genus *Cephennomicrus* Reitter (Coleoptera, Staphylinidae, Scydmaeninae, Cephenniini) occurring in Sri Lanka are treated. *Cephennomicrus minimus* (Franz) and *C. anderssoni* (Franz) are redescribed; *C. pinguis* n. sp. is described. Important diagnostic characters and habitus of each species are illustrated.

Key words: entomology, taxonomy, Coleoptera, Staphylinidae, Scydmaeninae, Cephenniini, *Cephennomicrus*, new species, Orient, Sri Lanka.

INTRODUCTION

Only two species of *Cephennomicrus* Reitter, the smallest known Cephenniini, have been known to occur in Sri Lanka: *C. minimus* (Franz), and *C. anderssoni* (Franz). Both were originally described in *Neseuthia* Scott (Franz 1982, 1983), which was later recognized as a junior synonym of *Cephennomicrus* (Jałoszyński 2008). Species belonging to this moderately large but relatively diverse genus are very small (often below 1 mm in length), and very difficult to identify on the basis of external morphology, therefore characters associated with unique aedeagi are usually most useful for determinations. The original descriptions of the two species known from Sri Lanka are inaccurate and do not allow for certain identifications; *C. minimus* and *C. anderssoni* required redescription. In addition to presenting more detailed diagnoses of these two taxa, another species, *C. pinguis* n. sp., is described below.

The measurements are as follows: body length is a sum of lengths of the head, pronotum and elytra measured separately; length of head was measured from a hypothetical line joining posterior margins of eyes to anterior margin of the frontoclypeal area; width of head includes eyes; length of pronotum was measured along midline; width of

pronotum is maximum; length of elytra was measured along suture, from a hypothetical line joining the humeral denticles to the apex; width of elytra is maximum, combined; elytral index (EI) is length divided by combined width. Studied specimens are deposited in the Zoological Museum Lund, Sweden (ZML); Naturhistorisches Museum Wien, Austria (NHMW); Hungarian Natural History Museum, Budapest, Hungary (HNHM); and the Swedish Museum of Natural History, Stockholm, Sweden (NHRS).

TAXONOMY

Cephennomicrus minimus (Franz)

(Figs. 1, 4-8)

Neseuthia minima Franz, 1983: 182.
Cephennomicrus minimus (Franz); Jałoszyński, 2008: 33.

Diagnosis

This species can be distinguished from all other members of the genus on the basis of extremely small body (ca. 0.6 mm), light brown pigmentation, presence of ocular grooves, short and compact antennae with club composed of small antennomere IX and large antennomeres X and XI, relatively narrow mesoventral process and unique aedeagus with apical parts of dorsal and ventral wall strongly projected, and with complicated, asymmetrical assemblage of tubular structures in internal sac.

Redescription

Male (Figs. 1, 4, 6). Body extremely small, 0.62 mm in length, slender and moderately convex; pigmentation light brown, overall vestiture extremely short, barely noticeable, yellowish. Head (Fig. 5) large, broadest at eyes, length 0.10 mm, width 0.15 mm, with convex vertex and frons, and pair of narrow and distinct ocular grooves; eyes large and coarsely faceted, moderately convex. Each side of vertex between eyes bears group of several large and very dense, sharp and deep punctures, median part of vertex and frons with only 2-3 similar, unevenly distributed punctures; setation extremely fine, barely noticeable. Antennae short and compact, 0.25 mm in length, as in Figs. 5, 6.

Pronotum subquadrate, nearly equally broad from base to anterior fourth, length 0.17 mm, width 0.22 mm; anterior margin weakly rounded; lateral margins rounded in anterior fourth, then nearly straight and minimally convergent; hind angles blunt, obtuse; posterior margin weakly rounded; pronotum with deep and broad transverse groove near posterior margin and small but distinct pit near each hind angle. Punctation fine and very dense, punctures are shallow and with smooth margins; setation very short, moderately dense, recumbent, barely noticeable.

Elytra oval, broadest slightly anterior to middle, distinctly broader than pronotum but similarly convex, length 0.35 mm, width 0.27 mm, EI 1.30. Basal pits on elytra indistinct, humeri well marked, each forming indistinct longitudinal wrinkle; apices of elytra rounded together; punctation and setation less distinct than those on pronotum. Metathoracic wings well developed.

