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Two Remarkable New Species of *Plusiotis*
(Coleoptera: Scarabaeidae: Rutelinae)
from Mexico and Central America

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Abstract

Affinities, diagnoses, and descriptions are provided for two new species of *Plusiotis*: *P. spectabilis* from an unknown locality in Central America and *P. diana* from Veracruz state in Mexico. *Plusiotis spectabilis* is described from a single female and is the largest species in the genus (41 mm in length).

ALL THAT GLITTERS IS NOT GOLD.

- Common Proverb

Introduction

The recent treatment of the genus *Plusiotis* by Morón (1990) provided a much needed and beautifully illustrated synopsis of the genus. It has also enabled questionable species to be determined with a fair amount of reliability and to assess whether species have been described previously. There will, no doubt, be a brief rush now to describe new species (e.g., Warner *et al.* 1992) in this popular group that are not found in Morón's book. Morón is now working on a scientific revision of the genus that will provide a key and phylogeny (Morón, personal communication, 1991), and we hope this

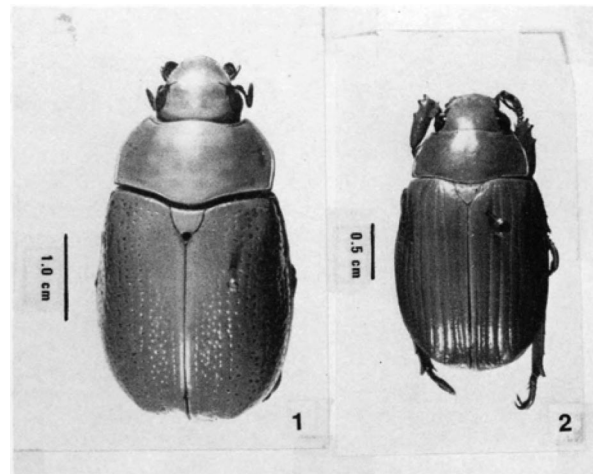
influx of new species will add to the robustness of his studies.

We describe here two new species of *Plusiotis*. One is distinctive because of its immense size and elytral sculpturing, and the other is characterized by unique genitalia while appearing externally similar to other known species. As with many other species in the genus, these two new species appear to be extremely localized in distribution. One, in fact, already may be extinct, while at least one population of the other occupies a forest remnant so small as to cause grave concern over its future survival. The new species are easily distinguished because of unique character states. They are not placed in a key because, surprisingly, one does not yet exist for the majority of the species.

Plusiotis spectabilis Ratcliffe and Jameson
new species
(Figures 1, 3-5)

Type Material. Holotype labeled "Central America," "Field Mus. (F. Psota Coll.)." Deposited at the Field Museum of Natural History, Chicago.

Description. Holotype. Female. Length 41.5 mm; width across humeri 19.7 mm; widest width 22.2 mm. Color of dorsum mostly bright, lime green with conspicuous, large, metallic golden green punctures on elytra; base of head, clypeal apex, margins of pronotum, narrow band either side of elytral suture, and especially scutellum yellowish green tinged with pale orange; pygidium dull, tawny, with greenish orange tinge; sternites mostly shining, largely same color as pygidium except margins black and mesometasternal protrusion and trochanters infused with reddish brown; legs similar in color to mesometasternal protrusion except femora ventrally violet, and tarsi dark violet to black. **Head:** Surface of frons and clypeus uniformly punctate; punctures small, moderately dense. Clypeus with apex parabolic. Interocular width equals 5.0 transverse eye diameters. Antenna 10-segmented, club slightly longer than segments 2-7. Mandibles asymmetrical, left mandible with apical tooth narrower than on right mandible. Labium (Fig. 3) with apex emarginate at middle. **Pronotum:** Surface similar to that of head except punctures becoming denser and rugopunctate on sides. All margins beaded. Lateral margin arcuate, widest at middle. **Elytra:** Surface between golden punctures with minute punctures on enamel-like surface. Golden punctures small in sutural stria and first interval, becoming progressively larger and deeper laterally, those on sides very large (as large as second antennal segment); several large punctures behind humerus confluent. Lateral margin with distinct, complete bead. Epipleuron wide, extending to third sternite. **Pygidium:** Surface completely rugulose, with 14 long setae at apex. In lateral view, surface weakly convex. **Venter:** Mesometasternal protrusion (Fig. 4) long but not reaching anterior coxae, apex rounded, curving slightly away from body. Mesosternum rugose either side of minutely punctate region at base of mesometasternal protrusion; rugose area with short, pale, moderately dense setae. **Genitalia:** Fig. 5.

