

SUPPRESSION OF THE GENUS *ROPLISA* CASEY WITH  
NOTES ON THE UNITED STATES SPECIES OF  
*TRIGONOPELTASTES* BURMEISTER  
(COLEOPTERA: SCARABAEIDAE)<sup>1</sup>

ROBERT E. WOODRUFF

Entomology Department, State Plant Board of Florida, Gainesville

The genus *Roplisa* was created in 1909 by Thomas Casey to receive a unique new species *R. floridana* (Casey, 1909, p. 284). At the time of the original description, Casey had only two specimens before him which were merely labeled "Florida." When he reviewed the North American Cetoninae (Casey, 1915), he listed no additional specimens and redescribed the types. Blatchley (1928), in his Scarabaeidae of Florida, merely repeated Casey's description and reported no additional records. No records of this species, other than the types, have been published for 50 years, even though a few specimens have been collected during that period. This insect has long been considered one of the rarest of the United States Scarabaeidae.

The writer, after finding a single specimen of this species in a spider web at Juniper Springs in the Ocala National Forest, Marion County, Florida on July 12, 1959, began an immediate search of the vicinity. Twenty-eight additional specimens from the blooms of the scrub-palmetto, *Sabal etonia*, were collected with the help of Mr. H. A. Denmark. As many as 12 individuals were collected from the blooms of a single plant although few plants were found blooming. This series represented more than the total number of specimens (16) known at that time.

When this series and additional specimens were studied in detail, several errors were apparent in Casey's original description. It was also discovered that the male was undescribed and differed considerably from the female.

*Trigonopeltastes floridana* (Casey) new combination

*Roplisa floridana* Casey, 1909, p. 284; 1915, p. 379-380; Blatchley, 1930, p. 32.

Casey separated the genus *Roplisa* from *Trigonopeltastes* by the number of antennal segments and the relative length of the posterior tibiae and tarsi. He states (Casey, 1909, p. 284) that the antennae are "9-jointed" in contrast to the "10-jointed" antennae of *Trigonopeltastes*. The types<sup>2</sup> are females and have 9-segmented antennae. However, all of the male specimens examined had 10-segmented antennae. Twenty-two females were examined; 6 specimens had 10-segmented antennae, 13 specimens had 9-segmented antennae, and 3 specimens had 9 segments on one side and 10 segments on the other. Although the majority of females apparently have 9-segmented antennae, this character is too variable to be considered of prime importance in a generic separation. He also states (Casey, 1909,

<sup>1</sup> Contribution No. 9, Entomology Department, State Plant Board of Florida.

<sup>2</sup> The writer is indebted to Mr. O. L. Cartwright, U. S. National Museum, for information concerning the Casey types and for additional records.