Legs slender, relatively short.

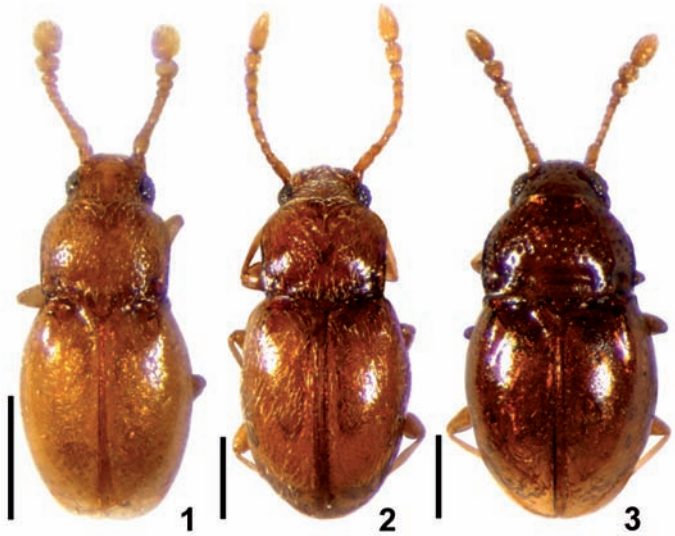
Venter as in Fig. 6; mesoventral intercoxal process narrow; metaventrite non-modified.

Aedeagus (Figs. 7, 8) relatively large, 0.15 mm in length, with oval membranous area shifted toward base; median lobe symmetrical, drop-shaped, with apical parts of dorsal and ventral walls separated from its basal part and strongly projecting apically; internal armature very complicated, composed of tubular copulatory piece contained inside median lobe and several tubular or needle-shaped structures located between apical parts of dorsal and ventral walls; parameres broad and relatively short, each with single, very long and thick apical seta.

Female. Externally differs from male only by minimally less convex eyes; body length 0.61 mm, length of head 0.10 mm, width of head 0.14 mm, length of antennae 0.23 mm, length of pronotum 0.16 mm, width of pronotum 0.20 mm, length of elytra 0.35 mm, width of elytra 0.26 mm, EI 1.34.

Type material

Holotype (male): two white printed labels: "CEYLON, C Prov. Nuwara Eliya, 23-24.VI.1968.", "/No.CMB-B.42/ leg.Dr.J.Balogh", white handwritten label "Neseuthia minima m." with printed "det.H.Franz", small white label with black margins and probably printed male symbol, red handwritten label "Holotypus", and large white label with broad red margins with printed in red in left upper corner "Holotypus" and handwritten "1983 ♂ Neseuthia minima H. Franz" (HNHM). Paratype (female): same white printed labels as on holotype, small white label with handwritten female symbol,



1. *Cephennomicrus minimus* (Franz); 2. *Cephennomicrus anderssoni* (Franz); 3. *Cephennomicrus pinguis* Jałoszyński. Dorsal habitus of holotypes (scale bars: 0.2 mm)

and yellow label with handwritten "Neseuthia minima m." and printed "PARATYPUS" (NHMW). A new printed label was added to both specimens during the present study: "*CEPHENNOMICRUS minimus* (Franz), det. P. JAŁOSZYŃSKI, 2007".

