

# A Revision of the Buprestid Subtribe *Xenopsina* subtr. n. with Description of New Species from the Genera *Xenopsis* Saund. and *Sommaia* Toyama (Coleoptera, Buprestidae, Polycestinae) and Notes on Its Systematic Position

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**Abstract**—A new subtribe, *Xenopsina* subtr. n., comprising the Oriental genera *Xenopsis* Saunders, 1867, *Sommaia* Toyama, 1985, *Kurosawaxia* Descarpentries, 1986 (all genera transferred from Polyctesini), and *Theryola* Nelson, 1997, stat. n. (transferred from subtribe Polycestina), is established in the tribe Polycestini Lacordaire, 1857. Analysis of morphological characters has not supported the separation of the Polyctesioid lineage which was established on the ground of antennal sensory organ arrangement (Volkovitsh, 2001), and the tribes Thrincopygini, Polyctesini, and the *Chrysophana* group are transferred to the Polycestioid lineage. *Polycesta* (*Theryola*) Nelson, 1997 is upgraded to the generic level; the generic name *Paraxenopsis* Cobos, 1980 is synonymized with *Xenopsis* Saunders, 1867. *Xenopsis woodleyi* (Malaysia), *X. violaceocyanea* (Malaysia), *X. kubani* (Laos), *X. pacholatkoii* (Thailand, Laos), and *Sommaia kalabi* (Myanmar) spp. n. are described, compared, and illustrated. Keys to the genera of *Xenopsina* subtr. n. and to the species of *Xenopsis* and *Sommaia* are presented. Diagnostic characters of *Xenopsina*, Polyctesini, and Polycestini are discussed.

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Recently I have examined several specimens of undescribed buprestid species collected from southeastern Asia and presumably belonging to the poorly known genera *Paraxenopsis* Cobos and *Sommaia* Toyama (Polycestinae, Polyctesini). Type specimens of species of the genera *Xenopsis* Saund., *Paraxenopsis*, *Kurosawaxia* Desc., and *Polycesta* (*Theryola*) *touzalini* Théry and additional material, including one more new species, from a number of museums and private collections were also examined. As the result of examination, new species of these little known genera were described, and the close relationship between them was confirmed. The manuscript of the present paper had been finished, when Hołyński's (2003) publication appeared, in which the informal *Xenopsis*-group, including the mentioned genera, was distinguished within the tribe Polyctesini Cobos and a certain relationship of the group to *P. touzalini* was indicated. This circumstance necessitated additional studies aimed to analyze the morphological characters and to clarify the status, taxonomic position, and relationships of this group. The results obtained are given below.

The following abbreviations are used in text: ZIN, Zoological Institute, Russian Academy of

Sciences (St. Petersburg, Russia); BMNH, Natural History Museum (London, Great Britain); CLBC, Dr. C. L. Bellamy's collection (Sacramento, California, USA.); COTJ, Dr. S. Ohmomo's collection (Tsukuba, Japan); EJCB, Dr. E. Jendek's collection (Bratislava, Slovakia); GNCW, Ing. Gottfried Novak's collection (Wien, Austria); ISNB, Institut Royal des Sciences Naturelles de Belgique (Brussels, Belgique); MNHN, Muséum national d'Histoire naturelle (Paris, France); NSMT, National Science Museum (Natural History) (Tokyo, Japan); NWCW, Dr. N. Woodley's collection (Washington, D.C., USA); RMNH, Nationaal Natuurhistorische Museum (Leiden, the Netherlands); UNCV, Ulf Nylander's collection (Valbo, Sweden); and VKCB, Ing. V. Kubáň's collection (Brno, Czech Republic). For labels, the following abbreviations are used: [p] printed, [h] handwritten, [red] on red paper, [blue] on blue paper.

In descriptions, width of the body and elytra was measured at the bases of the pronotum and elytra, respectively; width of the frons, at the level of the antennal fossae; width of the vertex, at the level of the dorsal margin of the eyes.

Tribe **POLYCESTINI** Lacordaire, 1857

Subtribe **XENOPSINA** Volkovitsh, subtr. n.

*Xenopsis*-group Hołyński, 2003 : 9.

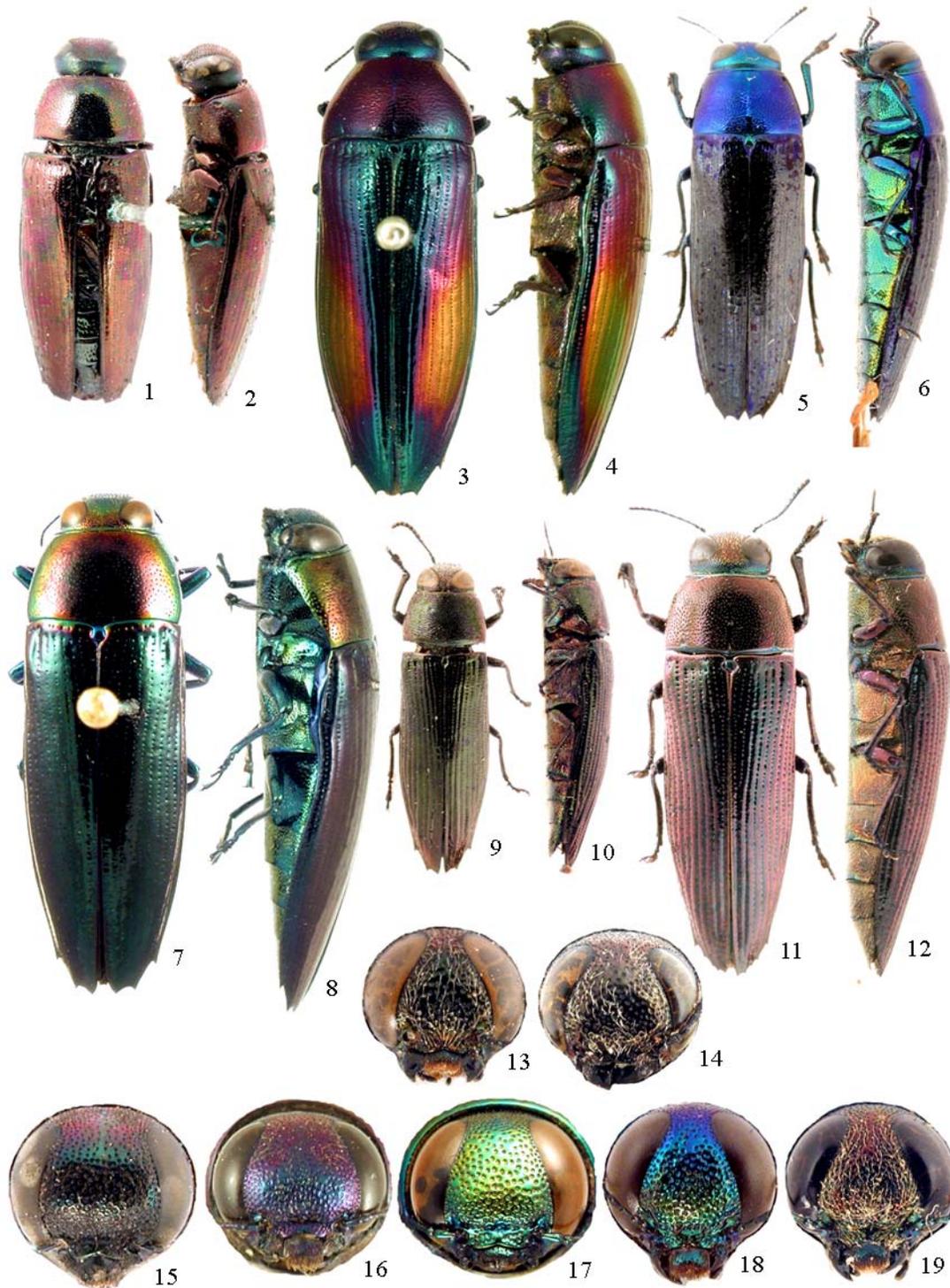
**Description.** Body medium-sized to large (10–25 mm), bright with metallic sheen, frequently multi-colored, iridescent (Figs. 1–8, 15–19, 27, 28, 31–34), occasionally dimorphic, less frequently dark and nearly one-colored dorsally (Figs. 9–14, 20–26, 29, 30). Dorsal curvature well defined (Figs. 2, 4, 6, 8, 10, 12, 21, 23, 25, 28). Frons distinctly converging toward vertex (Figs. 13–19, 29–34); in males, vertex frequently narrower than eye diameter (Figs. 13, 18, 19). Clypeus separated from frons by transverse depression, sulcus, or ledge (Figs. 13–19, 31–34) (almost not separated in *Theryola*, Figs. 29, 30); its lateral branches strongly reduced, cariniform; antennal fossae open. Antennae weakly serrate beginning with 4th or 5th antennomere (Figs. 40–42), occasionally sharply dimorphic; with subapical, less frequently with ventral sensory fossae and lateral fields of basiconic external sensilla (Fig. 43) beginning with 4th antennomere; terminal antennomere with fossae at both sides. Pronotal disc transversely rugulose at base (Fig. 38). Prosternal process short, wider than long (Figs. 26, 35, 36). Elytra basally with 12 distinct striae of punctures, among which 2nd and 3rd ones from suture short; 2nd stria merging with 1st one or terminating freely in anterior 1/5–1/3, 3rd stria merging with 1st one or terminating freely near middle of elytra (Fig. 37). Elytral base slightly cariniformly elevated, separated by transverse row of punctures; epipleura narrow, not concealing metepisternum, separated by longitudinal carina, with small tooth at level of hind coxae (Figs. 2, 4, 6, 8, 10, 12, 21, 23, 25, 28). Elytral apex with 3–5 large teeth, less frequently with numerous small teeth; anterior tooth usually largest. 3rd, 5th, and 7th elytral intervals frequently elevated and curved before apices (Figs. 9–12, 20–25, 27, 28); 7th interval occasionally shortened, widened, and swollen at apex (Figs. 20–25, 27, 28). Wings (Figs. 59–64) without cross-vein *r-m*, veins *Rr* and *Mr* fused at apices, radial cell *rc* strongly reduced, rudiment of vein *AA*<sub>3a</sub> present. Tibiae without spurs (except in *Kurosawaxia*, Fig. 51), or middle and hind tibiae each with 1 large spur (*Theryola*, Fig. 53). Tarsal pads (Figs. 44, 48–53) developed on 3rd and 4th tarsomeres (on 2nd–4th ones in *X. woodleyi*) (Figs. 46, 47), frequently sharply widened. Claws with weak projection at base, but without tooth. Sternite VIII of male (Figs. 65, 69) without tooth, with

angular, less frequently rounded apex and with membranous median stripe. Tergite IX (Figs. 68, 72) wider than long, with relatively narrow, not fused paraprocts. Basal part of tegmen of aedeagus with small, but distinct dorsal apodeme (Figs. 73, 75, 77, 79, 81, 83). Penis (Figs. 74, 76, 78, 80, 82, 84) usually strongly elongate, narrow, with small apical apodeme (except in *Theryola*) bearing sharp apical filament; lateral margins not serrate; apophyses relatively short, poorly differentiated. Ovipositor (Figs. 91–93) tubular, typical of Polycestini, with ventral hemisternites sharply converging and not reaching anterior margin. Many species exhibit marked dimorphism in coloration, width of vertex (Figs. 13, 14, 32, 33), and occasionally also in structure of antennae and 1st tarsomere of hind tarsus (Figs. 48–50).

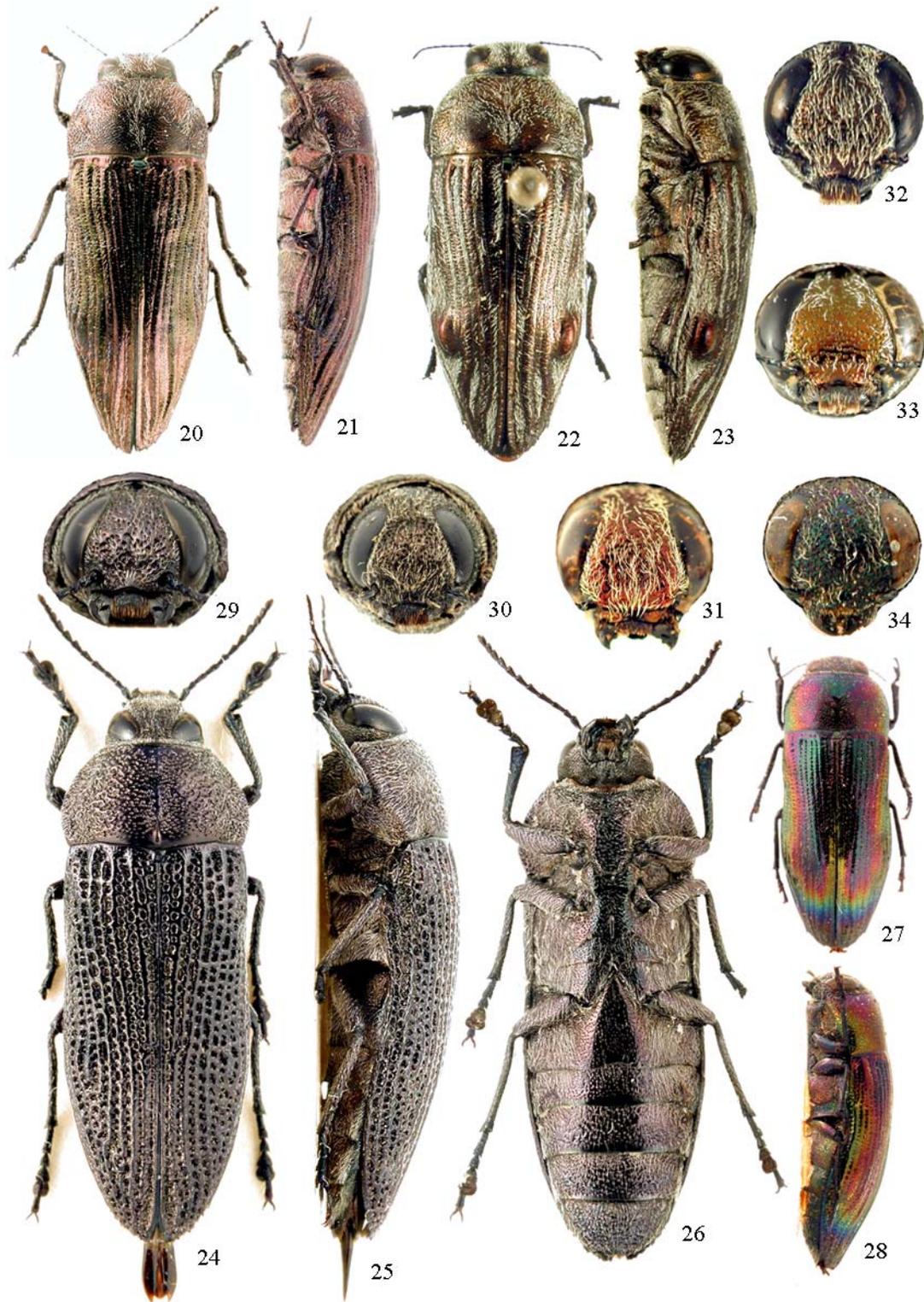
**Genera included.** *Xenopsis* Saunders, 1867; *Kurosawaxia* Descarpentries, 1986; *Sommaia* Toyama, 1985; *Theryola* Nelson, 1997, stat. n.