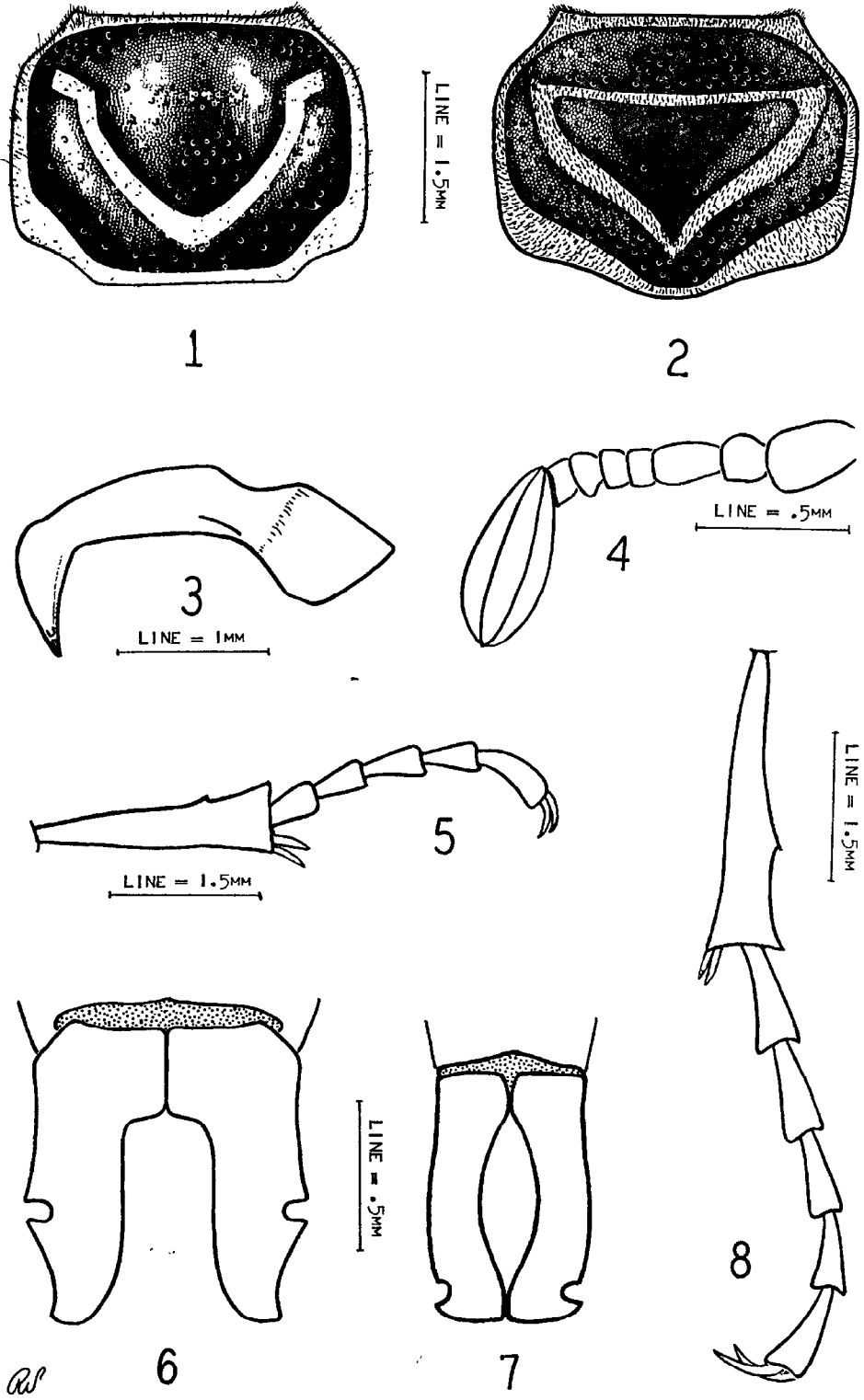


PLATE I

p. 284) that the . . . "posterior (tarsi) being not longer than the tibiae." Apparently he reexamined the specimens for his description 6 years later, for he states (Casey, 1915, p. 380) "hind tarsi barely longer than the tibiae." Measurements of 32 specimens indicate the posterior tarsi are always longer than the posterior tibiae. In the males, the tarsi are nearly a millimeter longer, whereas in the female they average  $\frac{1}{2}$  millimeter longer than the tibiae. Casey (1915, p. 380) states that ". . . I do not know the sex of the two at hand, although it might be inferred that they are males. . . ." The types are actually females and therefore the male is undescribed.

Since both of these characters (i. e. number of antennal segments and relative length of posterior, tibiae and tarsi) are used by Casey to establish his genus *Roplisa*, there seems little justification for retaining this name. The name *Roplisa* Casey, 1909, is herewith relegated to synonymy with *Trigonopeltastes* Burmeister, 1840.

The genus *Trigonopeltastes* as now defined is strictly American and contains 10 described species. In addition to the 2 United States species, there are 7 species in Central America ranging from Mexico to Panama and 1 described from Brazil.