Distribution

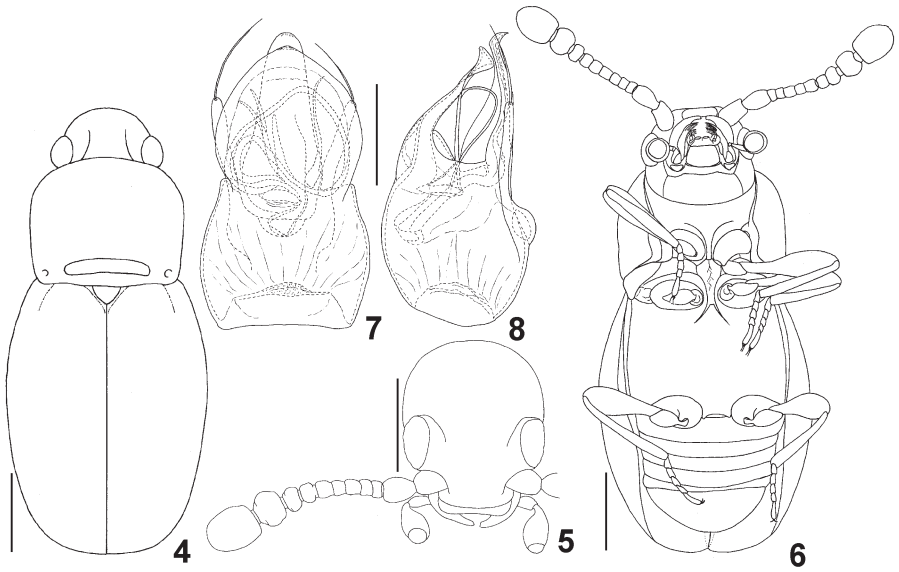
Sri Lanka

Remarks

This species shows a set of characters typical for *Cephennomicrus*, except for an unusually narrow mesoventral intercoxal process, which is only slightly broader than the prosternal process. In other species of the genus, the mesoventral process is much broader than the prosternal process. In other aspects, the mesoventral process in *C. minimus* is similar to that in congeners of this species; it has the divergent posterior arms. The prosternal process in this species is also very narrow, and it may be a consequence of a generally very slender form of the body. The placement of *C. minimus* within *Cephennomicrus* must be verified by examination of disarticulated mouthparts; this was not possible during the present study due to lack of non-type specimens for dissections. Therefore, although this species certainly belongs to the "*Cephennomicrus* lineage", its current placement should be treated as uncertain.

Cephennomicrus anderssoni (Franz)

(Figs. 2, 9, 10)

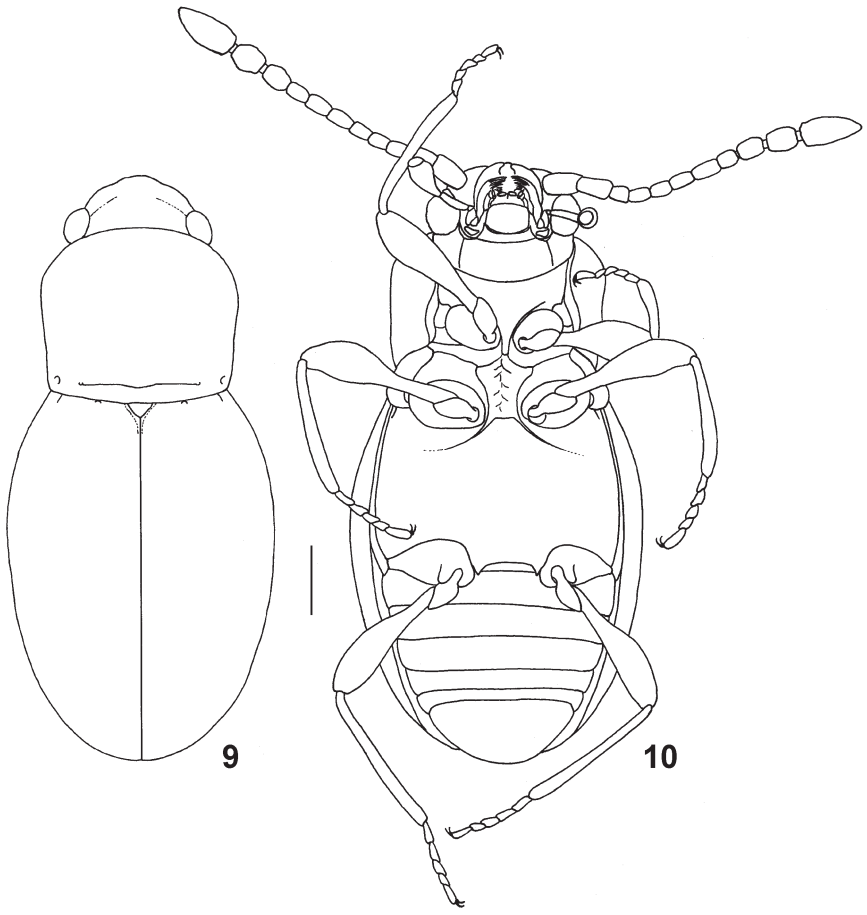


4-8. *Cephennomicrus minimus* (Franz). 4 – Simplified body outline in dorsal view; 5 – head in antero-dorsal view; 6 – venter, 7, 8 – aedeagus in ventral (7) and lateral (8) views (scale bars: 0.1 mm)

Neseuthia anderssoni Franz, 1982: 134.
Cephennomicrus anderssoni (Franz); Jałoszyński, 2008: 32.

