



A new species of the Madagascan genus *Pseudorphnus* (Coleoptera: Scarabaeidae: Orphninae)

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Pseudorphnus carinatus **new species** is described from northern Madagascar (Antsiranana Province). Males of the new species differ from other species of the genus in having a long (about 8/10 the width of clypeus) transverse ridge near anterior margin of the clypeus.

Pseudorphnus Benderitter, 1913, is a small genus of orphnine scarab beetles endemic to Madagascar. The members of the genus, both males and females, can immediately be recognized among other orphnines by the peculiar shape of their protibiae, which have two robust outer teeth and a third much smaller tooth located at the very basal part of the protibia (Benderitter 1913, Paulian 1977). The genus previously included three species: *P. coquereli* (Fairmaire, 1868), *P. hiboni* Paulian, 1959, and *P. olsoufieffi* Paulian, 1977. The first species is known from a reasonable number of specimens collected throughout the island but mainly in the northern part. The second species was originally described from a single female specimen, but extensive sampling in the Ranomafana National Park in recent years has yielded a few additional specimens of both sexes (Frolov & Montreuil 2006). The third species is known only from the two male type specimens and a female, collected in central Madagascar and deposited in the Muséum national d'Histoire naturelle, Paris (MNHN).

Recently I was given an opportunity to study Orphninae material housed in the California Academy of Sciences, San Francisco (CASC). In this material, I found a series of *P. hiboni* from Ranomafana National Park, as well as two males from northern Madagascar. The latter two specimens proved to belong to a new species, which is described below.

Photographs of the habitus and parameres were taken with a Leica MZ9.5 stereo microscope. Partially focused serial images were combined in Helicon Focus software (Helicon Soft Ltd.) to produce completely focused images. The distribution map was generated with ArcGIS software (ESRI Ltd.). Coordinates of the localities were taken from the specimen labels.

Pseudorphnus carinatus Frolov, sp. n.

Examined material. Holotype, male with the following labels: “Madagascar: Province d'Antsiranana, Ampasindava, Foret d'Ambianivy, 3.9 km 181 S Ambaliha, elev. 600 m, 4–9 March 2001” and “13 47'55"S 48 9'42"E coll. Fisher, Griswold *et al.* California Acad. of Sciences, pitfall trap in rainforest, collection code: BLF3250”. Single paratype male with the same data.

Male. Length 11 mm with elongate, oval, strongly shiny body (Figs 1, 2). Color blackish brown, elytra and underside of body slightly lighter.

Clypeus slightly convex anteriorly, obtuse laterally, anterior margin setose and crenulate in dorsal view. Genae small, not protruding past eyes. Eyes relatively large (diameter larger than the distance between eye and gula in ventral view), incompletely divided by canthus into smaller dorsal and larger ventral parts. Frontal suture absent. *Clypeus* with a long (about 8/10 the width of clypeus) transverse low ridge near anterior margin (Figs. 5, 6). Dorsal surface of head impunctate.

Labrum bilobate, slightly sinuate in the middle and relatively feebly protruding past clypeus. Length in the middle is 1/8 width (in dorsal view).

Pronotum 1.5 times wider than long, widest medially. Anterior margin with wide border, base with fine border. Lateral margins densely punctate, appearing crenulate in dorsal view. Disc of pronotum with deep excavation in the middle, with two slender longitudinal somewhat triangular ridges bordering the excavation (Fig. 2). Surface of disc between the ridges smooth, without punctures. Sides of pronotum rugose posteriorly. Lateral margins with long, brown setae.

Scutellum triangular, narrowly rounded apically, about 1/8 length of elytra.

Elytra convex, with marked humeral umbones. Maximum width approximately at the middle. Only sutural stria is distinct and reaching apices of elytron. Elytra covered with sparse narrow and somewhat curved punctures, each bearing a short, yellow seta. Epipleura with long, sparse, brown setae. Base of elytra bordered and densely punctate with punctures similar to those in striae but more rugose and irregular.



FIGURES 1–8. *Pseudorhynchus*, habitus, head, pronotum. *P. carinatus* (1, 2, 5, 6), *P. olsoufieffi* (3, 4, 7, 8). Scale = 1 mm. Arrow in Fig. 6 indicates transverse ridge and arrow in Fig. 8 indicates conical tubercle.

Wings fully developed.

Protibiae of typical shape for *Pseudorphanus*. Lateral margin basad of outer teeth not crenulated. Apices with 3 robust, spur-like setae and a number of smaller setae. Protarsi well developed, about 4/5 length of protibiae. Claws 1/3 length of apical tarsomere. Apical protarsomere as long as protarsomeres 3 and 4 combined, as thick as other tarsomeres. Ventral surface of protibiae smooth with two rows of setae along sides and sparse, longer setae in the middle. Ventral surface of femora sparsely punctate, with 1 raised longitudinal line.

Mesolegs and metalegs similar in shape; metafemora and metatibiae about 1/8 longer than mesofemora and mesotibiae. Tibiae somewhat triangular, with two apical spurs, with inner margin only slightly concave and with 1 transverse keel. Longer tibial spur as long as 2 basal tarsomeres. Claws 1/3 length of apical tarsomere. Femora almost impunctate, with two rows of long setae.