**Diagnosis.** The main diagnostic characters of *Xenopsina* subtr. n. are as follows: presence of fine transverse rugosity of base of pronotal disc (also present in Tyndarini, but being stronger) and 2 shortened punctate striae at elytral base (among Polycestini such striae also occur in *Polycesta afghanica* Volk. and *Polycestella curta* Kerr., but being less distinct), reduction of tarsal pads on 1st and 2nd tarsomeres and their increase in size on 3rd and 4th tarsomeres, structure of pregenital segments of male, presence of dorsal apodeme of basal part of tegmen (character shared with Polyctesini), details of penis structure, and, at least in species known from individuals of both sexes, dimorphism in coloration, width of vertex, and occasionally structure of antennae and 1st tarsomere of hind tarsus. In some genera of the tribe, teeth at the elytral apex tend to decrease in number and increase in size (4 large teeth on each elytron occur in *Polycestoides* Kerr.); the 7th elytral interval shortens and widens and swells at the apex (*Kurosawaxia*, *Sommaia*, *Theryola*; also *Tyndarimorpha* Moore et Diégues, Tyndarini); the odd intervals are elevated and curved before the apices (some species of *Xenopsis*, *Kurosawaxia*, *Sommaia*); the apical spurs on tibiae are reduced; and sexual dimorphism is observed. The larvae and mode of life of the species are unknown.

**Notes.** In recent years all the taxa mentioned, except for *Polycesta* (*Theryola*), were included in the tribe Polyctesini Cobos (1980; Bellamy, 1985; Volkovitsh, 2001; Bellamy, 2003; Hołyński, 2003). However, the



**Figs. 1–19.** *Xenopsis* Saund., general view, head: (1, 2, 15) *X. laevis* Saund., holotype, female (BMNH) (length 12.5 mm); (3, 4, 16) *X. boschmai* Théry, holotype, female (RMNH) (length 16.4 mm); (5, 6, 18) *X. violaceocyanea* sp. n., holotype, male (VKCB) (length 13 mm); (7, 8, 17) *X. woodleyi* sp. n., holotype, male (NWCW) (length 16 mm); (9, 10, 13, 14) *X. pacholatkoii* sp. n.: [(9, 10, 13) holotype, male (VKCB) (length 13 mm), (14) paratype, female (VKCB) (length 18.7 mm)]; (11, 12, 19) *X. kubani* sp. n., holotype, male (VKCB) (length 15.3 mm); (1, 3, 5, 7, 9, 11) dorsal view; (2, 4, 6, 8, 10, 12) lateral view; (13–19) head, front view.



**Figs. 20–34.** *Xenopsina* subtr. n., general view, head: (20, 21, 31) *Sommaia kalabi* sp. n., holotype, female (VKCB) (length 13.9 mm); (22, 23, 32, 33) *S. gibber* Toyama [(22, 23, 32) female (ISNB) (length 14.8 mm); (33) male (COTJ) (length 12.7 mm)]; (24–26, 29, 30) *Theryola touzalini* (Théry) [(24–26, 29) male (VKCB) (length 19.3 mm); (30) holotype, female (MNHN) (length 25.2 mm)]; (27, 28, 34) *Kurosawaxia iris* Desc., holotype, female (MNHN) (length 10.5 mm); (20, 22, 24, 27) dorsal view; (21, 23, 25, 28) lateral view; (26) ventral view; (29–34) head, front view.

results of the present study testify to their belonging to the tribe Polycestini Lacord. The taxonomic position of the subtribe *Xenopsina* is discussed below.

**Distribution.** Southeastern Asia.

*A Key to the Genera of the Subtribe Xenopsina*

- 1 (6). Elytral striae much narrower than intervals (Figs. 1–12, 20–23, 27, 28). Body medium-sized (10–19 mm). Tibiae without spurs, or middle and hind tibiae with 2 short spurs (Figs. 44, 46–52).
- 2 (5). Tibiae without spurs (Figs. 44, 46–50, 52).
- 3 (4). Body strongly elongate, “sphenopteroid,” 3.0–3.6 times as long as wide (Figs. 1–12), dorsally glabrous or with short inconspicuous setae at sides of pronotum, rarely, on disc. Pronotum regularly convex, without depressions and reliefs. Elytral apices with 3, rarely 5 large symmetrical teeth. 7th interval not modified, not widened and not swollen at apex. Hind tibia with row of setae along outer margin (Figs. 44, 48–51). Aedeagus as in Figs. 73–80 .....  
..... *Xenopsis* Saund.
- 4 (3). Body wide, 2.8–3.0 times as long as wide (Figs. 20–23), sharply narrowed toward elytral apices, dorsally covered with dense distinct pale setae forming patches in depressions and, occasionally, stripes on elytra. Pronotum with weak depressions and reliefs. Elytral apices with numerous small, frequently asymmetrical and indistinct teeth. 7th interval strongly widened and swollen at apex. Hind tibia without row of setae along outer margin (Fig. 52). Aedeagus as in Figs. 81, 82 .....  
..... *Sommaia* Toyama.
- 5 (2). Middle and hind tibiae with paired spurs; hind tibia with row of setae along outer margin (Fig. 51). Body wide, 2.7–2.8 times as long as wide, smoothly narrowed toward elytral apices; coloration bright, with metallic sheen, iridescent (Figs. 27, 28). Elytral apices with 3 delicate indistinct teeth or finely serrate. 7th interval shortened, widened and swollen at apex .....  
..... *Kurosawaxia* Desc.
- 6 (1). Elytral striae as wide as, or wider than intervals (Figs. 24, 25). Body larger (19–25 mm). Middle and hind tibiae with 1 large spur (Fig. 53). Aedeagus as in Figs. 83, 84 .....  
..... *Theryola* Nels., stat. n.

Genus *XENOPSIS* Saunders, 1867

Saunders, 1867 : 514; 1871 : 56; Kerremans, 1892 : 133; 1893 : 113; 1902 : 21; 1905 : 374, 405; Obenberger, 1926 : 38; Cobos, 1955 : 4; 1980 : 59; Bellamy, 1985 : 411; 2003 : 21; Holyński, 2003 : 10; Bellamy, 2005 : 151.

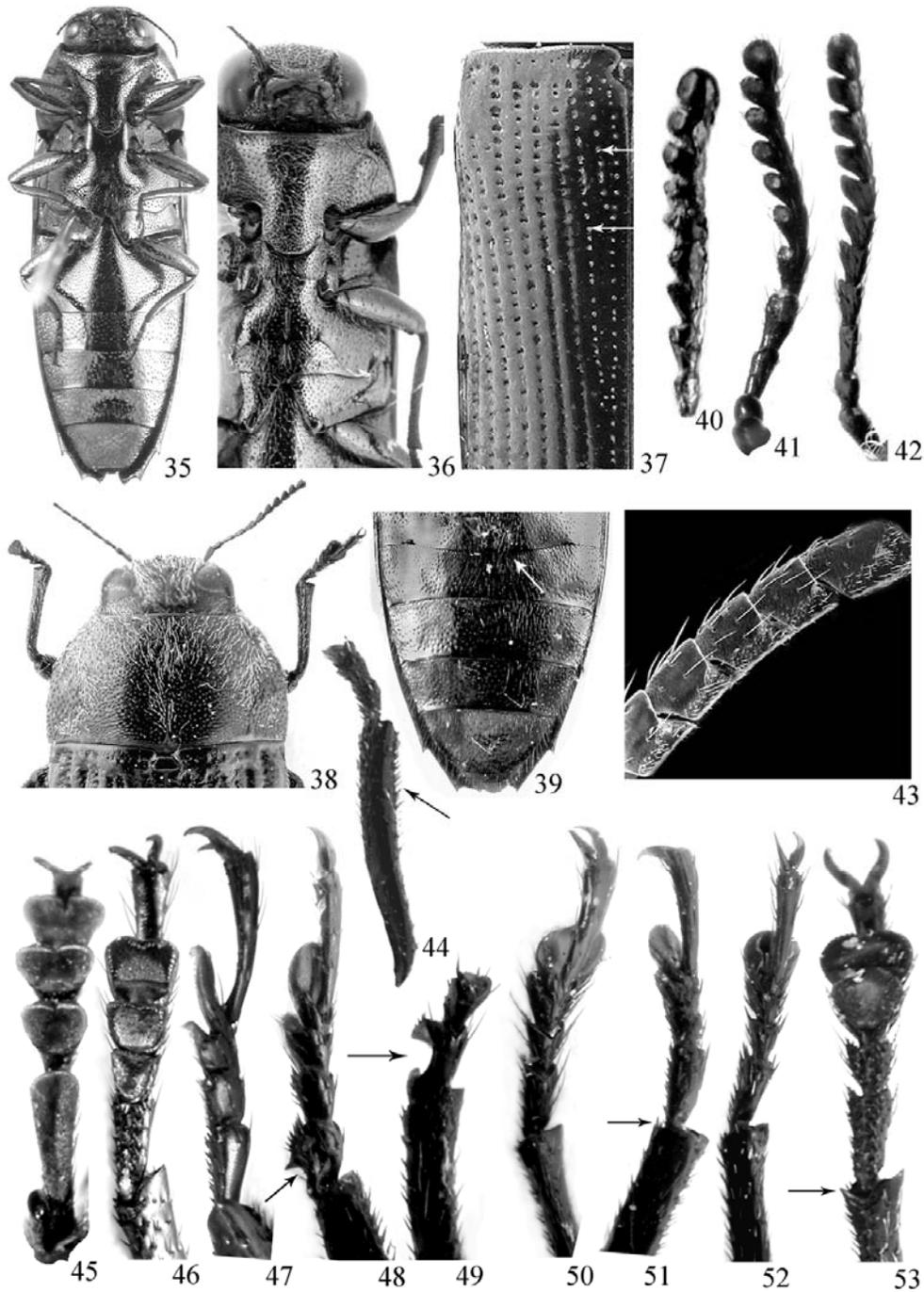
Type species *Xenopsis laevis* Saunders, 1867 (by monotypy).

*Paraxenopsis* Cobos, 1980, syn. n.

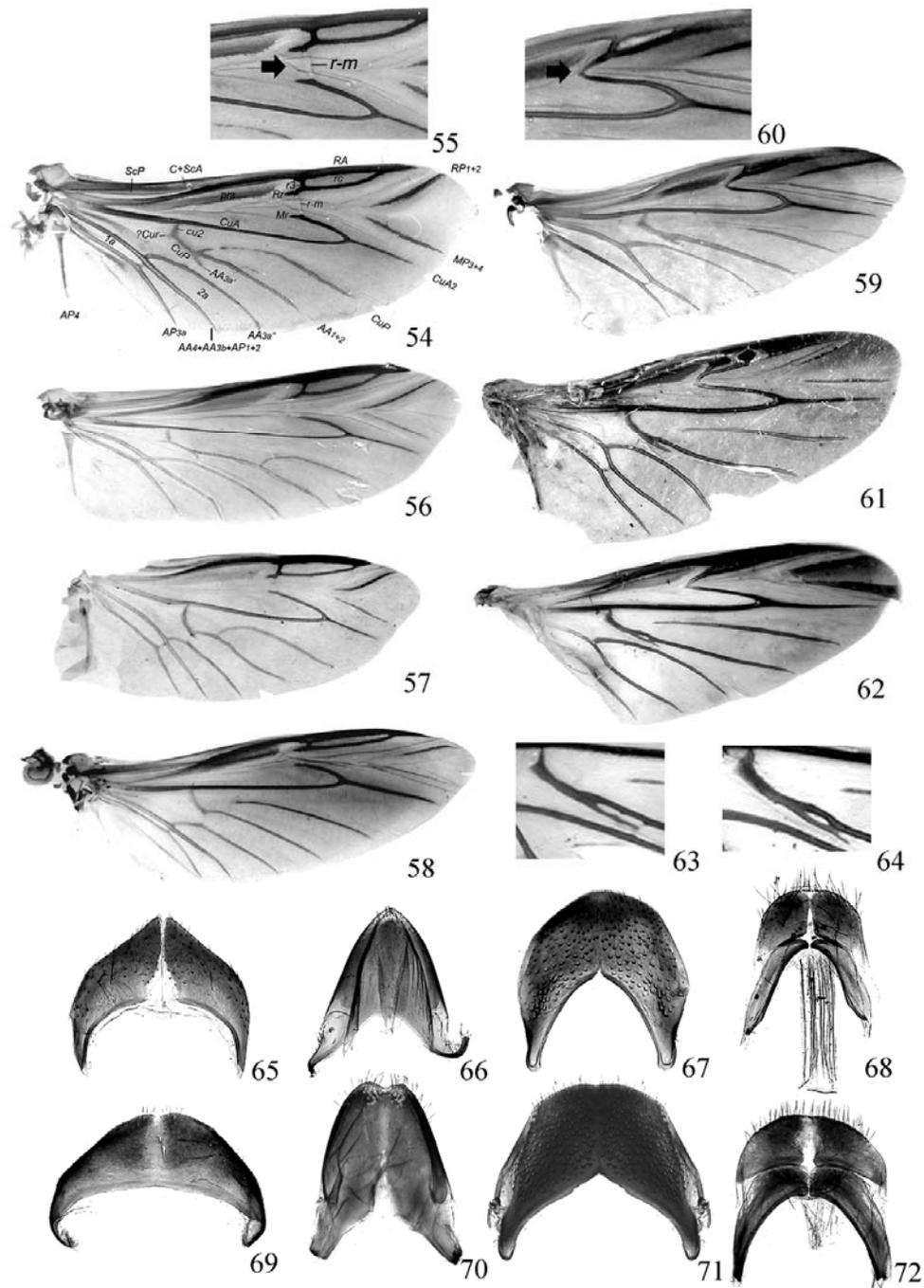
Cobos, 1980 : 59; Bellamy, 1985 : 411; Akiyama, Ohmomo, 2000 : 137, 292; Bellamy, 2003 : 20; Holyński, 2003 : 10; Bellamy, 2005 : 151.

Type species *Xenopsis boschmai* Théry, 1935 (by monotypy).

