A NEW SPECIES OF *PELECOPSELAPHUS* SOLIER (COLEOPTERA: BUPRESTIDAE) FROM MEXICO, WITH DISCUSSION OF TAXONOMIC PLACEMENT OF THE GENUS

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Abstract. *Pelecopselaphus* celiae, new species, is described from western Mexico and biological information is presented, the first for the genus. A striking male sexual character in *Pelecopselaphus* is illuminated and named the submental basin. Comment is made on taxonomic placement of the genus.

Key words. Buprestidae, *Pelecopselaphus*, taxonomy, Mexico.

Solier (1833) erected the genus *Pelecopselaphus* and provided a fairly comprehensive list of characters. Discussing attributes of the head, he stated "Menton grand...La pièce sur laquelle il s'articule, a, près de lui, une brosse formée de poils courts et serrés." This was illustrated, albeit rather crudely. However, Solier missed the fact that the dense brush of setae lies inside a deep basin and is present only in the male. Subsequent authors overlooked this character, even Cobos (1957) who was the last to describe a species in this genus and had both sexes before him. I suggest this remarkable structure be called the submental basin. A submental basin (or brush, for that matter) is not present in any buprestid genus that has been related to *Pelecopselaphus*, nor am I aware if it in any other. Perhaps it is unique. Crowson (1981) discussed "skeletal peculiarities" of the head capsule in Coleoptera, for which the submental basin easily qualifies, and though he mentioned "pockets in the gular region", none appear to be similar to the basin. He stated that the functions of these pockets are essentially unknown. No mention was made of a sexual function, which undoubtedly is the case in *Pelecopselaphus*. Given the location of the submental basin and that it appears to be a secretory structure, quite possibly it serves in courtship feeding or in the production of an aphrodisiac pheromone. Another possibility is production of an aggregating pheromone. In the area where I collected the new species described below, host trees are widely dispersed, thus such a chemical attractant would be especially advantageous. I observed numerous beetles on the leaves of one such tree. Biological, ethological and histological investigations are necessary to corroborate such speculation, and would make an interesting study. So too would a revision of this genus. Only isolated species descriptions and brief treatments have been published.

Historically, *Pelecopselaphus* has been placed in the Chalcophorini, variably near *Agaeocera* Waterhouse, *Chrysesthes* Solier and *Euchroma* Solier. Waterhouse (1882) appeared to think it closest to the former, but also compared it to the second genus. Tōyama (1987) placed *Pelecopselaphus* into Agaeocerini primarily based on wing venation. Holynski (1993) reduced many tribes to subtribes, concurrently establishing new subtribes. He disagreed with Tōyama's assessment (partly out of misunderstanding, in my opinion), instead placing *Pelecopselaphus* in his new subtribe Pristipterina in the greatly expanded Buprestini. He assigned *Agaeocera*, paired with *Mixochlorus* Waterhouse, to the subtribe Agaeocerina in the tribe Thripocypini. He stated his Pristipterina to be "homogeneous and well defined," yet that in Agaeocerina "some other features point rather in the direction of the Pristipterina str.n. or even Buprestina Leach, so the problem deserves further study." Indeed it does!

I believe that *Pelecopselaphus* and *Agaeocera* (without *Mixochlorus*) should stand together, clearly in the Buprestini (sensu Holynski 1993) or perhaps as a tribe within the subfamily Buprestitae; whatever the reader's mind. I base this primarily on the shared characters of a rather featureless long narrow aedeagus (Figure 1) which is subcylindrical basally (Nelson, 1992, mentioned this structure in *Agaeocera*), the subtriangular mentum (more rounded in *Pelecopselaphus*) which completely hides the prementum, and the wing venation (Tōyama, 1987).

I have examined the aedeagus and mentum in two genera of Pristipterina, *Chrysesthes* and *Halecia*. In both genera the aedeagal form is very different, more or less flattened, not
subcylindrical basally and with prominent and abundant apical setae. The mentum is transverse, sometimes with the front margin broadly and deeply emarginate in *Hypercia*; and in the latter genus it appears that the prelabium is at least partially fused to the front margin of the mentum.

Phylogenetic flights of fancy: I do not think it a greater one to suggest, largely based on the unique submental basin, that *Pelecopselaphus* may stand alone in at least its very own subtribe. Whatever the case, it appears that more attention should be given to ventral head structure in the classification of Buprestidae.

In the descriptive work to follow, when labels are quoted exactly, a slash mark denotes a separate line and a period indicates the end of a label. Abbreviations ("codens") for institutions and collections in which specimens are deposited follow Arnett et al. (1993).

*Pelecopselaphus ceiba* Westcott, new species

(Plate 1-A)

**Holotype male.** Length 21.0 mm, width 6.6 mm, medium dark metallic green above, pronotum with dark coppery reflection, below a more shining lighter green, with strong bright metallic copper reflection except for pronotal mesepisterna and sublateral portion of prosternum; head and pronotum with distinct golden reflection in median depressions; abdominal tergum bright golden copper; antennae with segments 1 and 2 blue-green, darkly violaceous from segment 3; legs same color as dorsum.