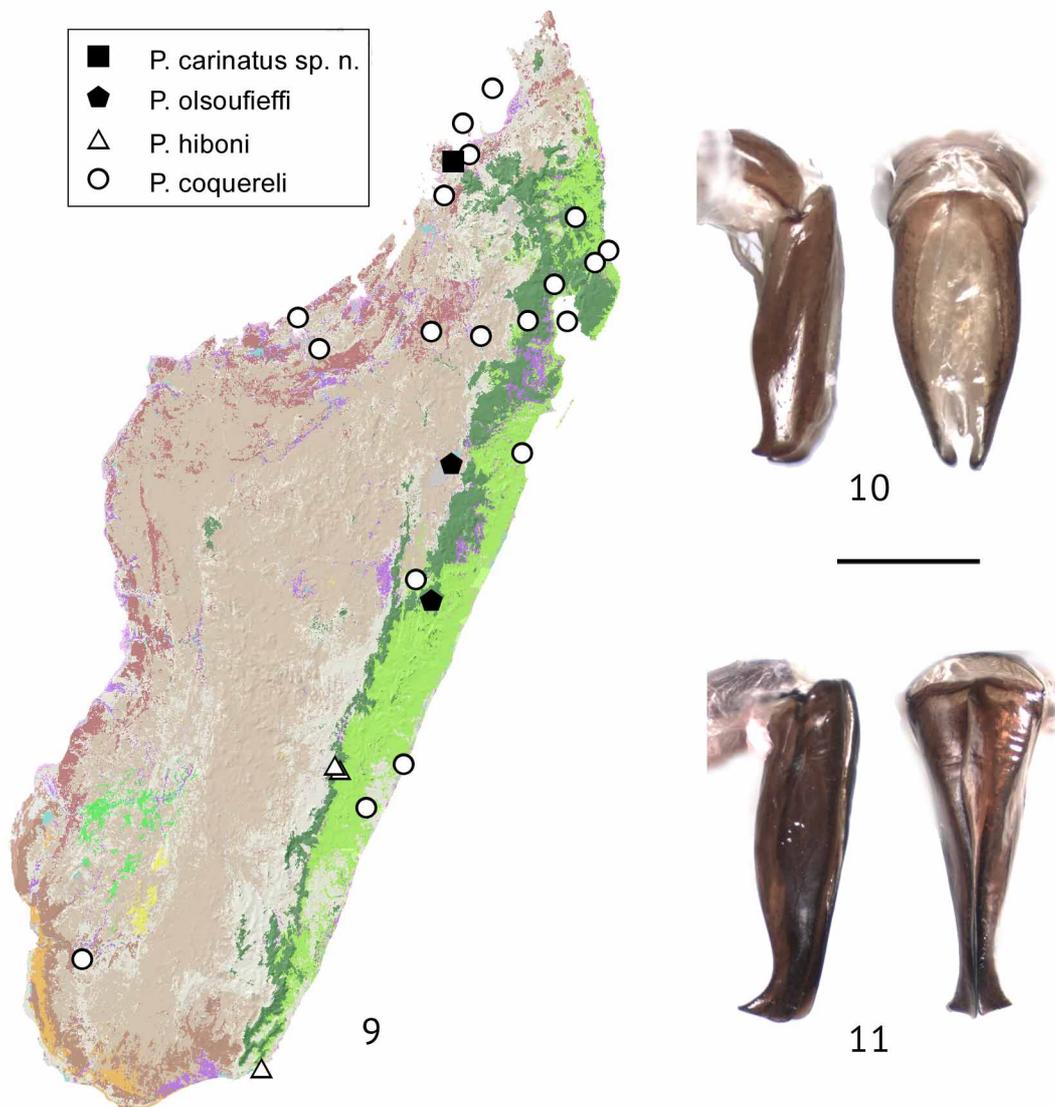
Abdominal sternites irregularly punctate, pubescent; with dense, long setae. Sternite 6 medially as long as sternites 4–5 combined.

Pygidium transverse, irregularly punctate, hidden under elytra.

Aedeagus with short, acute apices (Fig. 10).

Female unknown.

Paratype is very similar to the holotype and only differs from it in slightly smaller size (body length 10.5 mm) and in broken right elytron.



FIGURES 9–11. *Pseudorphanus*. 9 — distribution map of known species; 10–11 — parameres in lateral and dorsal view (10 — *P. carinatus*, 11 — *P. olsoufieffi*). Scale = 1 mm.

Diagnosis. The characteristic shape of the clypeal ridge of *P. carinatus* (Figs. 2, 5, 6) separates it from all other described species of the genus. The new species is similar to *P. olsoufieffi* in the body size, sculpture of pronotum and elytra, and in the shape of prothoracic ridges, but the males of *P. olsoufieffi* have a rather large, conical tubercle situated in the center of clypeus (Figs. 3, 4, 7, 8). The two species also differ in the sculpture of clypeus (smooth in *P. carinatus* and rugose in *P. olsoufieffi*: Figs. 5, 7) and in the shape of the parameres (having more acute apices somewhat depressed laterally in *P. olsoufieffi*: Figs. 10–11).

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