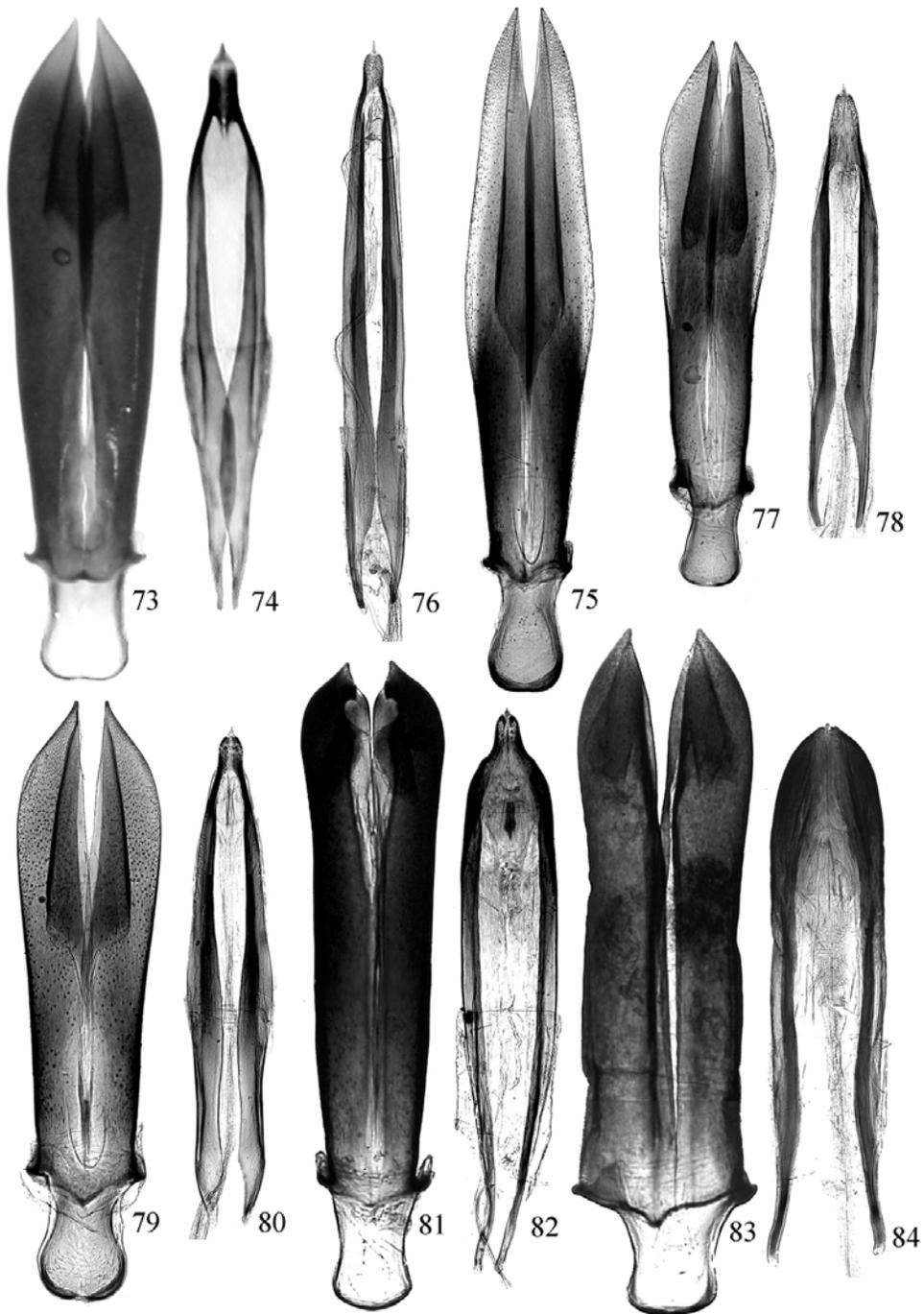
**Description.** Body (Figs. 1–12) medium-sized (length 10.6–18.7 mm, width 3.2–5.9 mm), strongly elongate, 3.0–3.6 times as long as wide, “sphenopteroid,” usually bright, multicolored; pronotum and elytra glabrous (except in *X. laevis*), sides of pronotum occasionally with very short, inconspicuous setae; head and ventral side of body with dense setae. Eyes very large, strongly approximate on vertex; vertex of male narrower than eye diameter; head weakly convex, without marked depressions and reliefs, with ocellate sculpture of umbilicate punctures; clypeus separated from frons by transverse depression or by sulcus sometimes marked only medially, anterior margin shallowly angularly emarginate (Figs. 13–19). Pronotum slightly transverse, regularly convex, without distinct depressions and reliefs (Figs. 1–12); anterior margin nearly straight, edged with carina and fine deep sulcus; posterior margin weakly bisinuate, with very poorly developed median projection; posterior angles not projecting; disc occasionally with fine median line or smooth stripe, basal fossae punctiform, distinguished by coloration; lateral carina developed to various extent. Anterior margin of prosternum cariniform, occasionally forming narrow collar (Fig. 35). Scutellum (Figs. 1, 3, 5, 7, 9, 11) varying in shape, usually roundly trapeziform, widened backwards, slightly longer than wide. Elytra (Figs. 1–12) strongly elongate; apices with 3, rarely 5 large sharp symmetrical teeth; humeral calli weakly projecting; suture very weakly diverging behind middle; punctate striae superficial or weakly sulcate, especially before apices; intervals flat, equal, or alternately convex and curved before apices, with very fine and sparse punctures, usually glabrous. Radial cell of wing strongly reduced,



**Figs. 35–53.** *Xenopsina* subtr. n. and *Polycatesis* Mars.: (35, 46, 47) *Xenopsis woodleyi* sp. n., holotype, male (NWCW); (36, 42) *X. violaceocyanea* sp. n., holotype, male (VKCB); (37, 48) *X. kubani* sp. n., holotype, male (VKCB); (38, 52) *Sommaia kalabi* sp. n., holotype, female (VKCB); (39, 41) *X. boschmai* Théry, holotype, female (RMNH); (40, 44) *X. laevis* Saund., holotype, female (BMNH); (43, 49, 50) *X. pacholatkoii* sp. n. [(43, 49) holotype, male; (50) paratype, female (VKCB)]; (45) *Polycatesis rhois* Mars.; (51) *Kurosawaxia iris* Desc., holotype, female (MNH); (53) *Theryola touzalini* (Théry.). (35) Ventral view; (36) thorax, ventral view; (37) striae of punctures of right elytron; (38) head and pronotum, dorsal view; (39) abdomen, ventral view; (40–43) antennae [(40, 41, 43) ventral view, (42) dorsal view]; (44–53) apices of tibiae and tarsi. Arrows show: (37) shortened striae, (39) curved suture between 1st and 2nd visible sternites, (44) row of setae at outer margin of tibia, (48, 49) modified 1st tarsomere of hind tarsus of male, (51, 53) apical spurs of tibiae.



**Figs. 54–72.** Polycestinae, wings and internal abdominal segments of males: (54, 55) *Polycetes rhois* Mars.; (56) *Schoutedeniastes okhurai* (Akiyama et Ohmomo); (57) *Chrysophana placida* (LeC.); (58) *Thrincopyge alacris* LeC.; (59, 60) *Polycesta ?goryi* Saund.; (61) *Xenopsis laevis* Saund., holotype, female (BMNH); (62–68) *X. pacholatko*i sp. n.: holotype, male (VKCB); (69–72) *Theryola touzalini* (Théry). (54–64) Wings [(54, 56–59, 61, 62) general view; (55, 60) connection of veins *Rr* and *Mr*; (63, 64) shape of vein *AA*<sub>3a'</sub> on left (63) and right (64) wings (nomenclature of veins in Figs. 54 following Fedorenko (2006))]; (65–72) internal abdominal segments [(65, 69) *SVIII*; (66, 70) *SIX*; (67, 71) *TVIII*; (68, 72) *TIX*].



**Figs. 73–84.** *Xenopsina* subtr. n., aedeagus: (73, 74) *Xenopsis woodleyi* sp. n., holotype (NWCW) (length 4.1 and 3.5 mm); (75, 76) *X. pacholatkoii* sp. n., holotype (VKCB) (length 4.1 and 3.4 mm); (77, 78) *X. violaceocyanea* sp. n., holotype (VKCB) (length 3.3 and 2.6 mm); (79, 80) *X. kubani* sp. n., holotype (VKCB) (length 3.6 and 3.0 mm); (81, 82) *Sommaia gibber* Toyama (COTJ) (length 3.8 and 3.3 mm); (83, 84) *Theryola touzalini* (Théry) (VKCB) (length 4.1 and 3.3 mm). (73, 75, 77, 79, 81, 83) tegmen; (74, 76, 78, 80, 82, 84) penis.

very narrow (Figs. 61, 62). Coxal plates parallel-sided, posterior margin widely and shallowly emarginate, slightly deflexed; tibiae without spurs, fore tibia distinctly widened toward apex, hind tibia with row of brownish setae along outer margin (Figs. 48–50); 1st

tarsomere of hind tarsus strongly modified in males of *X. pacholatkoii* and *X. kubani* spp. n. (Figs. 48, 49), not modified in other species (Figs. 46, 47). Suture between 1st and 2nd visible abdominal sternites straight (Fig. 35) or arcuate (Fig. 39); abdomen with dense

punctuation and setae forming no patches. Pregenital abdominal segments of male as in Figs. 65–68. Tegmen (Figs. 73, 75, 77, 79) poorly sclerotized, parameres occasionally with membranous margins; penis (Figs. 74, 76, 78, 80) narrow, poorly sclerotized, with small apical apodeme and with wide, not differentiated apophyses. Ovipositor typical of Polycestini.

**Diagnosis.** *Xenopsis* differs from the other genera in the elongate “sphenopteroid” body, very narrow vertex of the male, presence of 3–5 symmetrical large teeth of the elytral apices, structure of the aedeagus, and structure of the 1st tarsomere of the hind tarsus in males of some species. This genus additionally differs from *Kurosawaxia* and *Sommaia* in the absence of an apical swelling on the 7th elytral interval; from *Kurosawaxia*, in the absence of spurs on the tibiae; from *Sommaia*, in the presence of one row of setae along the outer margin of the hind tibia; and from *Theryola*, in the smaller size and shape of the body, sculpture of the elytra, and absence of spurs on the tibiae.

**Notes.** The genus *Xenopsis* Saund. was long known only from the holotype of its type species, *X. laevis* Saund.; much later, Théry (1935) described from a single female one more species of this genus, *X. boschmai* Théry, for which Cobos (1980) established the separate genus *Paraxenopsis* Cobos. Kerremans (1893, 1902, 1905) placed *Xenopsis* in the *Polycestites* group; Cobos (1980) transferred *Xenopsis* and also *Paraxenopsis* to the tribe Polycetesini Cobos.

In keys to tribes of Polycestinae and to genera of the tribe Polycetesini, Cobos (1980 : 26, 59) used extremely unreliable characters (Hołyński, 2003) and committed a number of errors in delimitation of the genera *Xenopsis* and *Paraxenopsis*. In both genera, the antennae are serrate and bear depressions beginning with the occasionally not widened 4th antennomere (Figs. 40, 41; in *X. laevis*, the basal antennomeres are lost). The hind tibia of *X. laevis* bears one row of setae along the outer margin (Fig. 44). In all the species, except for *X. woodleyi*, tarsal pads are present only on the 3rd and 4th tarsomeres (Figs. 44, 46–50). The sculpture and pubescence rather widely vary within the genus. The main diagnostic character of the genus *Paraxenopsis* is the presence of a sulcus separating the clypeus; it is well developed in *X. boschmai*, *X. woodleyi*, and *X. kubani* and is marked only medially in *X. violaceocyanea*; *X. laevis* possesses a transverse depression there. The shapes of the anal sternite and the lateral projections of the ab-

domen (usually concealed by the epipleura) are also unreliable characters, some characters depend on sex. *X. laevis* clearly differs from the other species (see diagnosis), but, in my opinion, these differences are insufficient even to distinguish subgenera. Therefore, the name *Paraxenopsis* Cobos, 1980 is considered here a junior synonym of the name *Xenopsis* Saunders, 1867.

**Etymology and grammatical gender.** The name *Xenopsis* is a complex word. It has an ancient Greek origin and consists of two words: “ξέγος”—strange, unusual, and “όπι”—appearance, shape. The ending “is” assumes the feminine gender. Bellamy (2003) indicated the masculine gender for *Xenopsis* and the derivative name *Paraxenopsis*, but later (Bellamy, 2005) changed it to the feminine gender.

#### *A Key to Species of the Genus Xenopsis*

- 1 (10). Tarsal pads developed on 3rd and 4th tarsomeres (Figs. 47–50).
- 2 (9). Elytral apices with 3 teeth (Figs. 1, 3, 5, 7, 9).
- 3 (8). Clypeus separated from frons by deep transverse sulcus (Figs. 16, 17) occasionally developed only medially (Fig. 18). Pronotal disc and elytra glabrous. Teeth of elytral apices large, interval between anterior and middle teeth nearly twice that between middle and presutural teeth (Figs. 3, 5, 7, 9). Transverse rugosity at base of pronotum more or less distinct.
- 4 (7). Elytral intervals flat and straight along entire length; body bright dorsally, multicolored, iridescent (Figs. 3–8).
- 5 (6). Sulcus separating clypeus distinct along entire length, reaching inner margins of eyes (Fig. 16); sides of clypeus with long erect setae. Female: pronotal sides strongly converging forward, dorsally blue with violet or green sheen, each elytron with longitudinal golden-red spot (Figs. 3, 4). 16.4 mm. Indonesia: Sumatra .....  
..... *X. boschmai* Théry.
- 6 (5). Sulcus separating clypeus distinct only medially (Fig. 18); sides of clypeus without long erect setae. Male: pronotal sides moderately converging forward; elytra violet-blue, head and pronotum blue with violet sheen (Figs. 5, 6); 1st tarsomere of hind tarsus not modified. Aedeagus as in Fig. 77, 78. 13.0 mm. Malaysia: Pahang .....  
..... *X. violaceocyanea* sp. n.

- 7 (4). Odd intervals distinctly elevated and curved before apices; body dorsally dark bronze, nearly one-colored (Figs. 9, 10). First tarsomere of hind tarsus with deep C-shaped ventral emargination in male (Fig. 49), not modified in female (Fig. 50); distal antennomeres of male with truncate margins forming nearly continuous line (Fig. 43). Aedeagus as in Figs. 75, 76. 10.6–18.7 mm. Thailand, Laos .....  
..... *X. pacholatko* sp. n.
- 8 (3). Clypeus separated from frons by transverse depression (Fig. 15). Pronotum and elytra with distinct brown setae. Teeth of elytral apices small, identical, with equal intervals. Pronotum with sparse fine punctation, transverse basal rugosity indistinct. Female: body (Figs. 1, 2) one-colored, coppery-bronze; vertex (Fig. 15) wide, its width 1.6 times eye diameter; frons 1.22 times as wide as vertex. 12.5 mm. Malaysia: Penang .....  
..... *X. laevis* Saund.
- 9 (2). Elytral apices with 5 teeth (Fig. 11). Male: body dorsally almost uniformly colored, blackish blue with violet sheen (Figs. 11, 12). First tarsomere of hind tarsi with shallow emargination at base ventrally, bounded by tooth dorsally (Fig. 48). Aedeagus as in Figs. 79, 80. 15.3 mm. Laos .....  
..... *X. kubani* sp. n.
- 10 (1). Tarsal pads developed on 2nd–4th tarsomeres (Fig. 46). Male: pronotal disc purple-violet, sides greenish blue; elytra blackish blue or violet (Figs. 7, 8). First tarsomere of hind tarsus not modified (Figs. 46, 47). Aedeagus as in Figs. 73, 74. 12.5–17.3 mm. Malaysia: Borneo: Sabah .....  
..... *X. woodleyi* sp. n.