Diagnosis

The only known female of this species differs from all Oriental congeners in the following combination of characters: body large, light brown, covered with dense and moderately long, nearly recumbent vestiture; head with large and strongly convex vertex separated from subtriangular frontoclypeal area by shallow and broad transverse impression (well visible on sides, indistinct in middle) running from upper margin of each eye toward middle and anteriorly; antennae very long and slender, with all antennomeres elongate, antennomere VII longer than VI and VIII; pronotum with small pit near each hind angle and long ante-basal transverse groove with slightly more impressed both



9-10. *Cephennomicrus anderssoni* (Franz). 9 – Simplified body outline in dorsal view; 10 – venter (scale bar: 0.1 mm)

ends; punctation on head, pronotum and elytra fine, punctures have diffused, smooth margins. Males and their diagnostic characters are unknown.

Redescription

Male. Unknown.

Female (Figs. 2, 9, 10). Body relatively large, 0.90 mm in length, slender and strongly convex, light brown, covered with yellowish vestiture. Head large, broadest at eyes, length 0.12 mm, width 0.22 mm; vertex strongly convex; frontoclypeal area separated from vertex by shallow, broad impression running from upper margin of each eye toward middle and anteriorly, impression is well marked on sides and indistinct in middle, anterior margin of frontoclypeal area subtriangular, distinctly angulate in middle; eyes very large, coarsely faceted and strongly convex; punctation dense but punctures are very fine and not sharply marked; setation moderately dense, setae are short and nearly recumbent. Antennae as in Fig. 10; very slender and relatively long, length 0.52 mm.

Pronotum subquadrate, broadest near anterior fourth, length 0.26 mm, width 0.30 mm; anterior margin weakly rounded; lateral margins rounded in anterior third, slightly convergent toward obtuse and blunt hind angles, indistinctly S-shaped with barely marked constriction near middle; posterior margin with rounded each lateral third and nearly straight middle part; pronotum with distinct, narrow transverse groove near posterior margin, groove in its middle part is slightly shifted posteriorly to form double arc with each end slightly impressed, additionally pronotum bears small and shallow pit near each hind angle. Punctation of disc dense but composed of very shallow punctures with diffused margins; setation relatively dense, moderately long, nearly recumbent.

Elytra oval, broadest anterior to middle, much broader and more convex than pronotum, length 0.52 mm, width 0.45 mm, EI 1.15. Basal pits on elytra very indistinct, humeri moderately well marked; apices of elytra rounded together; punctation and setation similar to those on pronotum. Metathoracic wings not studied.

Legs slender, relatively long.

Venter as in Fig. 10.

Type material

Holotype (female): four white, printed labels: “Ceylon, Sabaragamuwa, Prov. Karagal-Oya at 1900ft 3mls ENE Belfhul-Oya. 2.III.62.Loc.110”, “Sieved in debris”, “Ravine with stream”, “Lund University Ceylon Expedition 1962, Brinck-Andersson-Cederholm”, white handwritten label “Neseuthia anderssoni m.” with printed “det.H.Franz”, small label with handwritten female symbol, red handwritten label “Typus”; additionally the specimen is provided with standard ZML type number label “1729:1”, and a new printed label “*CEPHENNOMICRUS anderssoni* (Franz), det. P. JAŁOSZYŃSKI, 2007” (ZML).

Distribution

Sri Lanka

Remarks

This species, known from a single female only, shows some similarities to *Cephennomicrus nomurai* species group inhabiting Taiwan and the Ryukyus, Japan. All of these species share a similar body form, which is less compact than in most other species and the pronotum is much narrower than the elytra; the antennae are elongate, with indistinctly delimited club composed of three terminal antennomeres; and the body is covered with relatively long, dense vestiture. Moreover, the holotype female of *C. anderssoni* has slightly modified head, with shallow transverse impression between vertex and frontoclypeal area, suggesting that males of this species may show more pronounced modifications, like those known in *C. nomurai* group. However, the major difference is that the species from Japan and Taiwan have a longitudinal median groove on the pronotum, which *C. anderssoni* lacks. The ventral side of *C. anderssoni* is typical for most known and studied species of *Cephennomicrus*, with narrow prosternal process separating procoxae, broad mesoventral process and very broadly separated metacoxae.