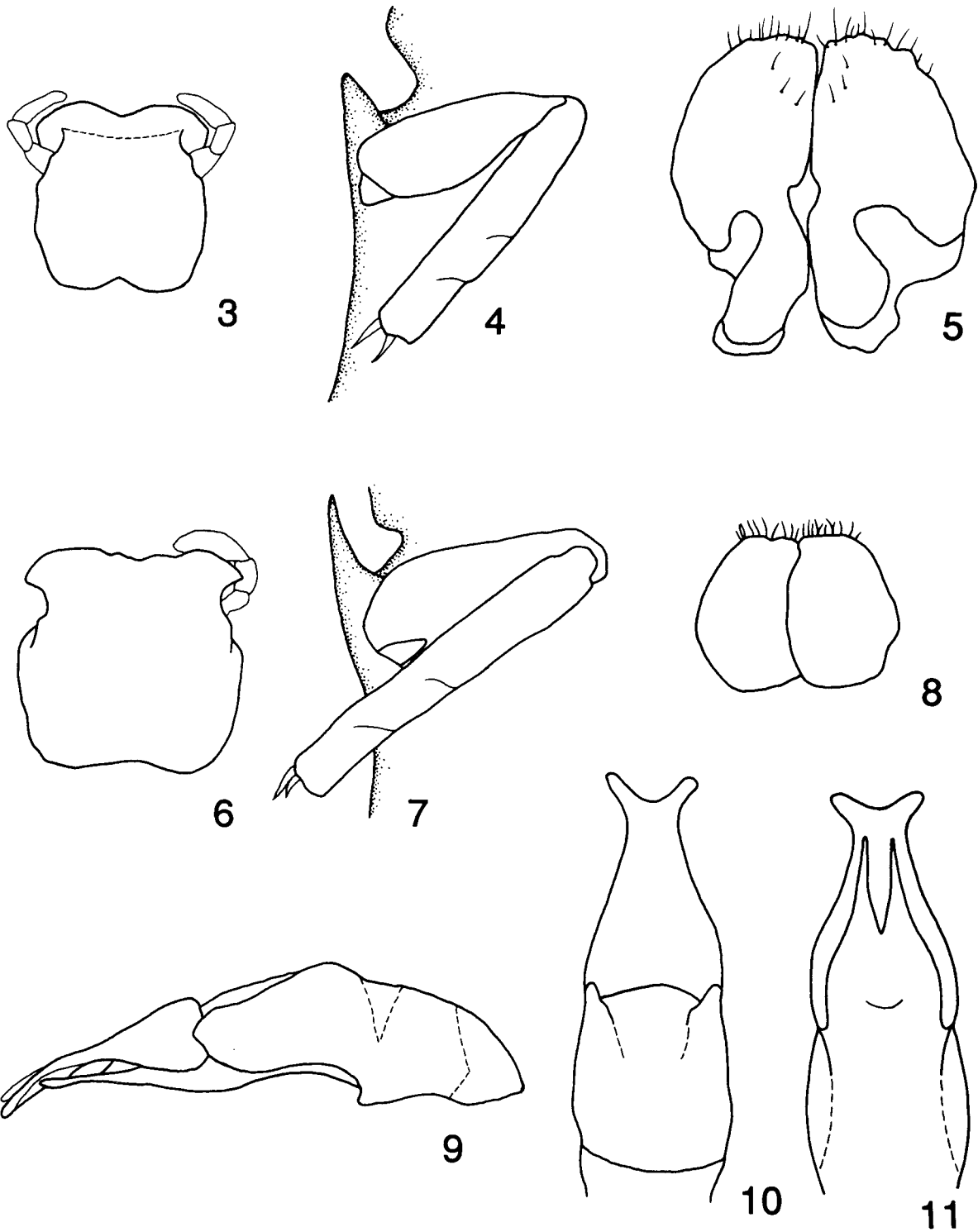


Figures 1-2. Habitus of *Plusiotis spectabilis* (1) and *P. diana* (2).

Distribution. Unfortunately, the specimen has only a hand-written label indicating "Central America." This specimen was part of the Psota collection at the Field Museum, and many showy, tropical species in this collection were obtained from commercial sources and private collections with little or no data. Until additional specimens are found, the country of origin remains enigmatic. We surmise that this species could have been so localized in distribution that forest destruction subsequent to its capture may have caused its extirpation.