*Xenopsis laevis* Saunders, 1867  
(Figs. 1, 2, 15, 40, 44, 61)

Saunders, 1867 : 514; 1871 : 59; Kerremans, 1892 : 133; 1902 : 22; 1905 : 406; Obenberger, 1926 : 38; Cobos, 1980 : 59, Fig. 23; Bellamy, 2003 : 21.

Holotype (BMNH): female (5 labels), "Type [p]," "Penang [h, blue]," "*Xenopsis laevis*, type, E. S. [h]," "Penang (Lamb.), Pascoe Coll. [p]," "*Xenopsis laevis* E. S. [h]."

**Diagnosis.** *X. laevis* differs from the other species in the following characters: vertex wide (width 1.61 times eye diameter); pronotal disc and elytra with distinct brown setae; clypeus separated from frons by transverse depression, instead of sulcus; lateral carina

of pronotum well developed and strongly curved; transverse rugosity of pronotal disc indistinct; prosternal process very wide and short; teeth of elytral apices small, with equal flat intervals in between. The coloration and width of the vertex may be dimorphic. The species is similar to *X. boschmai* (Théry), *X. woodleyi*, and *X. violaceocyanea* spp. n. in the strongly smoothed sculpture of the dorsal surface and in the fine superficial striae and flat wide intervals of the elytra. The male is unknown. The ovipositor is tubular, about 3 times as long as its widened part; the styli are long, thick, separated by the distance equal to their length; the apex projects forward, is shallowly emarginate; the dorsal hemisternites sharply curve in the apical 1/3, weakly widen at the apex; the ventral hemisternites are approximate before the middle, do not reach the apex of the ovipositor.

**Distribution.** Malaysia: Penang.

**Notes.** The holotype is badly damaged; the antennae, hind legs, and ovipositor are pasted on separate plates.

*Xenopsis boschmai* Théry, 1935  
(Figs. 3, 4, 16, 39, 41)

Théry, 1935 : 241; Cobos, 1980 : 59, fig. 24 (*Paraxenopsis*); Akiyama, Ohmomo, 2000 : 292 (*Paraxenopsis*); Bellamy, 2003 : 20 (*Paraxenopsis*).

Holotype (RMNH): female (6 labels), "J. Menzel, Loeboe Banghoc, Sumatra occid. [h]," "*Xenopsis Boschmai* Théry [h], TYPE [p]," "♀ [p]," "*Paraxenopsis boschmai* (Théry), nov. gen. [h], A. Cobos det., 197 [p] 5 [h]," "Holotype, 1998 [h], det. R. Holynski [p]," "Holotype [p, red]." According to the personal communication of Dr. van Assen (RMNH), the name "Loeboe Banghoc" may correspond to Loeboe Dalam.

**Diagnosis.** *X. boschmai* is closely related to *X. laevis* Saund., *X. woodleyi*, and *X. violaceocyanea* spp. n. in the equal flat elytral intervals, differs from the other species in the coloration and pattern of the elytra, in the pronotum sharply narrowed forwards, brownish pubescence (except for *X. laevis*), long setae on sides of the clypeus, shape and relief of the anterior margin of the prosternum, in the mesosternum and anterior process of metasternum with the sharp angles projecting sideways, presence of additional striae in the apical part of the 5th interval, and in the arcuate suture between abdominal sternites I and II. The body coloration and striae of the 5th interval may vary. The male is unknown.

**Notes.** Under the name *X. boschmai*, Akiyama and Ohmomo (2000, p. 137, Figs. 135-1, 135-2) give photographs of a male (Harau Valley, Paya Kumbuh, C. Sumatra, IV–V.1989, E. Marlis leg.) and a female (same locality, X.1989–I.1990, A. Sarimudanas leg.) of an unknown species differing in the much smaller body (8–11 mm) and in the pronotum less strongly narrowed forwards. In the male of this species, the elytra are almost uniformly colored, blackish green, the head and pronotum are green; in the female, the pronotum and elytra are bright green anteriorly, and purple-red without spots posteriorly.

**Distribution.** Indonesia: Sumatra.

*Xenopsis woodleyi* Volkovitsh, sp. n.  
(Figs. 7, 8, 17, 35, 46, 47, 73, 74)

**Description** (male) (Figs. 7, 8, 17). Body elongate, 3.27–3.39 times as long as wide, weakly narrowed backwards, multicolored, with metallic sheen, iridescent; frons, pronotal margins, proximal antennomeres, tibiae, and middle of thorax bluish green; anterior margin of elytra, sides of thorax, hind coxa, femora, and abdomen golden-green with reddish and purple sheen; vertex, sides and disc of pronotum anteriorly and, occasionally, elytral suture purple-violet; scutellum blue; middle of pronotal disc blackish violet with bluish sheen; elytra blackish blue or blackish violet; head and ventral side of body with short sparse pale brown and transparent setae; pronotum (except at sides) and elytra glabrous; elytral apices with 3 teeth; body length 12.5–17.3 mm, width 4.0–5.1 mm.

Head (Fig. 17). Frons 1.77 times as wide as vertex, with distinctly curved lateral sides; vertex very narrow, 0.9–1.0 times as wide as eye diameter, with fine median suture. Frons with ocellate sculpture of large umbilicate punctures with uneven bottom and inconspicuous micropunctures in lower part, intervals between punctures subequal to half diameter of punctures, punctures smaller and sparser in upper part. Clypeus separated from frons by deep transverse sulcus nearly reaching inner margins of eyes and surrounding dorsally well-developed and sharp supraantennal carinae. Antennae short, 1.11–1.14 times as long as height of eye, serrate beginning with 5th antennomere, but with subapical depressions beginning with 4th antennomere. Second antennomere irregularly rounded; 3rd elongate, 1.5 times as long as 2nd; 4th nearly of same length, widened toward apex, distinctly narrower than 5th; 5th widened toward apex, slightly

narrower than 6th, with rounded inner angle; 6–8th antennomeres triangular, subequal in length and width; 9th and 10th transverse, wider than long, with rounded inner margin; 11th rounded at apex, longer than wide.

Pronotum (Figs. 7, 8) 1.51 times as wide as long, regularly convex, with disc slightly flattened before base. Lateral margins arcuately converging forward; maximum width in basal 1/4. Disc with inconspicuous median line interrupted in middle. Lateral carina smoothed, well developed only in posterior corners, but visible nearly up to anterior angles, weakly bisinuate. Surface with fine smoothed sculpture; sides with sparse small umbilicate punctures separated by intervals equal to 2–4 diameters of punctures; anterior 1/3 of disc with smaller and sparser punctures; transverse rugosity indistinct. Sides with very short transparent setae, length of which equal to diameter of punctures; disc glabrous. Anterior margin of prosternum (Fig. 35) slightly arcuately projecting forward, forming scarcely developed collar, bounded posteriorly by wide shallow transverse depression passing into slightly elevated transverse relief; 2 oblique reliefs originating from anterior angles. Prosternal process parallel-sided, indistinctly edged, widely rounded apically, covered with small umbilicate punctures. Anterior emargination of mesosternum deep, arcuate, reaching half length of mesosternum; disc nearly as long as wide, separated from lateral branches by sharp bend, sculpture as that on prosternum. Mesometasternal suture slightly angular; anterior process of metasternum very wide, more than twice as wide as long.

Scutellum (Fig. 7) roundly trapeziform, widened backwards, slightly longer than wide, smooth and shiny.

Elytra (Figs. 7, 8) 2.55–2.63 times as long as wide, weakly narrowed posteriorly toward apices bearing 3 large sharp teeth; interval between anterior and middle teeth 1.8 times that between middle and presutural teeth, all intervals deeply emarginate. Striae of punctures very fine, superficial, very weakly depressed at sides and before apex, but not sulcate, consisting of separate elongate punctures slightly larger and coarser at sides. Second stria merging with 1st one in anterior 1/4 of elytra, 3rd stria freely terminating near middle. Intervals equal, flat, wide, 6–7 times as wide as striae, slightly narrower and rugose at sides, not curved before apices, with sparse inconspicuous uniseriate punctures; surface smooth, shiny, glabrous.

Legs (Figs. 46, 47). First tarsomere of hind tarsus of male not modified; tarsal pads well developed on 2nd–4th tarsomeres, gradually becoming larger toward apex.

Abdomen (Fig. 35). Suture between 1st and 2nd visible sternites straight; posterior margin of sternite II distinctly bisinuate, with slightly projecting middle, those of sternites III and IV straight. Sides with sparse umbilicate punctures separated by intervals equal to, or wider than 2 diameters of punctures; disc with small, rather sparse, simple punctures with smooth intervals; surface with rather sparse, yellowish and white setae. Anal sternite with nearly truncate, smooth, slightly deflexed apex.

**Male.** Aedeagus as in Figs. 73, 74. Tegmen (Fig. 73) entirely sclerotized, with wide, medially emarginate dorsal apodeme of basal part; parameres widened toward anterior 1/3, with pointed and slightly attenuate apices. Penis (Fig. 74) wide, parallel-sided in central part, sharply narrowed toward rather large, elongate apodeme; apophyses not differentiated, wide.

**Female** unknown.

Holotype (NWCW): male, “Malaysia (Borneo), Sabah, Crocker Range, Mount Trus Madi, 05°33' N, 116°31' E, 6 April, 2005, native collector.” Paratypes: 1 male (CLBC), same locality, 20.III.–28.IV.2006, S. Chew coll.; 1 male (UNCV), same locality, 28.VI.2006, S. Chew leg.; 1 male (CLBC), same locality, 1000 m, 16.IV.2005, S. Chew coll.; 1 male (NWCW), “Malaysia (Borneo), Sabah, Ranau, 05°58' N, 116°41' E, 14 April 2003, native collector.”

**Diagnosis.** *X. woodleyi* sp. n. differs from the other species in the coloration, presence of tarsal pads on the 2nd–4th tarsomeres, and structure of the aedeagus. The species is similar to *X. laevis* Saund., *X. boschmai* Théry, and *X. violaceocyanea* sp. n. in the sculpture of the elytra, to *X. kubani* sp. n. (Figs. 79, 80), in the structure of the aedeagus, but differs in the shape of the basal part of the tegmen and penis.

**Distribution.** Malaysia: Borneo: Sabah.

**Etymology.** The new species is named after Dr. Norman Woodley, who has supplied the specimens for examination.

*Xenopsis violaceocyanea* Volkovitsh, sp. n.  
(Figs. 5, 6, 18, 36, 42, 77, 78)

Bellamy, 2003 : 107, fig. 52 (*Paraxenopsis* sp. n.);  
Hołyński, 2003 : 10 (sp. n.?, in text).

**Description** (holotype, male) (Figs. 5, 6, 18). Body wide, weakly narrowed backwards, 3.25 times as long as wide, violet-blue dorsally, golden-green ventrally; head, antennae, and legs pale blue; frons golden in places; pronotum: anterior edging and lateral carina bluish green, sides blue, disc violet; elytra violet (in holotype, elytra appearing nearly black and matte because of wax pruinosity), with coppery sheen at sides; scutellum bluish; sides of abdomen with reddish sheen; middle of posterior margin of sternite II with short narrow purple stripe; head and body ventrally with pale brown and white setae; pronotum and elytra glabrous; elytral apices with 3 teeth; body length 13 mm, width 4 mm.

Head (Fig. 18). Frons 2.56 times as wide as vertex, with distinctly curved lateral margins; vertex very narrow, 0.6 times as wide as eye diameter, with short median carina. Frons with dense large umbilicate punctures with uneven bottom and inconspicuous micropunctures in lower part, intervals between punctures less than half diameter of punctures; punctures in upper part of frons smaller and sparser, simple, separated by intervals exceeding their diameter; vertex with very small, dense, deep, simple punctures. Supraantennal carinae scarcely developed. Clypeus slightly deflexed, separated from frons by short transverse sulcus marked only in middle. Antennae (Fig. 42) serrate beginning with 4th antennomere, their length 1.26 times height of eye. Second antennomere irregularly oval, 1.5 times as long as wide; 3rd strongly elongate, slightly widened toward apex, 1.5 times as long as 2nd; 4th of subequal length, distinctly widened toward apex, with developed apical tooth, 1.8 times as long as wide; 5th triangular, with rounded apical tooth, 1.5 times as long as wide; 6th and 7th antennomeres roundly triangular, with rounded inner margins, slightly longer than wide; 8–10th trapeziform, slightly wider than long, with rounded inner margins; 11th elongate, longer than wide.

Pronotum (Figs. 5, 6) 1.7 times as wide as long, disc slightly flattened. Lateral margins almost linearly converging forward, maximum width before base. Disc with smooth median stripe and very short golden line before base. Lateral carina smoothed, well developed only in posterior corners, reaching anterior 2/3 of pronotum, weakly curved. Surface shiny, glabrous, with fine smoothed sculpture; sides with sparse small umbilicate punctures separated by intervals equal to 3–5 diameters of punctures; anterior 1/3 of disc with smaller and sparser simple punctures; rugos-

ity of disc delicate, but distinct at least before base. Anterior margin of prosternum (Fig. 36) slightly projecting forward, nearly straight; surface flattened, without reliefs. Prosternal process parallel-sided, edged, widely rounded apically, covered with dense small umbilicate punctures. Anterior emargination of mesosternum arcuate, not reaching half length of mesosternum; disc trapeziform, separated from lateral branches by smooth bend.

Scutellum (Figs. 5) elongate, longer than wide, pentagonal, widened backwards, smooth, shiny.

Elytra (Figs. 5, 6) 2.58 times as long as wide, posteriorly weakly narrowed toward apices bearing 3 sharp medium-sized teeth; interval between anterior and middle teeth slightly convex, 1.9 times exceeding emarginate interval between middle and presutural teeth. Striae of punctures fine, superficial, slightly depressed at sides and before apex, but not sulcate, consisting of elongate separate punctures larger and coarse at sides. Second stria terminating freely in 1/4 of elytral length, 3rd stria merging with 1st one near middle. Intervals equal, flat or slightly convex, not curved before apices, wide (those on disc 7–8 times as wide as striae, those at sides slightly narrower and rugose), bearing sparse inconspicuous uniseriate punctures; surface smooth, shiny, glabrous.

Legs. First tarsomere of hind tarsus in male not modified; tarsal pads well developed on 3rd and 4th tarsomeres, much larger on 4th tarsomere than on 3rd one.

Abdomen. Suture between 1st and 2nd visible sternites slightly arcuate, posterior margin of sternite II with projecting purple median part. Sides with sparse, partly obliterate, umbilicate and simple punctures separated by intervals equal to 2–4 diameters of punctures; disc with small, rather sparse, simple punctures with smooth intervals; surface with sparse recumbent white setae. Anal sternite slightly emarginate at slightly deflexed apex bearing shallow transverse marginal depression.

**Male.** Aedeagus as in Figs. 77, 78. Tegmen (Fig. 77): parameres narrow, widened toward middle, weakly arcuately narrowed anteriorly toward sharp apices, outer margin membranous; ventral apodeme of basal part rather narrow, gradually widened toward widely rounded apex; dorsal apodeme wide, arcuate. Penis (Fig. 78) wide, parallel-sided in central part, sharply linearly narrowed toward large apodeme.

