

A New Species of the Genus *Coprophilus* Latreille, 1829 from the High Mountain Elevations in Taiwan, with Comments on *Zonyptilus* Motschulsky, 1845 (Coleoptera: Staphylinidae: Oxytelinae)

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Aleš Smetana (1998) A new species of the genus *Coprophilus* Latreille, 1829 from the high mountain elevations in Taiwan, with comments on *Zonyptilus* Motschulsky, 1845 (Coleoptera: Staphylinidae: Oxytelinae). *Zoological Studies* 37(2): 154-158. *Coprophilus (Zonyptilus) difformis*, a new species of the genus *Coprophilus* Latreille, 1829 (Coleoptera: Staphylinidae) from high mountain elevations in Taiwan, is described and illustrated. It is compared to *C. formosanus* Shibata 1993 (*Coprophilus* s.str.), the only other species of the genus occurring in Taiwan. The pronounced sexual dimorphism of *C. difformis* is briefly discussed. A key to determination of the two Taiwanese species of *Coprophilus* is given. Some nomenclatorial and orthographical problems concerning the name *Zonyptilus* are addressed. The name *Zonyptilus*, in its original orthography (not in the emended form *Zonoptilus* by Agassiz, 1846) is attributed to Motschulsky, 1845.

Key words: Coleoptera, Staphylinidae, *Coprophilus*, *Zonyptilus*, Taxonomy.

The genus *Coprophilus* Latreille, 1829 is a relatively small genus of the staphylinid subfamily Oxytelinae, tribe Coprophilini, containing at present about 30 species, all restricted to the temperate regions of the Northern Hemisphere. Only one, recently described species of this genus, *C. formosanus* Shibata, 1993, was known from Taiwan; it belongs to the subgenus *Coprophilus* s.str. Unlike the new species described in this paper, *C. formosanus* occurs in Taiwan at lower mountain elevations not exceeding 2500 m.

The new species, belonging to the subgenus *Zonyptilus*, shows a remarkable sexual dimorphism in the shape of the pronotum, which in this form is unique within the genus.

The availability of the generic name *Coprophilus* was threatened by the older name *Elonium* Leach, 1819, that was used by some modern authors as recently as 1993 (e.g. Bohác, 1993: 42). However, based on an application by Thayer (1992), the International Commission on Zoological Nomenclature (1994) placed the name *Coprophilus* on the Official List of Generic Names in Zoology.

MATERIALS AND METHODS

The specimens used in this study were collected in different habitats by the widely used sifting method, and were extracted from the sifted material using photoelectors of the Winkler type. The dissections were done in a drop of distilled water and the dissected parts were mounted, after being treated in isopropanol, into Canada balsam on a transparent plate, attached eventually to the pin with the beetle. The scanning electron photomicrographs were taken with a Zeiss 940A DSM microscope. The parts to be photographed were coated with gold.

Coprophilus (Zonyptilus) difformis sp. nov. (Figs. 1-14)

Holotype (male): Taiwan: "TAIWAN: Taichung Hsien, Hsuehshan, Hsuehshan Main Peak 3650 m. 9.V.91 A. Smetana [T73]". *Allotype* (female): Taiwan: same data as holotype, but elevation 3750-3884 m and code [T74]. Both holotype and allotype in the Smetana collection, Ottawa, Canada (to be eventually deposited at the Muséum d'Histoire

Naturelle, Geneva, Switzerland).

Paratypes: Taiwan: Taichung Hsien: same data as holotype, 3 ♂♂, 3 ♀♀; same data as allotype, 3 ♀♀; Hsuehshan, above Shan Liu-Gieu Hut, 3350 m, 10.V.91, A. Smetana [T75], 1 ♀; Hsuehshan, nr. Hsuehshan Tung-Feng, 3170 m, 7.V.91, A. Smetana [T68], 1 ♀; same, but 11.V.91, [T76], 2 ♂♂, 4 ♀♀. Nantou Hsien: Houhuanshan, Kuenyang, 3050 m, 29.IV.90, 1 ♂, 1 ♀; same, but 4.V.91, [T63], 1 ♀; Yushan N.P., W slope below Yushan Main Peak, 3720 m, 15.V.91, A. Smetana [T81], 1 ♀; Yushan N.P., Pay-Yun Hut, 3528 m, 15.V.91, A. Smetana [T83], 1 ♂; Yushan N.P., 2 km W Pay-Yun Hut, 3350 m, 16.V.91, A. Smetana [T84] 1 ♂, 1 ♀; Yushan N.P., 1.8 km W Pay-Yun Hut, 3375 m, 17.V.91, A. Smetana [T85], 1 ♂, 1 ♀. Most paratypes in the Smetana collection, some also in the collection of the National Museum of Natural Science, Taichung, Taiwan, of the National Science Museum (Natural History), Tokyo, and in the Y. Shibata collection, Tokyo, Japan.