Remarks. This single specimen is so distinctively spectacular and large that it seems inconceivable that it has remained undescribed for so long. It is easily the largest species of *Plusiotis* known. Size range for other species in the genus is 19.0 mm [*P. lecontei* Horn] to 37.0 mm [*P. victorina* (Hope)]. With the exception of a complete basal margin, *Plusiotis spectabilis* falls into Morón's (1990) victorina group. Its venter is nearly identical with that of *P. victorina* (Hope) while its dorsum is vaguely reminiscent of that of *P. terroni* Morón. The large, golden punctures on the green dorsum, in combination with the reddish brown pygidium and venter, and the form of the female genitalia will easily distinguish it from others in the genus.

Etymology. From the Latin *spectabilis*, meaning notable or showy.



Figures 3-11. *Plusiotis* spp. 3-5) *P. spectabilis*: (3) labium; (4) mesometasternal protrusion, left lateral view; (5) female genitalia; 6-11) *P. diana*: (6) labium; (7) mesometasternal protrusion, left lateral view; (8) female genitalia; (9-11) parameres in lateral, dorsal, and ventral views, respectively.

Plusiotis diana Ratcliffe and Taylor
new species
(Figures 2, 6-11)

Type Material. Holotype labeled "MEXICO: Veracruz, Escola, 16-VI-88, luz merc., T.W. Taylor col." Allotype labeled "MEXICO: Veracruz, 1 mi. S Pueblo Calcahualco, 8rd. mi. W Coscomatec, VI-20-1989, T. Taylor and A. Lau Colls, oak forest remnant on steep slope, elev. 6,200'." Paratypes (15) labeled "MEXICO: Veracruz, 1 mi. S Pueblo Calcahualco, 8 rd. mi. W Coscomatec, VI-8-1988, T. Taylor and A. Lau colls., oak forest remnant on steep slope, elev. 6,200" (1); with same data but with dates of VI-20-1974 (1), VI-17-1988 (1), VII-7-1989 (1), VII-8-1988 (2), VII-10-1991 (3); "MEXICO, Misantla, Höge, Ohaus determ. *Plusiotis chloreis* Bates, M.A. Morón R. 1981 *Plusiotis chloreis* Bates O." (1); "MEXICO, Cofre de Perote (6), J. Flohr G. 86894, *chloreis* Bat." (1); "MEXICO: Veracruz, Calcahualco, Puente San Bernardo, 27-VII-92, alt. 1,500 m, bosque mesofilo, luz, V. Maly, F. Capistrán, P. Pokorny, and L. Delgado cols." (2); "MEXICO: Veracruz, Calcahualco, 2 km NE Calcahualco, 29-VII-1992, alt. 1,650 m, bosque mesofilo, luz, V. Maly, F. Capistrán, P. Pokorny, and L. Delgado cols." (1); "MEXICO: Oaxaca, La Esperanza, 1,600 m, 30-VI-3-VII-92, J.P. Beraud col." (1). Holotype deposited in the Miguel A. Morón collection; allotype at the University of Nebraska State Museum. Paratypes deposited in California Academy of Sciences (San Francisco) (1), University of Nebraska State Museum (Lincoln) (1), Zoological Museum of Humboldt University (Berlin) (2), Vladislav Maly (Prague, Czechoslovakia) (1), Leonardo Delgado (Mexico City) (1), Fabricio Capistrán (Xalapa, Mexico) (1), Jean Pierre Berand (Cuernavaca, Mexico) (1), Terry Taylor (4), Mary Liz Jameson (1), Brett C. Ratcliffe (2).

Description. Holotype. Male. Length 23.0 mm; width across humeri 11.1 mm; widest width 12.9 mm. Color of dorsum lime green; sternites opaque, lime green with weak, reddish orange hue; femora similar in color to abdominal sternites, tibiae and tarsi pinkish orange. **Head:** Surface of frons and base of clypeus moderately densely punctate, punctures minute and small mixed, becoming denser to rugopunctate in apical half of clypeus. Clypeus with apex parabolic, weakly and narrowly reflexed. Interocular width equals 4.3 transverse eye diameters. Antenna 10-segmented, club subequal to segments 2-7; segments 2-10 light brown. Labium (Fig.

6) with apex bisinuate. **Pronotum:** Surface similar to that of head. Lateral and basal margins completely beaded, bead becoming weaker in front of scutellum; anterior margin with bead effaced between inner border of eyes. Lateral margin arcuate, equally widest at middle and base. **Elytra:** Surface punctate-striate; punctures in striae minute, dark green. Intervals weakly convex, with irregularly spaced micropunctures; sides with punctures in intervals larger. Lateral margin with complete bead, bead widest just before level of metacoxae and narrowing posteriorly. Epipleuron wide, extending to 5th sternite. **Pygidium:** Surface completely rugulose, apical margin with sparse, long, pale setae. Margins either side of middle abruptly declivous from disc. In lateral view, surface strongly convex just before apex. **Venter:** Mesometasternal protrusion (Fig. 7) long, extending between anterior coxae and proximal to prosternal peg; apex narrowly rounded, curving distinctly toward body. Metasternum densely, setigerously punctate either side of base of mesometasternal protrusion which is sparsely and minutely punctate; setae dense, fine, long, buff colored. **Legs:** Foretibia tridentate, basal tooth removed from anterior teeth. Large claw of foretarsus with small tubercle on inner surface in apical fifth. **Genitalia:** Figs. 9-11.