**Female unknown.**

Holotype (VKCB): male, "Malaysia, Pahang prov., Benom Mts., 03°53' N, 102°01' E, 15 km E Kampong Dong, 24.III–15.IV.1998, 300–900 m, Dembický and Pacholátka leg."

**Diagnosis.** *X. violaceocyanea* sp. n. differs from the other species in the coloration of the male and structure of the aedeagus, especially, in the lanceolate tegmen and large apodeme of the penis. The species is similar to *X. laevis* Saund., *X. boschmai* Théry, and *X. woodleyi* sp. n. in the elytral intervals, to *X. pacholatkoi* sp. n., in the structure of the aedeagus, differing in the shape of the tegmen and penis.

**Distribution.** Malaysia: Pahang Province.

**Etymology.** The name of the species indicates characters of its coloration.

*Xenopsis kubani* Volkovitsh, sp. n.  
(Figs. 11, 12, 19, 37, 48, 79, 80)

**Description** (holotype, male) (Figs. 11, 12, 19). Body relatively narrow, strongly elongate, 3.4 times as long as wide, distinctly narrowed backwards, dorsally almost uniformly colored, blackish blue with strong violet and purple sheen; head blackish copper; bottoms of punctures, upper side of vertex, antennae, clypeus, and labrum bluish green with golden and reddish sheen in places; pronotum blackish, disc with violet and purple sheen bluish and golden in places; elytra blackish blue, anterior and lateral margins and suture with strong violet sheen; ventrally paler, multicolored: middle of thorax, abdominal sternite I, inner margin of hind coxa, and bases of femora greenish blue, golden-green and reddish in places; thorax laterally and abdomen golden-red or violet-red, purple, turning into blackish violet; legs violet-blue; head and ventral side of body with dense, yellowish and white setae denser in posterior corners of abdominal sternites; pronotum and elytra glabrous; elytral apices with 5 teeth; body length 15.3 mm, width 4.5 mm.

Head (Fig. 19). Frons 2.24 times as wide as vertex, with nearly straight lateral sides; vertex 0.7 times as wide as eye diameter, with fine median carina extending on frons and turning into indistinct rounded relief. Punctures on frons umbilicate, dense and large in lower part, smaller and denser in upper part, separated by intervals equal to 0.5–1.0 diameter of punctures. Clypeus separated from frons by transverse sulcus nearly reaching inner margins of eye and dorsally sur-

rounding poorly developed supraantennal carinae. Antennae 1.32 times as long as height of eye, serrate beginning with 5th antennomere. Second antennomere pear-shaped, 1.5 times as long as wide; 3rd elongate, weakly widened toward apex; 4th of subequal length, more strongly widened toward apex, with small apical tooth, distinctly longer than wide; 5th triangular, with developed apical tooth, slightly longer than wide; 6th and 7th antennomeres roundly triangular, with rounded inner margins, slightly longer than wide; 8–10th roundly diamond-shaped, slightly longer than wide, with rounded inner margins; 11th elongate, 1.5 times as long as wide.

Pronotum (Figs. 11, 12) 1.63 times as wide as long; lateral margins weakly arcuately converging forward, more strongly converging in anterior 1/3; maximum width before base. Disc slightly flattened, with smooth narrow median stripe reaching anterior 1/3 and separated by golden-red line; sides with weakly elevated, rounded areas before middle. Lateral carina poorly defined, reaching half length of pronotum, slightly curved. Sculpture rather coarse: sides with large dense umbilicate punctures separated by intervals equal to 0.5–3.0 diameters of punctures; anterior 1/3 of disc with smaller and sparser punctures; transverse rugosity distinct, coarse; sides and anterior 1/3 of pronotum with very short white setae slightly longer than diameter of punctures; disc glabrous. Anterior margin of prosternum distinctly arcuately projecting forward; surface flattened, without reliefs. Prosternal process wide, not edged, covered with dense small umbilicate punctures; sides slightly converging backwards, apex widely rounded. Anterior emargination of mesosternum arcuate, deep, reaching posterior 1/4; disc nearly as long as wide, separated from lateral branches by sharp bend.

Scutellum (Fig. 11) slightly longer than wide, pentagonal, widened backwards, smooth, shiny.

Elytra (Figs. 11, 12, 37) 2.51 times as long as wide, posteriorly distinctly narrowed toward apices bearing 5 small teeth: presutural and anterior teeth largest, intervals between all teeth shallow, even or shallowly emarginate. Striae of punctures wide, distinctly sulcate at sides and in apical 1/3, formed by large elongate separate punctures larger and deeper at sides. Second stria merging with 1st one in anterior 1/4 of elytra, 3rd stria terminating freely near middle (Fig. 37). Intervals equal, weakly convex along suture, more strongly convex at sides and in posterior half; those on disc 5–6

times, those at sides 3–4 times as wide as striae; 5th interval slightly curved before apex; surface with sparse inconspicuous uniseriate punctures, slightly transversely rugose, weakly shining, glabrous.

Legs (Fig. 48). First tarsomere of hind tarsus of male with small ventral tooth directed backwards and with emargination behind it; tarsal pads well-developed on 3rd and 4th tarsomeres, very sharply widened on 4th tarsomere, much larger than those on 3rd.

Abdomen. Suture between 1st and 2nd visible sternites straight; posterior margin of sternite II distinctly bisinuate, with median part weakly projecting backwards. Sides with partly obliterate, umbilicate punctures; disc with small, rather sparse, simple punctures; intervals smooth, shiny; surface with long dense white and yellowish setae denser, but forming no distinct patches in posterior corners of sternites. Anal sternite elongate, with almost regularly rounded apex bordered by indistinct sulcus.

**Male.** Aedeagus (Figs. 79, 80): tegmen (Fig. 79) regularly sclerotized, parameres distinctly widened toward anterior 1/3 and arcuately narrowed toward pointed and attenuate apices; ventral apodeme of basal part pear-shaped, dorsal apodeme triangular. Penis (Fig. 80) gradually narrowed toward small apical apodeme in anterior half; apophyses wide, not differentiated.

**Female unknown.**

Holotype (VKCB): male, “Laos-C, Kham Mouan prov., 18°07' N, 104°29' E, Ban Khoun Ngeun, ~ 200 m, 24–29.IV.2001, Vít Kubáň leg.”

**Diagnosis.** *X. kubani* sp. n. differs from the other species in the elytral apices bearing 5 teeth, the modified 1st tarsomere of male hind tarsus, and the structure of the aedeagus. The species is similar to *X. pacholatkoii* sp. n. in the coloration and sculpture of the pronotum and elytra, but differs in the equally convex elytral intervals almost not curved in the posterior third. *X. kubani* is similar to *X. woodleyi* sp. n. in the structure of the aedeagus, but differs in the triangular dorsal apodeme and the narrower penis with a small apical apodeme.

**Distribution.** Laos: Khammouane Province.

**Etymology.** The species is named after my friend and colleague Vít Kubáň, who has supplied most of the new species described in the present paper.

*Xenopsis pacholatko* Volkovitsh, sp. n.

(Figs. 9, 10, 13, 14, 43, 49, 50, 62–68, 75, 76)

Volkovitsh, 2001 : 62, 80, 124, fig. 37 (*Paraxenopsis* sp., antennae, a female is erroneously indicated).

**Description** (Figs. 9, 10, 13, 14). Body elongate, 3.17–3.61 times as long as wide, distinctly narrowed backwards, dorsally almost uniformly colored, blackish with greenish sheen (holotype) or black-bronze with violet sheen (paratypes); in male, head coppery-violet dorsally, blackish bronze with violet or greenish sheen ventrally; clypeus with golden and reddish sheen; middle parts of thorax and basal abdominal sternites, middle coxa, and bases of femora greenish blue, golden-green and reddish in places; sides of thorax and abdomen purple or violet-red; in female, entire body one-colored; head and ventral side of body with transparent setae, pronotum and elytra glabrous; elytral apices with 3 teeth; body length 10.6–18.7 mm, width 3.2–5.9 mm.

Head (Figs. 13, 14). Frons 2.61–2.62 times as wide as vertex in male, 1.94 times, in female, with strongly curved lateral margins; width of vertex 0.59–0.62 times eye diameter in male, 1.09 times, in female; vertex with fine median carina or line. Frons in lower part with dense large umbilicate punctures smaller and denser medially and on vertex, intervals between punctures subequal to 1–2 diameters of punctures. Supraantennal carinae poorly developed. Clypeus deflexed, distinctly separated from frons by narrow transverse depression. Antennae 1.44–1.55 times as long as height of eye in male, 1.34 times, in female; serrate beginning with 4th segment, sharply dimorphic: in male (Fig. 43), 2nd antennomere regularly oval, 1.8 times as long as wide; 3rd elongate, weakly widened toward apex, 2.5 times as long as 2nd; 4th elongate, 1.8 times as long as wide, with sharp apical tooth and rounded inner margin; 5–10th antennomeres rectangular, distinctly longer than wide, their upper and lower margins parallel, truncate to form continuous lines; 11th antennomere strongly elongate, 1.6 times as long as wide, with widely rounded apex; in female, 2nd–4th antennomere as those in male, 5th roundly triangular, nearly as long as wide; 6–10th roundly trapeziform, with straight margins not forming continuous lines, slightly longer than wide; 11th antennomere 1.3 times as long as wide, with rounded apex.

Pronotum (Figs. 9, 10) 1.71–1.78 times as wide as long; lateral margins weakly arcuately or almost line-

arly converging forward; maximum width before base. Disc slightly flattened, occasionally with short median line in posterior half. Lateral carina weak, developed only in basal 1/3, weakly curved. Sculpture rather coarse: sides with large dense umbilicate punctures separated by intervals equal to 1–3 diameters of punctures, punctures in anterior angles sparser; disc with smaller and sparser punctures in anterior 1/3, transverse rugosity distinct, coarse; sides with very short white setae slightly longer than diameter of punctures, disc glabrous. Anterior margin of prosternum slightly emarginate medially; surface flattened, without reliefs, with dense small umbilicate punctures; prosternal process wide, not edged, slightly narrowed backwards, with widely rounded apex. Anterior emargination of mesosternum slightly angular, deep, nearly reaching posterior 1/3 of mesosternum; disc nearly as long as wide, separated from lateral branches by marked bend.

Scutellum (Fig. 9) slightly longer than wide, widened backwards, smooth, shiny.

Elytra (Figs. 9, 10) strongly elongate, 2.54–2.71 times as long as wide in male and 2.43 times, in female, posteriorly almost linearly narrowed toward apices bearing 3 large sharp teeth; interval between anterior and middle teeth nearly straight, 1.9 times as wide as the emarginate interval between middle and presutural teeth. Striae of punctures wide, slightly sulcate at sides and in apical 1/3, consisting of large elongate separate punctures larger and deeper at sides. Second stria merging with 1st one in anterior 1/4 of elytra, 3rd stria terminating freely near middle. Presutural intervals weakly convex, more strongly convex at sides and in posterior half; intervals on disc 5–6 times, those at sides 4–5 times as wide as striae; 3rd, 5th, and 7th intervals distinctly elevated in posterior 1/3 and slightly curved before apices; 2nd, 4th, and 6th ones flattened, with fine sparse punctures; surface shiny, glabrous, with weak transverse rugosity.

Wings as in Figs. 62–64, differing from those of *X. laevis* Saund. in longer rudiment of vein  $AA_{3a}$ , merging with vein  $AA_{1+2}$  on right wing (Figs. 62, 64).

Legs as in Figs. 49, 50. First tarsomere of hind tarsus of male with deep emargination bounded by tooth ventrally and by lobe dorsally (Fig. 49); tarsal pads well developed on 3rd and 4th tarsomeres, much larger on 4th tarsomere than on 3rd one.

Abdomen. Suture between 1st and 2nd visible sternites slightly emarginate medially, posterior

margin of sternite II with slightly projecting, brown median part. Sides with large coarse umbilicate punctures separated by intervals equal to 1–2 diameters of punctures; disc with small sparse punctures and smooth intervals; surface with long dense white setae. Anal sternite of male widely rounded and flattened at apex.

**Male** (Figs. 65–68, 75, 76). Pre genital abdominal segments as in Figs. 65–68. Aedeagus (Figs. 75, 76): tegmen (Fig. 75) lanceolate, outer margins of parameres membranous in anterior half; ventral apodeme of basal part pear-shaped; dorsal apodeme poorly developed, triangular; penis (Fig. 76) narrow, strongly elongate, gradually narrowing toward small apical apodeme; apophyses not differentiated.

**Female.** Body larger (18.7 mm), nearly one-colored; vertex distinctly wider; antennae and 1st tarsomere of hind tarsus not modified. Ovipositor not examined.

**Dimorphism.** Sharp dimorphism observed in body size, coloration of ventral surface of body, width of vertex, and structure of antennae and 1st tarsomere of hind tarsus.

Holotype (VKCB): male, “NW Thailand, Mae Hong Son, Banhuaipo, 1600 m, 9–16.V.1991, Pacholatko leg.” Paratypes: 1 female (VKCB), “Thailand bor., Chiang Mai, 56 km NW, 19°05' N, 99°25' E, 7–14.VI.1995, M. Snizek leg.,” 1 male (EJCB), “Laos centr., 70 km NE Vientiane, Ban Phabat env., 150 m, 18°16.1' N, 103°10.9' E, 27.IV–1.V.1997, E. Jendek, O. Šauša leg.”

**Diagnosis.** *X. pacholatko* sp. n. differs from all the other species in the shape of the distal antennomeres, the strongly modified 1st tarsomere of the hind tarsus of the male, the odd elytral intervals distinctly elevated and curved before the apices, and the structure of the aedeagus. The species is closely related to *X. kubani* sp. n. in the coloration, coarse sculpture of the pronotum, and in the elytra with elevated intervals, but clearly differs primarily in the presence of three apical teeth on each elytron.

**Distribution.** Thailand: Mae Hong Son and Chiang Mai provinces. Laos: Vientiane Province.

**Etymology.** *X. pacholatko* is named after P. Pacholatko (Brno, Czech Republic), the first collector of the species.

Genus *KUROSAXIA* Descarpentries, 1986

Cobos, 1980 : 58, fig. 35 [Polyctesini nov. gen. (Descarpentries in litt.)]; Descarpentries, 1986 : 194; Bellamy, 2003 : 20; Hołyński, 2003 : 10.

Type species *Kurosawaxia iris* Descarpentries, 1986 (by monotypy).