***Cephennomicrus pinguis* n. sp.**

(Figs. 3, 11-16)

Name derivation

The name refers to the stout body; after Latin "*pinguis*" meaning "obese, fat".

Diagnosis

Body very broad, glabrous; head with very distinct, rounded tempora and ocular grooves; head and pronotum covered with dense, very large, deep and sharply marked punctures, elytra nearly impunctate; aedeagus with asymmetrical internal armature.

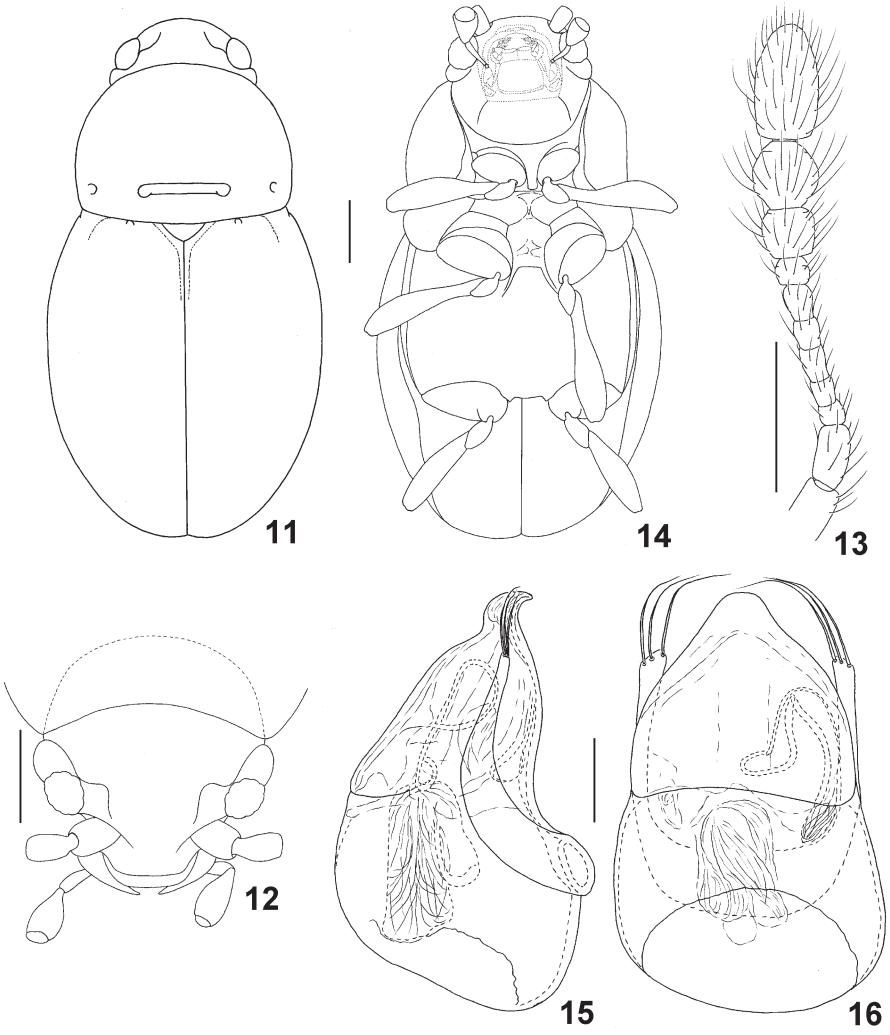
Description

Male (Figs. 3, 11, 14). Body moderately small, 0.90 mm in length, very stout but with well marked constriction between pronotum and elytra, very convex; pigmentation moderately dark brown, vestiture not noticeable under magnification 80x. Head (Fig. 12) large, broadest at tempora, length 0.12 mm, width 0.25 mm, with convex vertex and frons, tempora very distinct, slightly shorter than length of eye, rounded, each delimited from gena and vertex by groove which in its anterior part on vertex is connected with ocular groove running toward middle of frons and then rapidly curved toward very indistinct supraantennal tubercle; eyes large, coarsely faceted, strongly convex. Punctation on frons and vertex composed of very large, deep and sharply marked punctures, on central part of frons punctures are separated by spaces slightly shorter than puncture diameters. Antennae moderately long, slender, 0.35 mm in length, as in Fig. 13.