The genus *Trigonopeltastes* is characterized among the Cetoniinae by having a deltoid impressed marking on the pronotum. In *T. delta* (Forst.), as in most species of the genus, this impression forms a completed triangle (Fig. 2). In *T. floridana* this marking is V-shaped (Fig. 1) with only a vestige of the front side of the triangle in the form of a line of a few dense punctures. This line is more pronounced in some specimens than in others. This type of marking also occurs in some of the Central American species. The deltoid impression, as well as the entire impressed border of the pronotum, is filled with a bright golden tomentum in *T. delta* (Forst.). This same area is white or cream colored in *T. floridana* (Casey). The genitalia are quite distinct but of the same general type (Figs. 6 and 7). Although *T. delta* (Forst.) and *T. floridana* (Casey) are similar in general appearance, they are abundantly distinct in specific characters.

#### KEY TO THE UNITED STATES SPECIES OF *Trigonopeltastes* BURM.

1. Impressed pronotal marking in the form of a completed triangle (Fig. 2), tomentum golden yellow; pronotal surface dull, not shining in either sex; anterior tibia bidentate in female and tridentate in male; antennae 10-segmented in both sexes; genitalia as in Fig. 6; Southeastern United States ..... *delta* (Forst.).
- 1' Impressed pronotal marking in the form of a V-shaped area (Fig. 1) filled with a whitish or yellowish tomentum; pronotal surface shining in

---

#### LEGEND FOR PLATE I

- Fig. 1. Pronotum of female *Trigonopeltastes floridana*.
- Fig. 2. Pronotum of female *Trigonopeltastes delta*.
- Fig. 3. Lateral view of male genitalia of *T. floridana*.
- Fig. 4. Antenna of female *T. floridana* (from a slide preparation).
- Fig. 5. Posterior tibia and tarsus of *T. floridana*.
- Fig. 6. Caudal view male genitalia *T. delta*.
- Fig. 7. Caudal view male genitalia *T. floridana* (allotype).
- Fig. 8. Posterior tibia and tarsus of *T. delta*.

female and velvety in male; antennae 10-segmented in male, and either 9- or 10-segmented in female; anterior tibia bidentate in both sexes; genitalia as in Fig. 7; peninsular Florida.....*floridana* (Casey).

DESCRIPTION: Female *Roplisa floridana* (Casey). Similar in general appearance and shape to *T. delta* (Forst.); body narrow, oblong-oval, slightly convex; color somewhat variable but normally with black and orange-red markings broken by yellowish areas of tomentum, pattern quite similar to that of *T. sallei* Bates of Mexico.

Head black, shining, irregularly punctato-rugose; clypeus punctate medially, longitudinally rugose laterally, nearly as long as wide, parallel and rounded at the side, thickened, broadly, feebly arcuate, with rounded angles and feebly sinuate medially at apex; eyes emarginate, not large; antennae rufotestaceous, 9- or 10-segmented, club oval and 3-segmented (Fig. 4).

Pronotum black, shining, slightly wider than long, sides nearly parallel, anterior  $\frac{1}{2}$  sinuate, front angles projected to a point, anterior margin broadly concave, hind angles rounded after arcuate posterior  $\frac{1}{2}$ , making base broadly lobed. The surface irregularly punctate, broadly open V-shaped impressed line heavily sculptured and filled with yellowish tomentum. Occasionally a dense line of punctures will tend to reproduce the markings of *T. delta* and to close the anterior portions of the V-shaped impression. However, this line is never filled with tomentum. Entire pronotal border slightly depressed and filled with yellowish tomentum similar to that of the V-shaped marking and becoming broader at the posterior pronotal angles (Fig. 1).

Elytra longer than wide, only little wider than pronotum, sides subparallel and broadly arcuate, surface finely, in most part obsoletely punctate with a very few longitudinally incised lines, the posterior edge finely transversely rugose. Elytral markings irregular but with five areas of yellowish tomentum on each elytron, the elytral suture bordered by an elongate patch basally which is nearly continuous with the tomentose markings of the scutellum (reminiscent of quotation marks); at the posterior of these markings are two small elliptical markings at right angles to the suture, and two rounded areas of tomentum on the lateral border of each elytron, the anterior one being larger. Scutellum sparsely coarsely rugose, mostly covered by tomentum.