**Description.** Body (Figs. 27, 28) medium-sized (length 10.5–15.9 mm, width 3.8–5.9 mm), wide, robust, 2.7–2.8 times as long as wide, subparallel-sided, convex, bright, multicolored, iridescent; pronotum and elytra with marked setae. Head (Fig. 34) weakly convex, without depressions and reliefs, with ocellate sculpture; clypeus separated from frons by transverse depression, with shallowly emarginate anterior margin. Pronotum (Figs. 27, 28) slightly transverse, regularly convex, without depressions and reliefs; anterior margin nearly straight, entirely edged; posterior margin nearly straight; disc occasionally with fine median line, without basal fossae; lateral carina developed along entire length, curved. Anterior margin of prosternum forming narrow collar. Scutellum (Fig. 27) trapeziform, widened backwards, nearly as long as wide. Elytra (Figs. 27, 28) weakly elongate; apices with 3 or more numerous, poorly developed teeth; humeral calli obsolete; elytral suture very weakly diverging behind middle; striae of punctures superficial, sulcate and curved before apices; intervals on disc flat, equal, alternately convex and curved before apices, 7th interval distinctly widened and weakly swollen at apex; surface with sparse punctures slightly smaller than striae punctures, with recumbent pale setae. Radial cell of wing relatively wide, slightly reduced (Descarpentries, 1986 : 195, Figs. 3). Coxal plates parallel-sided, posterior margin nearly straight; middle and hind tibiae with small but distinct paired apical spurs, fore tibia distinctly widened toward apex, hind tibia with row of brownish setae along outer margin (Fig. 51). Suture between 1st and 2nd visible abdominal sternites straight, sides with sparse umbilicate punctures, disc with small, rather sparse punctures; surface with rather sparse setae forming no patches.

**Male** unknown.

**Diagnosis.** The genus *Kurosawaxia* occupies an intermediate position between the genera *Xenopsis* (multicolored iridescent body, presence of a row of setae at the outer margin of the hind tibia) and *Sommaia* (wide body, scarcely developed teeth of the elytral apices, widened and slightly swollen apex of the 7th interval,

marked pubescence of the pronotal disc and elytra), differing from both in the presence of spurs on the middle and hind tibiae. *Kurosawaxia* additionally differs from *Sommaia* in the more strongly convex, parallel-sided body, the clypeus separated from the frons by a transverse depression, and the presence of a row of setae at the outer margin of the hind tibia.

**Notes.** Cobos (1980) and Descarpentries (1986) placed the genus *Kurosawaxia* in the tribe Polycetesini Cobos. Some specialists (personal communications) consider it a subgenus or even a synonym of *Sommaia*. However, differences in the shape and coloration of the body and the presence of spurs and a row of setae at the outer margin of the hind tibia support its generic status.

***Kurosawaxia iris*** Descarpentries, 1986  
(Figs. 27, 28, 34, 51)

Descarpentries, 1986 : 195; Bellamy, 2003 : 20.

Holotype (MNHN): female (5 labels), "Tonkin, Hoa-Binh, A. de Cooman [p]," "♀ [p]," "Holotype [p, red]," "Muséum Paris, Coll. Générale [p]," "*Kurosawaxia iris* mihi, n. gen., n. sp., Holotype ♀ [h], A. Descarpentries det. [p]." Paratype (MNHN): female (3 labels), "Hoa-Binh (Tonkin) (A. de Cooman), Coll. J. Clermont [p]," "Paratype [p, red]," "*Kurosawaxia iris* mihi, n. gen., n. sp., Paratype ♀ [h], A. Descarpentries det. [p]." 1 female (badly damaged, wing and some fragments on separate plates) (MNHN), labeled as holotype; 1 female (ZIN), "S Vietnam, Tay Nguyen, Mt. Ngok Link, 900–1400 m, 15.8.[19]96 [unknown collector] [p]," "*Kurosawaxia iris* Desc. [h], det. Sv. Bílý [p]," "*Sommaia* (= *Kurosawaxia* syn. n.) [h]."

**Diagnosis.** See diagnosis of the genus.

Genus **SOMMAIA** Toyama, 1985

Toyama, 1985 : 69; Bellamy, 2003 : 21; Hołyński, 2003 : 10.

Type species *Sommaia gibber* Toyama, 1985 (by monotypy).

**Description.** Body (Figs. 20–23) medium-sized (length 11.7–14.8 mm, width 4.2–5.3 mm), flattened, wide, robust, 2.8–3.0 times as long as wide, rather sharply narrowed toward elytral apices in posterior half, mainly dark and weakly iridescent dorsally; pronotum and elytra with dense pale setae occasionally forming patches and stripes. Head (Figs. 31–33) with transverse depression or sulcus before clypeus,

with ocellate sculpture; supraantennal carinae developed, not reaching lower margin of clypeus. Pronotum (Figs. 20, 22, 38) slightly transverse, with shallow median, and obsolete lateral fossae; anterior margin slightly bisinuate, edged, posterior margin weakly bisinuate; basal fossae indistinct; lateral carina developed along entire length, strongly curved (Figs. 21, 23). Anterior margin of prosternum separated by lateral depressions or continuous sulcus, forming narrow collar. Scutellum (Figs. 20, 22, 38) trapeziform. Elytra (Figs. 20, 22) weakly elongate, with small apical teeth; humeral calli almost not pronounced; elytral suture very weakly diverging behind middle; striae of punctures superficial, intervals on disc flat or alternately convex, more strongly convex and distinctly curved before apices, 7th interval strongly widened and swollen at apex; surface with uni- or multiseriate pale setae occasionally forming stripes on flattened intervals. Coxal plates with emarginate posterior margins; tibiae without spurs, fore tibia distinctly widened toward apex, hind tibia without row of setae along outer margin (Fig. 52). Suture between 1st and 2nd visible abdominal sternites nearly straight; abdomen with dense punctation and with setae frequently forming patches and occasionally almost concealing background. Pre-genital abdominal segments of male as those in *Xenopsis* (Figs. 65–68). Tegmen (Fig. 81) heavily sclerotized; penis (Fig. 82) relatively wide and sclerotized, with apical apodeme, small lamina, and narrow differentiated apophyses. Ovipositor (Figs. 91–93) typical of Polycestini.

**Diagnosis.** The genus *Sommaia* occupies an intermediate position between the genera *Kurosawaxia* (widened and swollen apex of the 7th interval) and *Theryola* (hind tibia bearing no row of setae, shape of aedeagus rather similar), differing from both in the absence of apical spurs on the tibiae. *Sommaia* additionally differs from *Kurosawaxia* in the less convex body more strongly narrowed posteriorly, rather uniform coloration, and absence of a row of setae at the outer margin of the hind tibia; and from *Theryola*, in the smaller size, superficial striae and wide intervals of the elytra, and structure of the male genitalia.

**Notes.** Toyama (1985) placed the genus *Sommaia* in the tribe Polycetesini Lacord., Bellamy (2003) transferred it to the tribe Polycetesini Cobos.

*A Key to Species of the Genus Sommaia*

1 (2). Body (Figs. 22, 23) dark bronze with violet sheen, not iridescent; elytral intervals alternately,

occasionally cariniformly, elevated, setae forming stripes on flat intervals. Scutellum (Fig. 22) nearly as long as wide or slightly wider than long. Apex of 7th elytral interval (Figs. 22, 23) sharply shortly swollen, swelling extending onto adjacent intervals. Aedeagus as in Figs. 81, 82; ovipositor as in Fig. 93. 11.7–14.8 mm. Thailand  
..... *S. gibber* Toyama.

- 2 (1). Body (Figs. 20, 21) pale bronze, iridescent; elytral intervals flat, with uniform setae forming no stripes. Scutellum (Figs. 20, 38) much wider than long. Apex of 7th interval (Figs. 20, 21) with weak elongate narrow swelling not extending onto adjacent intervals. Ovipositor as in Figs. 91, 92. 13.9 mm. Myanmar  
..... *S. kalabi* sp. n.

***Sommaia gibber*** Toyama, 1985  
(Figs. 22, 23, 32, 33, 81, 82, 93)

Toyama, 1985 : 69; Bellamy, 2003 : 21; Hołyński, 2003 : 10; Ohmomo, 2007 : 25, 33, figs. 5.

**Material examined.** 1 female (ISNB), “Thailand (Rayong), Koh Samed Island, 15–17.V.2001, leg. Constant and Grootaert [p],” “*Sommaia gibber* Tma., det. R.B. Hołyński, 2003 [h];” 1 male (COTJ), “2003.05.24, Mt. Hin Lek Phai, Hua Hin, PKK, C-Thai, S. Ohmomo leg. [p, h];” 1 female (COTJ), “2004.05.26, Khao Danbai It, Petchaburi, C-Thai, S. Ohmomo leg., 2004 [p];” 1 male (COTJ), “2005.05.24–27, Klong Wang Chao (alt. 200 m), Wang Chao, Kamphaeng Phet, C-Thai, S. Ohmomo leg. [p];” 1 female (COTJ), “2007.05.23, Phra Bud-daha Chai, Saraburi, C-Thailand, S. Ohmomo leg. [p];” 1 female (GNCW), “Thailand, Prov. Chiang Mai, Juni, 1990, Coll. S. Steinke [p].”

**Diagnosis.** Male differing in golden-purple frons more sharply converging toward vertex (Fig. 33), more strongly widened 4th antennomere, and sparser pubescence (? artefact). Aedeagus as in Figs. 81, 82. Ovipositor (Fig. 93) 3 times as long as its widened part; apex narrow, slightly emarginate medially; styli long, weakly widened toward apices, distance between them equal to length of styli; dorsal hemisternites curved in anterior 1/3, reaching anterior margin, with straight recurrent branches; ventral hemisternites distinctly not reaching anterior margin. *S. gibber* differs from *S. kalabi* sp. n. in the following characters: dorsal side darker, one-colored; setae denser and longer, nearly concealing background at sides of both thorax and

abdomen, forming longitudinal stripes on elytra; scutellum nearly as long as wide, or slightly wider than long; elytral intervals alternately elevated; punctation of flat intervals denser; apex of 7th interval with large short swelling extending onto adjacent intervals; ovipositor narrower, with straight recurrent branches of dorsal hemisternites (Fig. 93).

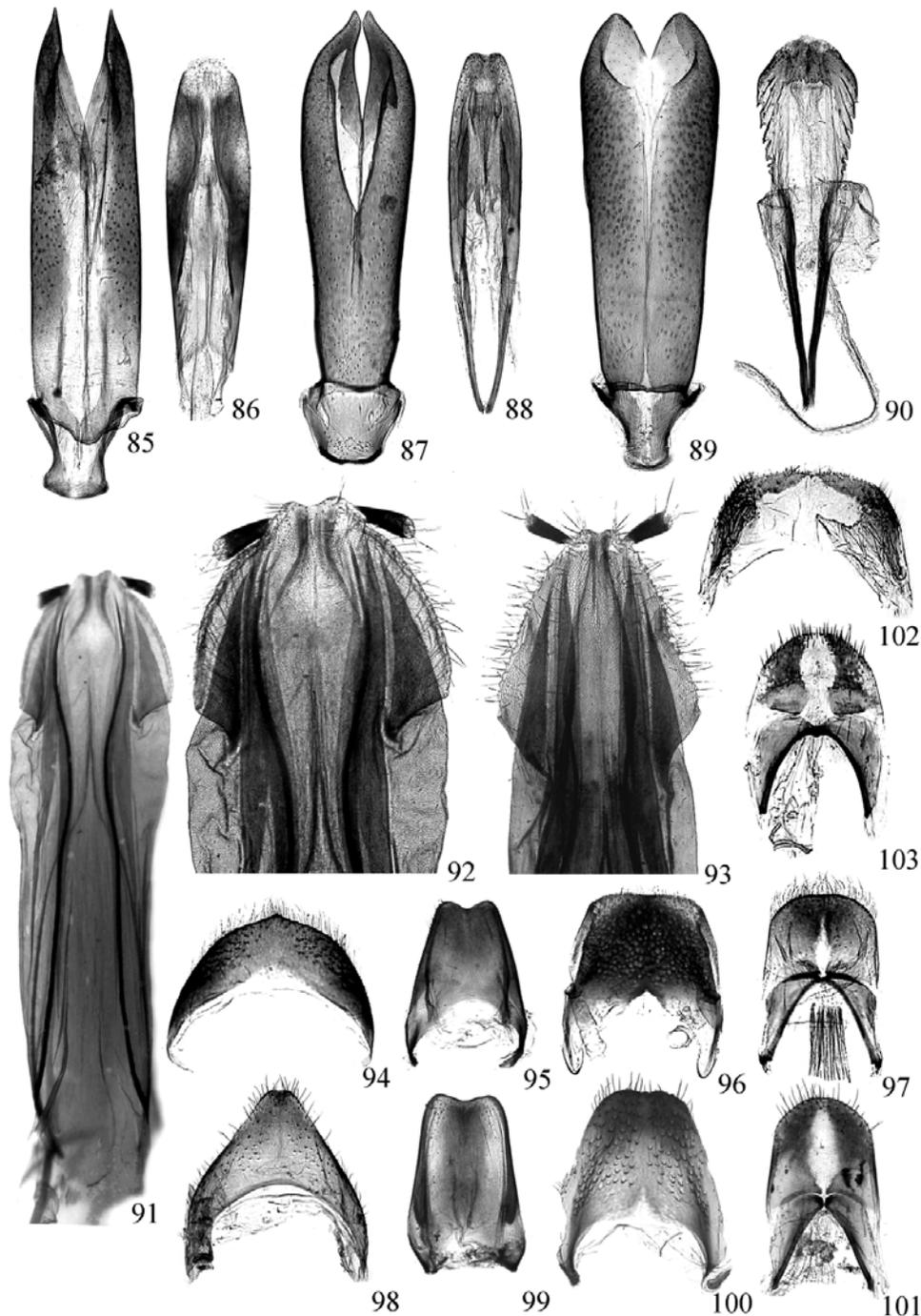
**Distribution.** Thailand: Bangkok, Chiang Mai, Kamphaeng Phet, Phetchaburi, Prachuap Khiri Khan, Rayong, and Saraburi provinces. The species was described from Bangkok (Bangkok, 18.VIII.1962, Prachab lgt., holotype, female, NSMT, Tokyo) (Toyama, 1985).

***Sommaia kalabi*** Volkovitsh, sp. n.  
(Figs. 20, 21, 31, 38, 52, 91, 92)

Bellamy, 2003 : 107, fig. 55 (*S. gibber* Toyama, *er-ratim*).

**Description** (holotype, female) (Figs. 20, 21, 31). Body wide, robust, 2.84 times as long as wide, slightly flattened, dorsally mainly pale bronze, slightly iridescent; head and pronotum coppery-bronze with violet and greenish sheen, scutellum bluish green, elytral suture golden-purple anteriorly, 2nd interval violet-bronze, 3rd–7th intervals greenish bronze with violet sheen intensifying to margins, margins violet; body ventrally golden-green medially, purple-violet at sides; legs dark bronze, femora with violet sheen, tarsi blue; setae rather long, dense, recumbent, silvery, forming no distinct patches and stripes on elytra; elytral apices with 8 small teeth; body length 13.9 mm, width 4.9 mm.