Description: Piceous-black to black; pronotum with all margins vaguely to markedly paler, rufo-brunneous in some specimens, pale color not sharply delimited; elytra rufo-brunneous to dark rufo-brunneous, with darkened base and area around scutellum in most specimens, almost uniformly piceo-brunneous in a few specimens; abdomen with paratergites and apex of both fifth and sixth visible tergites variably, mostly inconspicuously paler (more so in specimens with pale pronotum and elytra). Maxillary and labial palpi brunneo-piceous to piceous, antennae piceous to piceous-black, legs rufo-brunneous.

Male: Head transverse, from apical margin of clypeus to basal transverse sulcus separating neck, and across eyes, markedly wider than long (ratio 1.62); neck very wide, distinctly wider than distance between medial margins of eyes across vertex (ratio 1.27); with convex protuberance above each antennal insertion and with a longitudinal, indefinite impression postero-mediad of it; eyes glabrous, convex, touching transverse basal sulcus posteriorly, temples therefore entirely obsolete; one coarse setiferous puncture mediad of both anterior and posterior margin of each eye; surface of head without microsculpture, finely, sparingly and unevenly punctate, some slightly coarser punctures mediad of each eye; punctation of neck in general slightly coarser and denser than that on head, becoming distinctly coarser and subrugose toward lateral margins. Antenna rather short, first six segments without dense, short decumbent pubescence, segment 1 about as long as segments 2 and 3 combined, segments 2 and 3 short, each about as long as width at apical margin, subequal in length, segment 4 vaguely longer than wide, segments 5 and 6 about as long as wide, outer

segments slightly wider than long, last segment about as long as two preceding segments combined. Maxillary palpus short, last segment large, wider and about as long as two preceding segments combined. Submentum with a few rather fine punctures, mentum with numerous rather coarse punctures; labial palpus markedly short, first two segments quite short, last segment obtusely pointed, as long as both preceding segments combined. Pronotum (Fig. 10) voluminous, of elongate, obtusely hexagonal shape, appreciably longer than wide (ratio 1.10), transversely convex, front margin markedly, obtusely emarginate, posterior portion of lateral margin inconspicuously subcrenulate; finely but distinctly margined all around, margination of basal margin finer than rest, that of apical margin slightly widened at each anterior corner; disc of pronotum without impressions, but each lateral portion with small, pit-like impression near lateral margin; punctation fine, slightly unevenly distributed, a few coarser punctures in two minute, pit-like impressions on medial portion in front of basal margin; surface without micro-sculpture. Pronotal epimeron with a few moderately coarse punctures. Prosternum evenly transversely convex. Scutellum markedly margined, with a few coarse punctures. Elytra relatively short, at base somewhat narrower than pronotum at widest point (ratio 1.14), slightly, arcuately widened at about posterior fourth; at suture vaguely shorter (ratio 0.94), at sides vaguely longer (ratio 1.05) than pronotum; each elytron with complete, slightly arcuate, finely punctate sutural stria, area between stria and suture somewhat convex and with sparse, extremely fine punctures, and with five incomplete, posteriorly abbreviated, finely punctate striae, all except distinctly impressed and somewhat curved stria five, represented only by rows of punctures; apical area of each elytron with some extremely fine punctures, medio-apical portion slightly, leather-like wrinkled, surface of elytra without microsculpture; epipleural ridge distinct, elytral epipleuron with sparse, fine punctures. Wings fully developed. Mesosternum (Fig. 12) with sharply differentiated, uneven, finely rugose-punctate middle portion extended in narrow, sharp intercoxal process, lateral portions with coarse, almost isodiametric microsculpture. Metasternum slightly depressed postero-medially, surface with sparse, fine punctures. Metacoxa and metatrochanter both simple. Abdomen with tergite 7 (fifth visible) broadly, arcuately emarginate apically, with fine whitish apical seam of palisade fringe; visible tergites 2-5 slightly impressed at base, each with transverse row of moderately coarse punctures just

distal of each basal impression and with two similar punctures postero-laterally; each tergite sparsely, extremely finely punctate, surface with very fine, isodiametric microsculpture; punctation of tergite 5 somewhat coarser than that on previous tergites. Sternite 3 with prominent, short medial carina (Figs. 13, 14). Tergite 8 evenly, arcuately emarginate apically (Fig. 1); sternite 8 subtruncate apically (Fig. 2). Genital segment with tergite 10 short and broad, of rounded hexagonal shape, with four large setae near apical margin and with some minute setae on apical portion (Fig. 3); sternite 9 narrow and elongate, with attenuate basal portion, with a few apical setae (Fig. 4). Aedoeagus (Fig. 5) short and wide; median lobe slightly sclerotized; parameres each distinctly dilated toward apex, distinctly exceeding apex of median lobe, asetose apically; internal sac as illustrated.

