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Heterogomphus effeminatus, an unusual new species of rhinoceros beetle from French Guiana (Coleoptera: Scarabaeidae: Dynastinae: Oryctini)

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Abstract. *Heterogomphus effeminatus* new species is described from French Guiana. The male holotype is unusual because, unlike most other species in the genus *Heterogomphus*, it lacks male secondary sexual characters (horns or tubercles). It is distinguished from other species in the genus.

Key words: Scarabaeidae, Oryctini, *Heterogomphus*, new species, South America.

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Things are seldom what they seem.
Gilbert and Sullivan
The Pirates of Penzance

INTRODUCTION

The genus *Heterogomphus* BURMEISTER, 1847 (Scarabaeidae: Dynastinae: Oryctini) includes 47 species with only three of them having been described (DECHAMBRE, 1986, 1998) since ENDRÖDI's (1985) synopsis. The dynastine fauna of the Guianas in South America is not well-known, and there are no records for *Heterogomphus* species in French Guiana. Surinam and Guyana each have a single species record (BLACKWELDER 1944; ENDRÖDI 1985).

Species in the genus *Heterogomphus* are recognized by the combination of quadridentate foretibia, teeth of the foretibia directed obliquely forward, males usually with a large head horn, females with one or two tubercles on the head, and prosternal process long and stout. ENDRÖDI believed that *Heterogomphus* was the most difficult genus taxonomically of New World Oryctini (*in litt.,* December 1971) because of the morphological similarity of many species. In spite of the occasional abundance of some species of *Heterogomphus*, very little is known of their biology or immature stages. Adults are nocturnal, and many are attracted to lights at night. Where the larvae are known, they apparently feed on organic debris in the soil (RATCLIFFE 2003).

Through the courtesy of David CARLSON (Fair Oaks, CA), I received the highly unusual male holotype and four female paratypes (collected by Frank HOVORE, Santa Clarita, CA) for identification. Sébastien ROJKOFF (Lyon, France) provided an additional specimen. The "obviously female" specimen turned out to be a male. Its combination of characters are unlike those of other species of *Heterogomphus* species, and so it is described here as new. An effort was made to find additional specimens collected by American and French entomologists in French Guiana, but none could be found. I use the phylogenetic species concept (*sensu* WHEELER and PLATNICK 2000) that states that a species is the smallest aggregation of (sexual) populations or (asexual) lineages diagnosable by a unique combination of character states.

The description consists of length and width measurements (from apex of clypeus to apex of elytra and across widest part of elytra), color (using transmitted light and not simply reflected light), and distinguishing characteristics of the head, pronotum, elytra, pygidium, legs, venter, and parameres. With regard to surface sculpturing, punctures are considered irregular in distribution and simple unless otherwise noted. Minute punctures are generally not seen with 10X magnification but are easily seen with 50X magnification. Small punctures are easily seen with 10X magnification and can be seen with the unaided eye. Large punctures are easily seen without magnification. Punctures are termed sparse if there are few of them or they are separated from one another by ten or more puncture diameters. Punctures that are moderate in density are separated from one another by about five puncture diameters, and dense punctures are separated by less than one to three puncture diameters.

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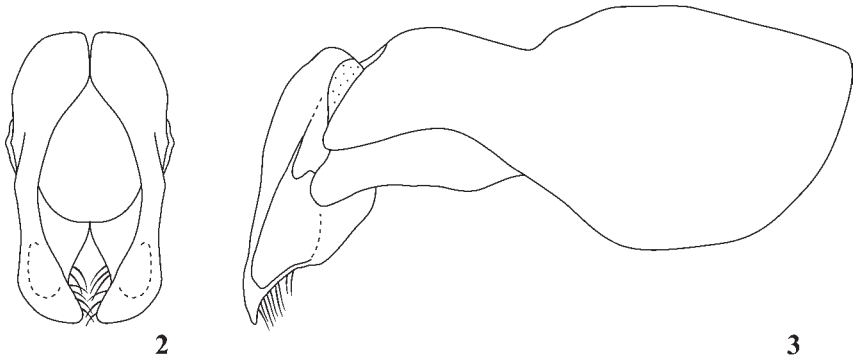
Heterogomphus effeminatus RATCLIFFE, sp. n.