Head (Fig. 31). Frons 1.54 times as wide as vertex, with lateral margins slightly curved in lower half; vertex 1.41 times as wide as eye diameter, with fine depressed median line, slightly flattened, with coarse irregular sculpture formed by rounded umbilicate punctures with indistinct granules and eccentric micropunctures; punctures in lower part denser, those in upper part small, uniform, and sparse, intervals between punctures equal to 0.5–2.0 diameters of punctures. Head with rather long dense silvery setae. Clypeus separated from frons by weakly curved ledge thickened medially and contrasted dorsally by narrow transverse depression; sides of clypeus depressed and very densely punctate, middle convex and smooth, anterior margin with very shallow angular emargination. Length of antennae 1.58 times height of eye; antennae serrate and bearing subapical sensory depres-



**Figs. 85–103.** Polycestinae, aedeagus, ovipositor and internal abdominal segments of males: (85, 86) *Polycetes rhois* Mars. (length 2.5 and 1.8 mm); (87, 88) *Cobosella peringueyi* (Kerr.) (length 2.2 and 1.8 mm); (89, 90, 102, 103) *Strigopterooides depressa* (F.) (length 2.2 and 1.9 mm); (91, 92) *Sommaia kalabi* sp. n., holotype (VKCB) (length of ovipositor 3.7 mm); (93) *S. gibber* Toyama (COTJ) (length 3.7 mm); (94–97) *Polycetes hauseri* Obenb.; (98–101) *Pseudocastalia bennigseni* Kraatz. (85, 87, 89) tegmen; (86, 88, 90) penis; (91–93) ovipositor; (94–103) internal abdominal segments [(94, 98, 102) *SVIII*; (95, 99) *SIX*; (96, 100) *TVIII*; (97, 101, 103) *TIX*].

sions beginning with 4th antennomere; 2nd antennomere swollen at apex, 1.5 times as long as wide; 3rd elongate, 2.3 times as long as wide and 1.3 times as long as 2nd; 4th antennomere subequal in length to 3rd

one, slightly narrower than 5th; 5th triangular, 1.6 times as long as wide; 6–10th antennomeres triangular, subequal, 1.3 times as long as wide; 11th antennomere oval, with emarginate apex, 1.4 times as long as wide.

Pronotum (Figs. 20, 21, 38) transverse, 1.78 times as wide as long, flattened; lateral margins weakly converging toward base and elongately arcuately converging forward, maximum width in basal 1/3; lateral basal fossae stroke-shaped, prescutellar fossa triangular, lying at base of median depression. Disc with shallow longitudinal median sulcus narrowed forward and not reaching anterior margin and with 2 poorly defined, slightly oblique lateral depressions originating from lateral basal fossae and reaching anterior 1/3; lateral fossae separating weakly elevated lateral areas. Lateral carina distinct along entire length, shortly and sharply curved in posterior 1/3, less strongly curved in anterior 1/2. Sides with ocellate sculpture formed by deep rounded umbilicate punctures without marked granules and micropunctures, intervals between punctures subequal to their diameter; anterior 1/3 of disc with smaller and sparser punctures; base of disc between lateral fossae with sparse, transversely extended punctures forming transverse rugosity. Surface with rather long recumbent silvery setae denser at sides and in depressions. Anterior margin of prosternum shallowly emarginate, nearly straight, separated at sides by narrow transverse depressions not reaching middle; surface behind depressions elevated, with small uniform umbilicate punctures; prosternal process short, wide, flattened, subparallel-sided, with weak lateral projections, lateral margins not edged, apex widely rounded. Hypomeron with very dense reticulation formed by rounded umbilicate punctures. Anterior emargination of mesosternum arcuate, shallow, reaching half length of mesosternum; lateral branches not separated; sculpture as that on prosternum. Meso-metasternal suture obtuse-angled; disc of metasternum with rather sparse punctation, sides with dense punctation and denser setae.

Scutellum (Figs. 20, 38) strongly transverse, 1.8 times as wide as long, trapeziform, sharply widened backwards, with nearly straight posterior margin, smooth, shiny.

Elytra (Figs. 20, 21) 2.2 times as long as wide; lateral margins subparallel in anterior half, linearly converging behind middle toward narrowly rounded apices, deflexed along entire length; apices with 8 small teeth of different size. Disc flattened, suture roof-like elevated in posterior 2/3. Striae of punctures fine, superficial, not sulcate, formed by small, slightly elongate, separate punctures slightly larger and coarser at sides; 2nd stria short, merging with 1st stria in anterior 1/4 of elytra, 3rd stria terminating freely near middle. Intervals flat, subequal, wide in anterior 2/3, those on

disc 5–6 times as wide as striae, those at sides slightly narrower and rugose; 3rd, 5th, and 7th intervals strongly elevated in posterior 1/3 and curved before apices; 7th interval shortened, widened and slightly swollen at apex, swelling elongate, not extending onto adjacent intervals. Surface weakly shining, with fine confused uni- and multiseriate punctures and short recumbent silvery setae forming no stripes.

Legs (Fig. 52). Tarsal pads well developed on 3rd and 4th tarsomeres, much wider on 4th tarsomere than on 3rd one.

Abdomen. Suture between 1st and 2nd visible sternites weakly bisinuate at sides, nearly straight medially; posterior margins of sternites III and IV straight. Sides with rather dense umbilicate punctures; disc with rather sparse, slightly asperate punctures separated by intervals distinctly exceeding diameter of punctures. Setae silvery, recumbent: very dense, long, forming large vague patches at sides of abdomen; sparse and shorter on disc. Anal sternite transverse, widely rounded, deflexed and edged with deep sulcus along entire apex.

**Male** unknown.

**Female** (Figs. 91, 92). Ovipositor about 3 times as long as its widened part, apex shallowly emarginate medially. Styli long, slightly widened toward apices, distance between them 1.5 times length of styli. Dorsal hemisternites strongly curved, especially in anterior 1/3, not reaching anterior margin, with curved recurrent separate branches; ventral hemisternites sharply approximate and fused in anterior 1/3, distinctly not reaching anterior margin.

Holotype (VKCB): female, "Burma, N Mandalay division, ca. 30 km SW Pyin Oo Lwin, on road P.O. Lw.-Mandalay, 24.VI.1997, J. Kaláb leg. [p]," "*Sommaia* Toyama, 1985, *gibber* Toyama, 1985 [h], Vít Kubáň det., 11.2000 [p, h]."

**Diagnosis.** The new species differs from *S. gibber* Toyama in the following characters: coloration paler, iridescent; pubescence sparser, short, uniform, forming no longitudinal stripes on elytra; scutellum much wider than long; elytral intervals equally flat, with sparser and more uniform punctation; elongate swelling at apex of 7th interval weakly elevated, not extending onto adjacent intervals; ovipositor wider, with curved recurrent branches of dorsal hemisternites.

**Distribution.** Myanmar: Northern Mandalay division.

**Etymology.** The species is named after its collector, the Czech entomologist J. Kaláb (Brno, Czech Republic).

Genus *Theryola* Nelson, 1997, stat. n.

Nelson, 1997 : 318 (*Polycesta* Dejean, subgen.); Bellamy, 2003 : 23, 108, fig. 62 (*Polycesta* subgen.); Volkovitsh, 2006 : 340 (*Polycesta* subgen.).

*Polycesta (Theryola)* Cobos, 1981 : 62, 66 (type species not designated); Bellamy, 1985 : 412; Bílý, Bellamy, 1996 : 182 (invalid name).

Type species *Polycesta touzalini* Théry, 1922 (by original designation).

**Description.** Body (Figs. 24–26) large (length 19.3–25.2 mm, width 6.3–8.6 mm), wide, robust, 2.9–3.1 times as long as wide, parallel-sided, almost uniformly black-bronze with copper or violet sheen dorsally, paler ventrally; pronotum and elytra with marked recumbent pale setae. Head (Figs. 29, 30) weakly convex, with indistinct depressions and reliefs; sculpture ocellate, very coarse, irregular, with convex intervals. Clypeus not separated or vaguely separated from frons by indistinct transverse depression, anterior margin shallowly emarginate. Pronotum transverse, regularly convex, with relief median line and longitudinal prescutellar fossa (Fig. 24); anterior margin weakly arcuate, with wide entire edging; posterior margin weakly bisinuate; posterior angles obtused; basal lateral fossae absent; surface with very coarse ocellate sculpture with convex intervals; transverse rugosity at base of disc indistinct; lateral carina fine, developed along entire length, distinctly curved at base. Anterior margin of prosternum (Fig. 26) emarginate, edged, forming no collar. Scutellum (Fig. 24) roundly trapeziform, widened backwards, about as long as wide. Elytra (Figs. 24, 25) elongate; apices finely serrate, humeral calli obsolete, elytral suture very weakly diverging behind middle; striae of punctures very wide, sulcate and curved before apices, formed by large foveolate punctures; intervals convex, very narrow, as wide as or narrower than striae, with sparse punctures and marked pale setae; 7th interval shortened, widened and weakly swollen at apex. Coxal plates narrowed toward sides, posterior margin emarginate; middle and hind tibiae each with large apical spur, fore tibia distinctly widened toward apex, hind tibia without row of setae along outer margin. Suture between 1st and 2nd visible abdominal sternites slightly emarginate medially; sides with sparse umbili-

cate punctures; disc with small, rather sparse punctures; ventral surface with dense setae forming no patches. Male: pregenital abdominal segments as in Figs. 69–72; aedeagus as in Figs. 83, 84. Basal part of tegmen of aedeagus with rudimentary dorsal apodeme (Fig. 83), penis without lateral serration (Fig. 84). Ovipositor not examined.

**Diagnosis.** Despite the “polycestoid” appearance, large size, clypeus not separated from the frons, and some other characters typical of the genus *Polycesta*, the genus *Theryola* is closely related to representatives of the subtribe *Xenopsina* in the structure of the 7th elytral interval, sculpture of the pronotum, and structure of the legs, pregenital abdominal segments, and aedeagus (especially, in the presence of a rudiment of the dorsal apodeme of basal part of the tegmen and in the penis not serrate at sides), but differs from them in the large size, strongly widened striae and narrow intervals of the elytra, clypeus not separated from the frons, presence of large single spurs on the middle and hind tibiae, absence of the apical apodeme, and in the narrow differentiated apophyses of the penis. The genus is similar to *Sommaia* in the absence of a row of setae on the hind tibia and in the structure of the penis.

**Notes.** The subgenus *Polycesta (Theryola)* was first established by Cobos (1981) for two Oriental species, *P. touzalini* Théry, 1922 and *P. aruensis* Obenberger, 1924, without designation of the type species. Bílý and Bellamy (1996) regarded the name *P. aruensis* as a senior synonym of the name of the Nearctic species *P. deserticola* Barr, 1974 of the subgenus *Arizonica* Cobos, 1981. Nelson (1997) designated *P. touzalini* as the type species, and he is considered the author of the name *Polycesta (Theryola)*. *P. touzalini* sharply differs from all the known species of *Polycesta* in the above characters, and the subgenus *Theryola* deserves the generic status.

*Theryola touzalini* (Théry, 1922)

(Figs. 24–26, 29, 30, 53, 69–72, 83, 84)

Théry, 1922 : 193 (*Polycesta*); Obenberger, 1926 : 45 (*Polycesta*); Cobos, 1981 : 66 [*Polycesta (Theryola)*]; Bellamy, 2003 : 23, 108, fig. 67 [*Polycesta (Theryola)*]; Hołyński, 2003 : 8 (in text; *Polycesta*); Volkovitsh, 2006 : 340 [*Polycesta (Theryola)*].

Holotype (MNHN): female, (5 labels): “Pe Yen Tsin, Yunnan [p],” “*Polycesta Touzalini* Théry, Typ. [h], Théry det. [p],” “Type [p, red],” “Muséum Paris, 1935, Coll. A. Théry [p],” “Muséum Paris, Coll. Gé-

nerale [p].” 2 males, 2 females (VKCB), “China, Yunnan prov., 90 km N of Lijiang, Jinsha riv. Daju, 3–8.VII.1995, E. Kučera leg. [h],” 1 male with additional label: “cum Holotypo ‘♀’ comparat. in MNHN, Pe Yen Tsin, *Polycesta touzalini* Théry, 1922, Vít Kubáň det., XI.1999 [p, h].”

**Diagnosis.** See diagnosis of the genus.

*On the Taxonomic Position and Relationships of the Subtribe Xenopsina subtr. n.*

Hołyński (2003) noticed inconsistency and unreliability of the characters used by Cobos for distinguishing between the tribes Polyctesini and Polycestini, emphasizing that he had accepted the conventional inclusion of the *Xenopsis*-group in Polyctesina only because of lack of material, though he did not rule out the inclusion of the group into Polycestina according to its own classification (Hołyński, 1993), which had been repeatedly criticized by many authors (Bellamy and Bílý, 1997; Kolibáč, 2001; Volkovitsh, 2001, 2008, etc.).

Based on the structure of the antennae, I (Volkovitsh, 2001) distinguished within the subfamily Polycestinae three main phyletic lineages: acmaeoderioid, polyctesioid, and polycestioid, and indicated that the tribes Xyroscelini, Astraeni, and Prospheini apparently constituted separate “Australian” lineage. Examination of an additional material and analysis of other morphological characters have shown the groundlessness of distinguishing the polyctesioid lineage (Thrincopygini, *Chrysophana* group, Polyctesini). The main reason for distinguishing the lineage was the presence of lateral fields of external sensilla B4c and U1 (Volkovitsh, 2001 : 79, figs. 32–40) on the distal antennomeres. Representatives of the polycestioid lineage (Bulini, Polycestini, Tyndarini) are characterized by the presence of lateral fossae and by the incorporation of external sensilla into the apical fossae, with their subsequent reduction on the proximal segments. However, superficial zones or fields of external sensilla also occur in some representatives of Polyctesini and Tyndarini, and also in Xyroscelini, Astraeni, and Prospheini (Volkovitsh, 2001, figs. 28, 29, 41–43). Therefore, the polyctesioid state of the antennal structures should not be interpreted as a peculiar transformational series, but as the stage intermediate between the most primitive state in Thrincopygini (hardly differentiated subapical sensory zones on the ventral surface and non-differentiated lateral fields;

Volkovitsh, 2001, figs. 32–34) and the most advanced state in the majority of members of Polycestini and Tyndarini (Volkovitsh, 2001, figs. 24–27, 30–34). According to a number of characters not discussed in the present paper, the Australian groups Xyroscelini, Astraeni, and Prospheini (and probably also the Neotropical tribe Perucolini) actually form a separate lineage which can be named “prospheiid.” Thus, the subfamily Polycestinae includes the prospheiid, polyctesioid, and acmaeoderioid phyletic lineages. Hence Thrincopygini, Polyctesini, and the *Chrysophana*-group (its status remains unclear and, apparently, it should be considered a subtribe of Polyctesini) belong to the polyctesioid lineage.

The main diagnostic characters of Polyctesini (including the *Chrysophana*-group), *Xenopsina*, and Polycestini are shown in table. As seen from the table, according to the distribution of states of the characters, *Xenopsina* occupies an intermediate position between Polyctesini (shape of the body, lateral areas of external sensilla on the distal antennomeres, dorsal apodeme of the basal part of the tegmen) and Polycestini (developed dorsal curvature; shapes of the frons, clypeus, and prosternal process; shape and arrangement of apical teeth of the elytra; absence of the cross-vein *r-m* and fusion of the veins *Rr* and *Mr* on the wings; reduction of the radial cell of the wings and the tarsal pads on the proximal tarsomeres; absence of tooth at the apex of abdominal sternite VIII; and some other characters).