Pronotum in strictly dorsal view nearly semicircular, broadest near posterior third, length 0.26 mm, width 0.35 mm; anterior margin (in fronto-dorsal view) nearly straight; lateral margins not microserrate, rounded; hind angles blunt and obtuse; posterior margin weakly arcuate; pronotum with very distinct, broad and deep ante-basal transverse groove with slightly deepened each end and with small lateral ante-basal

pit. Punctation very distinct, composed of dense, large, deep and sharply marked punctures, on central part punctures are separated by spaces equal to or slightly longer than puncture diameters.

Elytra oval, broadest distinctly anterior to middle, distinctly broader than pronotum but similarly convex, length 0.52 mm, width 0.42 mm, EI 1.24. Basal pit on each elytron small but distinct; humeri well marked, each forming indistinct longitudinal wrinkle; apices of elytra separately rounded; punctation very indistinct, composed of very fine, shallow and sparse punctures. Metathoracic wings not studied.



11-16. *Cephennomicrus pinguis* Jałoszyński. 11 – Simplified body outline in dorsal view; 12 – head in antero-dorsal view; 13 – antenna; 14 – venter (abdominal segments removed), 15, 16 – aedeagus in ventral (15) and lateral (16) views (scale bars: 0.1 mm)

Legs relatively short but very slender.

Venter as in Fig. 14; metaventrite non-modified.

Aedeagus (Figs. 15, 16) large, 0.25 mm in length, with oval membranous area shifted toward base; median lobe symmetrical, drop-shaped, with apical parts of dorsal and ventral walls forming rounded, subtriangular apex curved dorsally; internal armature strongly asymmetrical, composed of central complex connected to tubular, looped structures; parameres short and relatively broad, with apices not reaching apex of median lobe, each with three very long, thick apical setae.

Type material

Holotype (male): white printed label: "Sri Lanka, 1985.11.21, MESIRIPURA, T-E. Leiler" (NHRS). A new printed label was added during the present study: "*CEPHENNOMICRUS pinguis* m., det. P. JAŁOSZYŃSKI, 2008, HOLOTYPUS".

Distribution

Sri Lanka

Remarks

This species is unique in having a very broad, glabrous body. Moreover, no other species in the genus (or in the tribe) has long tempora. Very short tempora can be found in most species of *Cephennomicrus*, although due to extremely small body and the head retracted into the pronotum this character is very difficult to notice (tempora are best visible in transparent mounts). Therefore, the large, cushion-like tempora in this species do not represent a truly novel character. This species, although odd and much different from all other congeners, is diagnosable as belonging to *Cephennomicrus* on the basis of the following set of characters: the narrow prosternal process, the very broad mesoventral process with divergent posterior arms, the very broad metaventral process; the maxillary palps, the antennae, and the ante-basal pits and groove on the pronotum. The glabrous body and the long tempora can be regarded as characters unique enough to place *C. pinguis* in a separate subgenus, and such an action may likely be made in future.

Acknowledgments

I express my thanks to the curators who arranged loans of the material used in this study: Dr. Roy Danielsson (ZML), Dr. Harald Schillhammer (NHMW), Dr. Otto Merkl (HNHM), and Dr. Bert Viklund (NHRS).

REFERENCES

Franz, H., 1982. Coleoptera: Die Scydmaenidae Sri Lankas (mit Ausnahme der Genera *Cephennium* s. lat., *Clidicus* and *Syndicus*). Ent. Scand., Suppl. **11**: 125-274.

—, 1983. Scydmaeniden des Ungarischen Naturwissenschaftlichen Museums in Budapest aus Südostasiens: Sri Lanka, Thailand und Vietnam. Folia Ent. Hung., **54**: 175-187.

Jałoszyński, P., 2008. Taxonomic notes on the Cephenniini (Coleoptera, Scydmaenidae): Status of *Coatesia* Lea, *Neseuthia* Scott and *Cephennomicrus* Reitter. Zootaxa, **1696**: 25-36.