Pygidium convex, longer than wide, surface with bioblique and rather coarsely incised wavy lines, tomentose laterally and along the base, non-tomentose area black, shining.

Legs rufous, tarsi slightly longer than tibiae, claws not cleft. Middle and posterior tibiae each with two flattened spurs of unequal length, longer of the two slightly longer than first tarsal segment. Anterior tibiae broadly rounded with a single tooth slightly beyond the middle and the tibial apex prolonged into a pointed tooth opposite the single tibial spur which is longer than the first tarsal segment.

Ventral surface heavily sculptured with incised lines like those of the pygidium, with scattered areas of tomentum except medially and posteriorly.

The legs and body are often covered with a dense coating of pollen grains which tend to make the specimen seem totally tomentose.

ALLOTYPE:—Male, Juniper Springs, Ocala National Forest, Marion County, VII-12-59, R. E. Woodruff (author's collection). Length from anterior pronotal margin to base of pygidium 6 mm; greatest width 3.75 mm. Similar to female in general appearance and in most structures. The antennae are larger and longer; ventral surface more universally and heavily tomentose; pronotum and head dull, velvety, less densely punctate; anterior tibial spur shorter than first tarsal segment. Genital armature smaller than *T. delta* (Forst.) and generally similar to those of the genus *Trichotinus*. Claspers nearly parallel on the outside margin and slightly bowed on the inner margin; lateral dentations very near the apex with the tips of the claspers truncate. The males are much less numerous than the females and very few specimens have been seen. In a series of 28 specimens collected at the same time, there were 24 females and 4 males.

VARIATION:—This species is relatively constant in all major morphological structures. Variation was noted primarily in size (length from anterior pronotal margin to base of pygidium 6.0 to 8.6 mm) and color markings on the elytra. Additional variation was noted in the extent and denseness of punctures on the pronotum (especially at the anterior portion of the V-shaped impression). The lateral tooth of the anterior tibiae is more pronounced in some specimens than in others, generally an indication of wear. The extensiveness of the dense tomentum is quite variable but much more pronounced in the males. However, this tomentum can be easily rubbed off if specimens are not properly handled. A single male specimen was examined which had practically no orange or reddish markings on the elytra. The color pattern consisted almost entirely of a contrasting black with yellow tomentum. This specimen agreed in all morphological characters with other specimens examined.

ECOLOGY:—In 1958, the writer saw two specimens of this species from the Archbold Biological Station, Highlands County, Florida (listed below), bearing the labels "at blooms of saw-palmetto." Since this was the only known reference to the ecology of this species, the writer made a special search on this plant to obtain additional specimens. The saw-palmetto (*Serenoa repens*) is very abundant in Florida and literally hundreds of blooms were examined for this beetle. No additional specimens have been found on this plant. Since *Sabal etonia* is quite similar in appearance to *Serenoa repens* and since they occur in the same locality, the writer suspects that the specimens referred to above were actually collected on *Sabal etonia*. The blooms of this species are more fragrant and much more attractive to other insects than are those of *Serenoa repens*. The scarcity of this beetle even in Florida collections leads the writer to believe that this species is rather host specific and occurs in a restricted ecological niche.

The scrub-palmetto (*Sabal etonia*) is rather characteristic of certain areas in Florida known as "scrub" (Small, 1925). This plant is similar in general appearance to the young stage of the cabbage palmetto (*Sabal palmetto*) and to mature plants of the saw-palmetto (*Serenoa repens*). It is an endemic species which is rapidly becoming rare. Small (1925, p. 147) says "if, however, the species is not tending toward extermination through natural conditions and enemies, then the white man is doing his part to exterminate it, not only in the clearing of land generally, but in removing the esculent bud for food. . . ."

This plant occurs on two entirely different geological formations which are unlike in their plant associations. One of these formations is the oolitic limestone of the Everglades and Keys and which supports a flora similar to that of the West Indies. The other is a loose sand characteristic of several areas of peninsular Florida which harbors many rare and endemic plants and animals. Laessle (1958) has discussed some of the scrub areas in the Ocala National Forest.