Allotype. Female. Length 23.8 mm; width across humeri 11.0 mm; widest width 13.8 mm. As holotype except in the following respects: Tibiae, tarsi and mesometasternal protrusion less orange. **Head:** Punctuation slightly denser. Interocular width 4.5 transverse eye diameters. **Elytra:** Lateral bead wide to 4th sternite and then tapering posteriorly. **Venter:** Mesometasternal protrusion slightly shorter, not reaching anterior coxae. Metasternum with setae not as dense, pale. **Legs:** Foretibia with 3 teeth equidistant from one another. Larger claw of foretarsus lacking subapical tubercle. **Genitalia:** Fig. 8.

Variation. Males (13 paratypes). Length 21.6-24.0 mm; width across humeri 9.9-11.8 mm; widest width 12.0-13.3 mm. As holotype except in the following respects: Clypeal apex with pink reflection in 1 specimen; color of prosternum intense green (blue green in 1 specimen), color of mesometasternal protrusion similar in color to sternites (metallic bluish green in 1 specimen) but strongly shining; tarsi green with a little more pinkish orange than sternites and tibia distinctly pinkish orange (5 specimens) to pink (4 specimens). **Head:** Interocular

width 4.0-4.6 transverse eye diameters. **Venter:** Mesometasternal protrusion nearly as long as in type (5 specimens) to distinctly shorter, not reaching prosternal peg and not curved mesad (4 specimens).

Female (2 paratypes). Length 24.0-25.1 mm; width across humeri 11.4-11.8 mm; widest width 13.8 mm. The paratypes do not differ significantly from the allotype.

Distribution. Known only from Veracruz state (elevation at type locality of 1,885 m, Perote is 2,500 m and Misantla is 422 m). The holotype from Escola and allotype and paratypes from near Pueblo Calchualco are actually from the same locality; the paratypes are more precisely labeled. The habitat for the primary types and nine paratypes of *P. diana* is an oak forest remnant (with orchids, bromeliads, and begonias) of approximately 200 x 400 meters that is surrounded by cornfields on three sides and a 50 m drop off on the fourth side. All specimens at this site were taken at lights only during heavy rains between 9:00-11:30 PM when the temperature was between 7-18° C. Specimens did not come to the lights when it was not raining. Collecting by Taylor in nearby canyons failed to produce other specimens, and so it seems this population might be localized. Other species of *Plusiotis* taken at this same spot are *P. adelaida* Hope, *P. badeni* Boucomont, *P. costata* Blanchard, *P. prasina* Boucomont, and *P. sallei* Boucomont.

Remarks. The external characters and form of the male parameres clearly place *P. diana* in Morón's (1990) *lacordairei* group. Although very close in appearance to *P. badeni*, it may be distinguished by the form of the genitalia, lack of metallic luster on the sternites, and long epipleuron.

Morón's 1981 determination label of *P. chloreis* on the Berlin specimen was placed prior to Dr. Morón's final conclusions about the status of *P. chloreis* and several new species.

Etymology. Named in honor of Diane Taylor who, for many years, has done so much to support the entomological exploration of Mexico by her husband, Terry.

Acknowledgments

We thank Al Newton (Field Museum of Natural History) for loaning us the specimen of *P. spectabilis* and Miguel Morón for providing the holotype of *P. diana*. Dr. Morón graciously encouraged us to describe *P. diana* (even though he was preparing a description) inasmuch as our manuscript was closer to completion than his. Alfred D. Lau (Fortín, Veracruz) provided invaluable field assistance to Taylor. Gail Littrell (University of Nebraska State Museum) typed the manuscript, and Laura Williams (technical artist, University of Nebraska State Museum) completed the line drawings. Charles Messenger (Collection Manager, University of Nebraska State Museum) assisted with the photographs. Lastly, we thank William Warner (Chandler, AZ), Richard Leschen (University of Kansas), Jean-Pierre Beraud (Cuernavaca, MEXICO), Robert Woodruff and Willis Wirth (both Gainesville, FL) for their helpful comments on the manuscript.

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