The results of comparison of the characters (see the table) support the undoubted relationship between the tribes Polyctesini and Polycestini. Polyctesini mainly demonstrates the plesiomorphic states: absence of dorsal curvature, closed antennal insertions, poorly differentiated depressions and areas of external sensilla on distal antennomeres, presence of one (2nd) shortened stria of elytra, serrate lateral margins of elytra with hardly differentiated apical teeth, presence of cross-vein *r-m*, free apices of recurrent veins *Rr* and *Mr* and developed radial cell of wings, tarsal pads developed on all tarsomeres, abdominal sternite VIII with apical tooth, basal part of tegmen with dorsal apodeme, and hardly differentiated penis. Polycestini, in contrast, mainly exhibits the apomorphic states: distinct dorsal curvature; open antennal insertions; clearly differentiated fossae and incorporation of external sensilla in these fossae on distal antennomeres; reduction of teeth at sides of elytra and their strengthening at apices; absence of cross-vein *r-m*; fused api-

Diagnostic characters of *Polyctesini* Cobos, *Xenopsina* subtr. n., and *Polycestini* Lacord.

| Character  | State of character  |   |  |
|--|---|---|--|
|  | <i>Polyctesini</i>  | <i>Xenopsina</i>  | <i>Polycestini</i>   |
| Shape of body  | Narrow, strongly elongate   | Narrow and strongly elongate (Figs. 1–12), or wide and robust (Figs. 24–28)   | Wide, robust, flattened, less frequently elongate  |
| Size   | Medium (10–20 mm)   | Medium, rarely large (over 20 mm)   | Large, less frequently medium  |
| Dorsal curvature   | Absent  | Present   | Present, less frequently absent  |
| Shape of frons   | Subparallel-sided or weakly converging toward vertex*   | Strongly converging toward vertex (Figs. 13–19, 29–34)  | Strongly converging toward vertex  |
| Antennal insertions  | Closed, rarely open ( <i>Schoutedeniastes</i> Bourg.)   | Open  | Open   |
| Antennal sensory organs (see Volkovitsh, 2001 : 61, 62, figs. 21–40) | Apical and subapical fossae, lateral fields of external sensilla  | Subapical and ventral fossae, fields and groups of external sensilla (Figs. 40, 41, 43)   | Apical, subapical, and, occasionally, lateral fossae; rarely groups of external sensilla; tendency toward incorporation of the latter in the fossae and reduction of the fossae on proximal segments |
| Transverse rugosity of pronotal disc                                 | Present ( <i>Polyctesis</i> Mars.) or absent ( <i>Schoutedeniastes</i> )  | Present (Figs. 20, 24, 38)  | Absent   |
| Prosternal process   | Slightly longer than, or as long as wide  | Slightly wider than long (Figs. 26, 35, 36)   | Slightly wider than long   |
| Striae of punctures at elytral base                                  | 11 striae; 2nd stria long, nearly reaching half length of elytra, or short, reaching anterior 1/3 or 1/4, frequently merging with 1st stria ( <i>Schoutedeniastes</i> ) * | 12 striae; 2nd stria short, reaching anterior 1/3–1/4; 3rd stria long, nearly reaching half length of elytra (Fig. 37)  | 11 striae, occasionally 12; intervals frequently alternately cariniform  |
| Elytral serration  | Small teeth along nearly entire lateral margin, apices with larger teeth directed backwards   | Sides without teeth, apices with 3–5 large symmetrical teeth (Figs. 1, 3, 5, 7, 9, 11) or finely serrate (Figs. 20, 22, 24, 27); anterior lateral tooth largest | Sides without teeth; apices finely serrate, rarely with large symmetrical teeth ( <i>Polycestoides</i> Kerr.); anterior lateral tooth largest  |
| Wings: vein <i>r-m</i>   | Present (Figs. 54–58)   | Absent (Figs. 59–62)  | Absent (Figs. 59–62)   |
| Wings: connection of veins <i>Rr</i> and <i>Mr</i>                   | Not connected apically (Figs. 54–58)  | Connected apically (Figs. 59–62)  | Connected apically (Figs. 59–62)   |
| Wings: radial cell ( <i>rc</i> )                                     | Well developed (Figs. 54–58)  | Strongly reduced (Figs. 59–62)  | Strongly reduced (Figs. 59–62)   |
| Row of setae on hind tibiae  | Present   | Present (Figs. 44, 47–51) or absent (Figs. 52, 53)  | Absent, rarely present   |
| Tarsal pads  | On tarsomeres 1st–4th (Fig. 45)   | On tarsomeres 2nd–4th or 3rd and 4th (Figs. 46, 53)   | On tarsomeres 2nd–4th, 3rd and 4th, 4th  |
| Abdominal sternite VIII  | With apical tooth, regularly sclerotized (Fig. 94)  | Without tooth, angularly projecting or rounded at apex; with median membranous stripe (Figs. 65, 69)  | Without tooth, angularly projecting or rounded at apex; with median membranous stripe (Figs. 98, 102)  |
| Dorsal apodeme of basal part of tegmen                               | Present (Fig. 85)   | Present (Figs. 73, 75, 77, 79, 81, 83)  | Absent (Figs. 87, 89)  |

Note: \* in *Polyctesis johanidesi* Bílý, the frons is distinctly converging to the vertex; the 2nd elytral stria is short, as that in *Schoutedeniastes*.

ces of recurrent veins *Rr* and *Mr*; reduction of radial cell of wings, tarsal pads on proximal tarsomeres, apical tooth of sternite VIII, and dorsal apodeme of basal part of tegmen; differentiation of structures of penis. Many characters found in representatives of *Xenopsina* (shape of body and structure of clypeus, prosternal process, tarsal pads, and genitalia of both sexes) show the states transitional from plesiomorphic to apomorphic. Nevertheless, the presence of synapomorphies in the structure of the frons, antennal insertions, prosternal process, elytral apices, and tarsal pads, in the sculpture of elytra, and, especially, in the wing venation supports the inclusion of *Xenopsina* in the tribe Polycestini, rather than in Polyctesini, as Cobos (1981) and the other authors proposed. Thus, the genera *Xenopsis* Saunders, 1867, *Kurosawaxia* Descarpentries, 1986, and *Sommaia* Toyama, 1985 should be transferred from the tribe Polyctesini Cobos to the tribe Polycestini Lacord.

Unfortunately, the larvae of representatives of the subtribe *Xenopsina* are unknown. The larval characters of Polycestinae were analyzed by Volkovitsh and Hawkeswood (1999), although the transformation direction of some of them is doubtful in view of the new data. In addition, the larvae of many groups remain unknown, e.g., among Polycestini, the larvae have been examined only for several genera closely related to *Polycesta* Dej. These larvae clearly differ from those of Thrinopygini, Polyctesini, and the *Chrysophana*-group chiefly in the presence of ring-shaped sclerotized paired structures of the obscure origin, situated at the sides of the mouthparts, on the dorsal surface of the metathorax, and the ventral surface of abdominal segment I, in the presence of numerous campaniform sensilla on the median branches of the palatine sclerites of the labrum and on the isolated sclerite of the maxillary cardo and stipes, and in the glabrous dorsal surfaces of the labrum and labium (may be a result of the secondary reduction of microsetae).

Based on the shape of the body of *Sommaia gibber*, Holyński (2003) also noted a possible relationship of the *Xenopsis*-group to the mostly Neotropical tribe Tyndarini Cobos. Similar states (transverse rugosity of pronotal disc, cross-vein *r-m*, and free apices of *Rr* and *Mr*) are actually observed in both groups. However, the sculpture and shape of the apical teeth of the elytra, the wings bearing the radial cell and no rudiment of the vein  $AA_{3a}$ , the structure of the male genitalia,

and many other characters do not support this assumption.

In conclusion, the composition of the tribe Polycestini including the greatest number of genera in the subfamily Polycestinae should be discussed. Besides *Xenopsina*, I can distinguish within the tribe two or three more groups (subtribes) differing in the absence (genera closely related to *Pseudocastalia* Kraatz) or presence (genera closely related to *Polycesta*) of lateral serration of the penis (Figs. 88, 90). According to the structure of the male genitalia, the *Pseudocastalia* group occupies an intermediate position between *Xenopsina* and the *Polycesta* group (Figs. 87–90, 98–103). On the whole, the transformation of the male genitalia can be traced from the states characteristic of Polyctesini (Figs. 85, 86, 94–97), to those inherent to representatives of the *Polycesta* group (Figs. 89, 90, 102, 103). It is quite possible that the genus *Polycestella* Kerr. also represents a separate group, since its structure exhibits the features characteristic of both Polyctesini and Polycestini. Unfortunately, the structure of the male genitalia in this case has not been examined. However, the final conclusions can be made only after additional studies.

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#### REFERENCES

1. Akiyama, K. and Ohmomo, S., “The Buprestid Beetles of the World,” in Mushi-Sha’s Iconographic Series of Insects, Ed. by Fujita, H. (Mushi-Sha, Tokyo, 2000), Vol. 4.
2. Bellamy, C.L., “A Catalogue of the Higher Taxa of the Family Buprestidae (Coleoptera),” Navorsinge

- Nasionale Mus., Bloemfontein 4 (15), 405–472 (1985).
3. Bellamy, C.L., “An Illustrated Summary of the Higher Classification of the Superfamily Buprestoidea (Coleoptera),” *Folia Heyrovskyana*, Suppl. 10 (2003).
  4. Bellamy, C.L., “Nomenclatural Notes and Corrections in Buprestidae (Coleoptera),” *The Pan-Pacific Entomologist* **81** (3/4), 145–158 (2005).
  5. Bellamy, C.L. and Bílý, S., “Phylogenetic Relationships and Tribal Placement of *Odettea* Baudon (Coleoptera: Buprestidae),” *Oriental Insects*, **31**, 409–418 (1997).
  6. Bílý, S. and Bellamy, C.L., “New Synonymy in North American *Polycesta* Solier,” *Coleopt. Bull.* **50** (2), 182 (1996).
  7. Cobos, A., “Estudio sobre los Ptosimites de Ch. Kerremans (Coleoptera, Buprestidae),” *Bull. Inst. Roy. Sci. Nat. Belg.* **31** (13), 1–24 (1955).
  8. Cobos, A., “Ensayo sobre los géneros de la subfamilia Polycestinae (Coleoptera, Buprestidae) (Parte I),” *Eos, Revista Española de Entomología* **54**, 15–94 (1978) 1980).
  9. Cobos, A., “Ensayo sobre los géneros de la subfamilia Polycestinae (Coleoptera, Buprestidae) (Parte II),” *Eos, Revista Española de Entomología* **55–56**, 23–94 ((1979–1980) 1981).
  10. Descarpentries, A., “Un nouveau genre de Buprestide originaire d’Indochine et appartenant à la tribu des Polycetesini (Coleoptera, Buprestidae),” in *Entomological Papers Presented to Y. Kurosawa on the Occasion of His Retirement, March 20, 1986* (Tokyo, 1986), pp. 194–197.
  11. Fedorenko, D.N., “Venation of the Clavus and Jugum of the Coleopteran Wings and Its Genesis,” *Zool. Zh.* **85** (12), 1433–1446 (2006).
  12. Holyński, R., “A Reassessment of the Internal Classification of the Buprestidae Leach (Coleoptera),” *Crystal, Series Zoologica*, No. 1, 1–42 (1993).
  13. Holyński, R., “Systematic Position of *Sommaia gibber* Tma. (Coleoptera: Buprestidae),” *Ann. Upp. Siles. Mus. (Entomol.)* **12**, 5–14 (2003).
  14. Kerremans, C., “Catalogue synonymique des Buprestides décrits de 1758 à 1890,” *Mém. Soc. Entomol. Belg.* **1**, 304 (1892).
  15. Kerremans, C., “Essai de groupement des Buprestides,” *Ann. Soc. Entomol. Belg.* **37**, 94–122 (1893).
  16. Kerremans, C., “Coleoptera Serricornia. Fam. Buprestidae,” in *Genera Insectorum*, Ed. by Wytzman, P. (Verteneuil & Desmet., Bruxelles, 1902), Fasc. 12a, pp. 1–48
  17. Kerremans, C., *Monographie des buprestides* (Bruxelles, 1905), Vol. 1, No. 13, pp. 384–416.
  18. Kolibáč, J., “Classification and Phylogeny of the Buprestoidea (Insecta: Coleoptera),” *Acta Mus. Morav., Sci. Biol. (Brno)* **85**, 113–184 ((2000) 2001).
  19. Nelson, G.H., “Designations of Type Species for Sub-generic Names Proposed by Cobos in the Genus *Polycesta* Solier (Coleoptera: Buprestidae),” *Coleopt. Bull.* **51**, 318 (1997).
  20. Obenberger, J., “Buprestidae I,” in *Coleopterorum Catalogus*, Ed. by Junk, W. and Schenkling, S. (W. Junk, Berlin-Den Haag, 1926), Vol. XII, Pars 84, pp. 1–212.
  21. Ohmomo, S., “Informations of Insects from Thailand (Part 6),” *Otoshibumi (Tsukuba)* **25**, 24–33 (2007) [in Japanese with English summary].
  22. Saunders, E., “Notes on Rare and Descriptions of New Species of Buprestidae Collected by Mr. James Lamb in Penang,” *Trans. Entomol. Soc. London* **5** (7), 509–521 (1867).
  23. Saunders, E., *Catalogus Buprestidarum synonymicus et systematicus* (E.W. Janson, London, 1871).
  24. Théry, A., “Études sur les Buprestides. (Troisième partie),” *Ann. Soc. Entomol. Belg.* **62**, 193–270 (1922).
  25. Théry, A., “Note sur les Buprestides du Muséum de Leiden,” *Zool. Mededeelingen* **18** (4), 241–256 (1935).
  26. Toyama, M., “A New Buprestid Beetle from Thailand (Coleoptera, Buprestidae),” *Entomol. Rev. Japan* **40** (2), 69–72 (1985).
  27. Volkovitsh, M.G., “The Comparative Morphology of Antennal Structures in Buprestidae (Coleoptera): Evolutionary Trends, Taxonomic and Phylogenetic Implications. Part 1,” *Acta Mus. Morav., Sci. Biol. (Brno.)* **86**, 43–169 (2001).
  28. Volkovitsh, M.G., “Buprestidae: Polycestinae,” in *Catalogue of Palaearctic Coleoptera*, Ed. by Löbl, I. and Smetana, A. (Apollo Books, Stenstrup, 2006), Vol. 3, pp. 56–58, 330–342.
  29. Volkovitsh, M.G., “A Review of the Buprestid Genus *Cochinchinula* Volk. with Description of New Taxa from Thailand, and Notes on the Composition and Classification of the Tribe Acmaeoderini (Coleoptera, Buprestidae, Polycestinae),” *Entomol. Obozr.* **87** (1), 105–123 (2008) [*Entomol. Rev.* **88** (3), 329–349 (2008)].
  30. Volkovitsh, M.G. and Hawkeswood, T.J., “The Larva of *Prospheres aurantiopicta* (Laporte & Gory) with Comments on the Larval Characteristics of Polycestoid Taxa (Insecta, Coleoptera, Buprestidae),” *Mauritiana* **17** (2), 295–314 (1999).