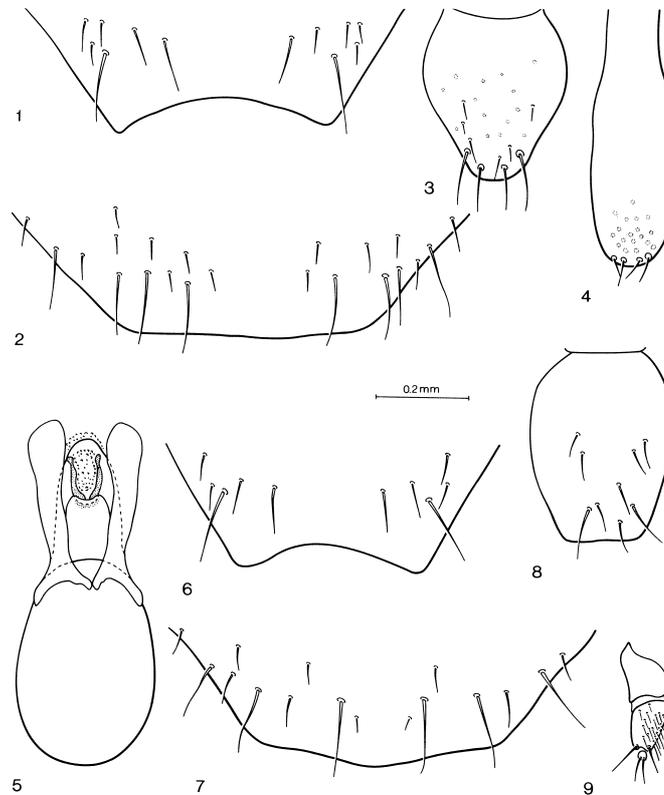
Female: Pronotum (Fig. 11) less voluminous, shorter, vaguely shorter than width at widest point (ratio 0.94), widest at about apical third; lateral margins evenly, slightly arcuate anteriorly, flattened posteriorly; apical margin subtruncate to vaguely

arcuate; disc of pronotum variably depressed in posterior half. Sternite 3 simple, without medial carina. Tergite 8 somewhat narrower apically, but not appreciably different from that of male (Fig. 6); sternite 8 slightly produced medio-apically (Fig. 7). Genital segment with tergite 10 small, of similar shape as that of male, but less narrowed apicad (Fig. 8); gonocoxites small and short; second gonocoxites each with small stylus bearing two long setae (Fig. 9).

Length 4.4-6.0 mm.

Geographical distribution: *Coprophilus difformis* is at present known from Taichung and Nantou hsien in central Taiwan.

Bionomics: *Coprophilus difformis* occurs only at high montane elevations above 3000 m. Most specimens of the original series were taken in mixed montane coniferous forests by sifting various debris, such as dead vegetation, grasses, moss, leaf litter, rotting wood and bark lying on ground, as well as debris among various understory shrubs. Some were also taken in dense juniper growths intermixed with rhododendrons by sifting moist



Figs. 1-9. *Coprophilus difformis* n. sp. 1. Apical portion of male tergite 8. 2. Apical portion of male sternite 8. 3. Tergite 10 of male genital segment. 4. Sternite 9 of male genital segment. 5. Aedoeagus, ventral view. 6. Apical portion of female tergite 8. 7. Apical portion of female sternite 8. 8. Tergite 10 of female genital segment. 9. Second gonocoxites of female genital segment.

moss, rhododendron leaf litter and other debris.

Recognition and comments: *Coprophilus difformis* is a distinctive species of the subgenus *Zonyptilus*, due to the unique, conspicuous sexual dimorphism, manifested mainly by the considerable difference in the shape of the pronotum. It cannot be confused with any other species of the genus. *Coprophilus formosanus* Shibata, 1993, the only other species of the genus occurring in Taiwan, belongs to the nominotypical subgenus; both species may be easily distinguished as follows:

1. Disc of pronotum with two large and deep, rounded medial impressions on posterior half. Antennal segments 2 and 3 markedly longer than wide, segment 3 distinctly longer than segment 2. Pronotum not sexually dimorphic. Large species, length 6.8-7.5 mm *C. formosanus* Shibata.
- Disc of pronotum without large impressions on posterior half. Antennal segments 2 and 3 short, each about as long as width at apical margin, subequal in length. Pronotum sexually dimorphic. Smaller species, length 4.4.-6.0 mm *C. difformis* sp. nov.