(Figs 1-3)

T y p e m a t e r i a l. Holotype male labeled "**GUYANE** Risquetout Rd., PK 14, 28 January 1995, Coll. F. T. HOVORE" and "D. C. CARLSON Collection, Gift from: FTHovore 1995" and with my red holotype label. Allotype labeled "**GUYANE**, Pk 40-43, Route de Kaw, Flora Amazone Lodge, 4-9 February 2005, Coll. F. T. HOVORE" and "D. C. CARLSON Collection, Gift from F. T. HOVORE" and with my red allotype label. Three paratypes with same data as allotype and with my yellow paratype labels. One additional paratype labeled "**FRENCH GUIANA**, Pk 15/15 Piste de Belizon, IX-18-2004, S. ROJKOFF" and with my yellow paratype label.

Holotype and **allotype** (property of D. CARLSON) deposited at the University of Nebraska State Museum (Lincoln, NE). Paratypes deposited in the collections of David CARLSON (Fair Oaks, CA) and Brett RATCLIFFE (Lincoln, NE).

Holotype. Male. Length 41.3 mm; width across humerus 20.4 mm. Color black. **Head:** Occiput smooth, shiny. Frons coarsely rugose. Frontoclypeal region at center with low, transverse tubercle. Clypeus with surface coarsely, transversely rugose; apex slightly reflexed, narrowly subtruncate with feeble emargination at center. Mandibles prominent, subtriangular, with small tooth on median edge (best seen in ventral view). Interocular width equals 2.27 transverse eye diameters. Antenna with 10 segments, club robust and slightly longer than segments 2-7. **Pronotum:** Surface completely punctate (Fig. 1); punctures moderate to mostly large in size, deep, mostly round to becoming transverse near all margins (especially anterior angles and base), mostly moderate in density but becoming denser along margins and on center line in anterior half, center line faintly impressed.



Figs 1-3. Fig. 1. *Heterogomphus effeminatus*, holotype male. Figs 2-3. *Heterogomphus effeminatus* parameres.

Horns, tubercles, or fovea absent. Base with marginal bead. **Elytra:** Surface completely, coarsely, and densely punctate (Fig. 1); punctures large to very large (becoming smaller on lateral margins and minute and sparse on humeral umbones), deep, with minute reddish brown setae (most noticeable on posterior half. **Pre-pygidium:** Surface with moderately dense, small granules. **Pygidium:** Surface densely rugulopunctate with dense band of long, reddish brown setae just behind (but not touching) basal margin. In lateral view, surface strongly convex with posterior 2/3 curving beneath apical extremity. Apex with strong, elevated marginal bead. **Venter:** Prosternal process long, co-

lumnar, apex rounded, covered with long, reddish brown setae. Metasternum densely punctate on anterior half, nearly smooth and shining on posterior half. Last sternite with apical margin shallowly and extremely broadly emarginate. **Legs:** Foretibia quadridentate. Posterior tibia at apex with 1 large and 1 smaller tooth. **Parameres:** Figs 2-3.

Allotype. Female. Length 14.1 mm; width across humerus 20.6 mm. As holotype except in the following respects: **Head***:* Clypeal apex entire, not feebly emarginate. Mandibles with 2 large teeth subequal in size. **Venter:** Last abdominal sternite entire at apex. **Legs:** Posterior tibia at apex with 1 large and 2 small teeth.

Paratypes (4 females). Length 38.0-43.2 mm; width across humerus 19.3-21.8 mm. The paratypes do not differ significantly from the allotype except for minor variation in the apex of the clypeus, which may be entire or feebly emarginate.

D i s t r i b u t i o n. *Heterogomphus effeminatus* is known only from French Guiana.

Temporal distribution. January (1), September (1), February (4).

D i a g n o s i s. Males are easily recognized, even when lacking armature, by the emarginate apex of the last abdominal sternite; this sternite is entire at its apex in females. The male parameres are unique in form and will serve to separate males of this species from others. The parameres most closely resemble those of the south Brazilian *H. hopei* BURMEISTER, but that species has a clypeus that is broadly and deeply emarginate, a bifurcate head horn, and a pronotum with a large apical declivity; none of those character states are present in *H. effeminatus*. The unusual absence of armature (tubercles, horn, or fovea) on the pronotum and/or head in combination with the densely punctate elytra are also diagnostic.

In the key to males by ENDRÖDI (1985), *H. effeminatus* can be keyed only as far as couplet 27 where neither choice after that will work. In the key to females, it can be keyed only so far as couplet 26, where the subsequent choices do not work.

E t y m o l o g y. From the Latin *effeminatus*, meaning effeminate, in reference to the female characteristics of the male in this species.

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