Head with median longitudinal depression on front deep, becoming shallow above, and with a fine median carina on vertex extending through shallowly depressed part of frons, surface coarsely confusedly punctate, becoming more finely and discretely punctate on vertex; clypeus broadly shallowly subtriangularly emarginate; width of frons at narrowest point about equal to length of antennal scape; submentum basin about 2.5 X wider than long, anterior margin truncate then abruptly oblique at extreme sides, connecting with perfectly semicircular posterior margin, and filled with a brush of very long yellowish-white setae that are so dense as to totally obscure the surface; posterior portion of submentum in same plane as genae, gular sutures finely grooved. **Pronotum** 1.6 X wider than long, widest along basal 1/3 from where the lateral margins gradually converge to broadly rounded anterior angles, from side appearing deeply lobed; hind angles subquadrate, front margin broadly shallowly produced on middle, hind margin subtruncate and slightly sinuate toward sides; disk convex anteriorly and laterally, flattened medially on about basal 2/3, with a narrow shallow median depression extending from near apex to base and bearing a fine median line; surface even, vaguely microreticulate, moderately punctured on middle, becoming more coarsely and irregularly punctured laterally. **Elytra** with umbones prominent, finely and sparsely punctate; humeral regions broadly developed below umbones, angles subquadrate; basal margin subtruncate, distinctly sinuate laterally; lateral margins broadly sinuate to behind umbones, very coarsely serrate on about apical 1/2, the teeth smaller at apex; each elytron with 6 prominent smooth costae: first extending from near base, attenuating and disappearing near middle; second and third roundly joined at base, extending almost to apex; fourth arising from fifth just back of umbone, extending to apical third; fifth (submarginal) forming external margin of umbone, extending to near apex where it is sharply attenuated; a short sixth costa bisects the humeral region, abruptly curving to join fifth slightly apical to origin of fourth; punctuation of intervals small, deep, dense, mostly discrete except near apex. **Scutellum** transversely oval, glabrous. **Tergum** with eighth segment densely, longitudinally rugose-punctate, median carina well pronounced, broad basally, very fine apically, almost attaining the very narrowly rounded apex. **Legs** with first tarsal pulvillus the largest, setae present almost to base. **Underside** finely sparsely punctate on middle, more coarsely densely punctate laterally, especially on metepisternum, setae fine, white, subcumbent; prosternum strongly convex, sparsely punctate, abruptly and steeply dropping to front margin which is subtruncate and boldly rimmed; visible abdominal sterna, especially fourth, with apicolateral angle prominently, sharply dentiform, apex of fifth sternum broadly transverse, shallowly lobed at middle. **Genitalia** as in Figure 1.

**Allotype.** Length 23.8 mm, width 7.6 mm, differing from male as follows: more robust, less strongly tapering apically, coppery red beneath except laterally on prosternum, front of head more broadly, shallowly depressed, frons wider between eyes, at narrowest point about 1.4 X length of antennal scape; submentum unmodified; first tarsal pulvillus smaller, at least narrower, than others, with basal half glabrate, setae shorter.

**Specimens examined.** Holotype and allotype (UNAM) labeled "MEX Jalisco/Chamela, vic UNAM/9-19-VII-1993/JE Wappes. On foliage of CEIBAVGRANDIFLORA." Paratypes: 6 M, 9 F, same data as holotype; 12 M, 8 F, variably labeled the same (near Estación Biológica Chamela), Morris, Huether, Wappes; 10 M, 3 F, 2 km N. 1 km W Est. Biol. Chamela, 6-VII-95, on foliage of *C. grandiflora*, R. L. Westcott; 3 M, 1.5 km O km61 carret. Barra de Nav.-Pto. Vallarta, 6-VII-95, sobre hojas de *C. grandiflora*, F. A. Noguera (all the foregoing are from the same site); Est. Biol. Chamela,
Variation and comparison. The most obvious variation is size, with males ranging from 16.4-22.5 mm, females from 18.9-28.5 mm. Dorsally the golden, or sometimes coppery, reflections vary all the way to being absent. Beneath in both sexes the coppery color varies, but usually it is distinctly more reddish on females. On some specimens the lateral margins of the pronotum converge more gradually towards the anterior, thus the front angles appear less deeply lobed in side view. In both sexes the apex of the last visible sternum usually is very shallowly, usually broadly and evenly, lobed; however, on some specimens it is subtruncate.

Considering Waterhouse's (1882) treatment, *P. ceiba* appears most like *P. lateralis* Waterhouse, though that species is olivaceous dorsally and, although it is difficult to ascertain from his illustration, the outer costae appear to be less elevated. Earlier I discussed the odd submentum basin found in male *Pelacopselaphus* and, although I could compare only two species, it appears it will be a useful character to separate species. In *P. ceiba* the basin is 2.5 X wide as long, shaped quite like a letter "D" rotated 90° clockwise. In a small Belizean species the basin is only 1.5 X wider than long, though of a similar shape.

Biology. Nothing has been published on the biology of the genus, though H. A. Hespenheide (pers. comm.) has collected specimens in Veracruz, Mexico on fence posts. I first saw *P. ceiba* in undulating flight, a flash of copper and green that is quickly lost against the verdant background of their tropical lowland forest habitat. However, almost all the specimens in this study were captured from their (presumed) hosts, *Ceiba aesculifolia* and *C. grandiflora* (Bombacaceae) by using a tropics net. They were seen congregating on and flitting about the leaves of those trees.

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Literature Cited


Figure 1. Aedeagus of *Pelecopsalaphus ceiba* Westcott, new species: A, lateral; B, dorsal.
(Plate 1)
A: *Pelecopselaphus ceiba* Westcott, new species, allotype, female.