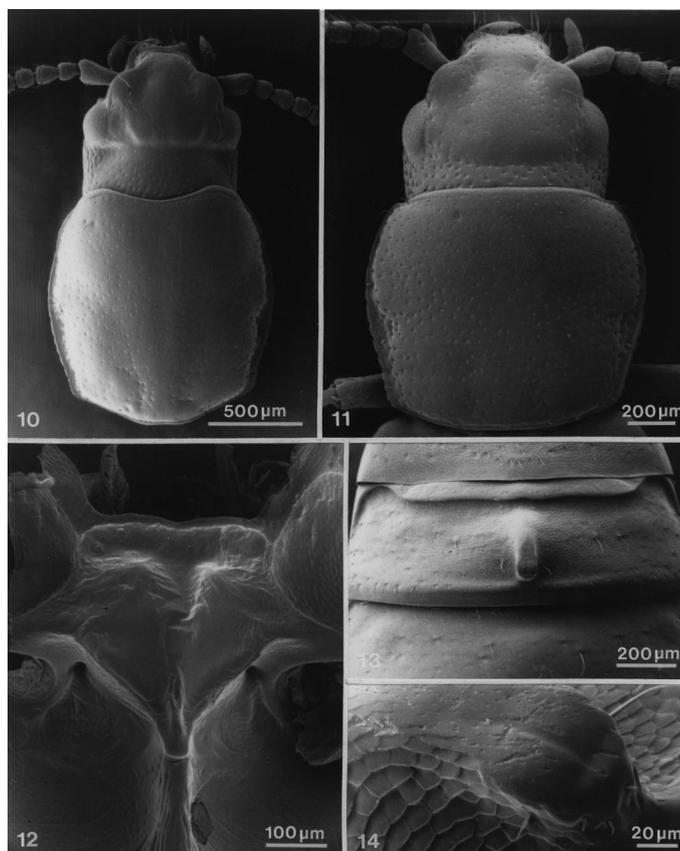
Etymology: The specific epithet is the Latin adjective *difformis*, -e (changing the shape of). It

refers to the sexually dimorphic shape of the pronotum.

Comments on *Zonyptilus* Motschulsky, 1845

Coprophilus difformis belongs to the subgenus *Zonyptilus* Motschulsky, 1845, as it was characterized by Tóth (1988:197). There is a lot of confusion as to the authorship and spelling of the name *Zonyptilus*. The name *Zonyptilus* was erected by Motschulsky (1845: 39) for the species *Z. pennifer*, described at the same time. Agassiz (1846: 392) emended the name in *Zonoptilus* and his emendation was accepted by several authors, including Motschulsky himself in a subsequent publication (1857:502). However, there was no reason to change Motschulsky's original spelling and the subsequent action by Agassiz (l.c.) constituted an unjustified emendation. For some time both spellings were used by different authors, but after about 1868 the spelling *Zonoptilus* was in use.

Most of the authors credited the name *Zonyptilus* (or in the emended form *Zonoptilus*) to



Figs. 10-14. *Coprophilus difformis* n. sp. 10. Male pronotum, dorsal view. 11. Female pronotum, dorsal view. 12. Mesosternum. 13. Medial carina on sternite 3. 14. Same, detail.

Motschulsky, with the year of publication 1845. However, Blackwelder (1952:409) argued that Motschulsky's original publication did not make the name *Zonyptilus* available, considered it a nomen nudum and credited Solsky (1867:85) with the authorship of *Zonyptilus*, as well as of *Z. pennifer*, arguing that it was Solsky who first validated both names. However, Motschulsky (1845:39), under the heading "*Zonyptilus pennifer* m.", gave a brief combined description of both the genus *Zonyptilus* and the species *Z. pennifer*, thus validating both names by indication (see Art.12b(6) of the Code), and establishing *Z. pennifer* as the type species of *Zonyptilus*, by monotypy.

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臺灣高海拔山區 *Coprophilus* Latreille, 1829 之一個新種及對 *Zonyptillus* Motschulsky 1845 (鞘翅目：隱翅蟲科：Oxytelinae) 之評論

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本文描述一個從臺灣高海拔山區發現的 *Coprophilus* (*Zonyptilus*) Latreille, 1829 屬的新種 *Coprophilus* (*Zonyptilus*) *difformis* (鞘翅目，隱翅蟲科)。此新種和此屬唯一一個分佈於臺灣的物種 *C. formosanus* Shibata 1993 (*Coprophilus* s.str) 做比較，並且對 *C. difformis* 雌雄二型性亦做簡短討論。本文並提供臺灣的 *Coprophilus* 屬的檢索表，討論有關 *Zonyptilus* 的命名及正統名稱的問題，發現 *Zonyptilus* 最初的正式名稱源自 Motschulsky, 1845 而非 Agassiz, 1846 的修正。

關鍵詞：鞘翅目，隱翅蟲科，*Coprophilus*，*Zonyptilus*，分類。

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