The blooms of *Sabal etonia* bend near the ground and are difficult to see, as they are whitish and tend to blend with the white sand background of the plants. They are extremely fragrant and attractive to a wide variety of insects.

DISTRIBUTION:—The following specimens were examined during the course of this study: 1 ♀, Florida, Marion County, Ocala National Forest, R26E, T17S, Section 10 and 15, VI-10-38, T. H. Hubbell (University of Michigan, Museum of Zoology); 1 ♀, Florida, Gainesville, VI-24-40, F. N. Young, flying in afternoon (UMMZ); 1 ♀, Florida, Winter Park, VII-16-38, H. T. Fernald (State Plant Board of Florida); 3 ♂♂, Florida, Vero Beach, VII-4-32, E. M. Becton (SPBF); 1 ♀ and 1 ♂, Florida, Highlands County, Archbold Biological Station, VI-16-55, H. Dybas, at blooms of saw-palmetto, *Serenoa repens* (Chicago Natural History Museum); 1 ♀, loc. cit. (Henry Howden); 23 ♀♀, 3 ♂♂, Florida, Marion County, Ocala National Forest, Juniper Springs, VII-12-59, R. E. Woodruff, at blooms of *Sabal etonia* (R. E. Woodruff); 2 ♀♀, loc. cit., H. A. Denmark (SPBF).

In addition to the above records, Mr. O. L. Cartwright supplied the following data on specimens in the U. S. National Museum: Holotype ♀, Florida; paratype ♀, Florida; 1 ♂, Florida; 1 ♀, Florida; 1 ♂, Orlando; 1 ♂, Winter Park; 1 ♂, Ocala National Forest.

*Trigonopeltastes delta* (Forst.)

This species is widely distributed in the southeastern United States and has been recorded from Ohio to Florida and west to Texas and Arkansas. It is a very common species in Florida and has been found on a variety of flowers, including the following: *Codiaeum variegatum* Blume (croton bud), *Hibiscus rosa-sinensis* L. (hibiscus), *Rosa* sp. (rose), *Rhus leucantha* Jacq. (southern sumac), *Mangifera indica* L. (mango), *Thuja* sp. (arborvitae), *Ligustrum japonicum* Thunb. (privet), *Severinia buxifolia* Ten. (boxthorn), *Ceiba pentandra* Gaertn. ("kapok"), *Persea americana* Mill. (avocado), *Sabal palmetto* Lodd. (cabbage palm), *Litchi chinensis* Sonner (lychee), *Vanda* sp. (orchid), *Crotalaria* sp. (crotalaria), *Quercus muehlenbergii* Engelm. (chinkapin oak), *Citrus* sp., *Magnolia* sp. (bay), *Dianthus* sp. (carnation), *Euphorbia* sp. (poinsettia), *Cephalanthus occidentalis* L. (button-wood), *Senecio* sp. (groundsel), *Ipomoea* sp. (morning glory), *Zizyphus* sp. (jujube), *Schinus* sp. (Brazilian pepper), *Casimiroa edulis* L. & L. (white sapota), *Cyrilla racemiflora* L. (leatherwood), *Elephantopus elatus* Bertol (elephant-foot), *Daucus carota* L. (cultivated carrot), *Ilex glabra* Gray (inkberry), *Rhus copallinum* L. (shining sumac), *Lachnanthes tinctoria* (Walt.) Ell. (red-root) and *Ceanothus americana* L. (New Jersey tea).

It has also been collected in Japanese beetle traps (using geraniol and eugenol) and fruitfly traps (using angelica oil and sweet baits). Blatchley (1930, p. 33) also records specimens collected at light.

Variation in this species parallels that of *T. floridana* (Casey). There is considerable variation in the shape and distribution of the color pattern on the elytra, but these variations have not been found to be correlated with any differences in genitalia.

The sex of this species can be determined readily since the male has bidentate anterior tibiae while the female has the same structure tridentate; the male posterior femur is more greatly swollen and twisted than that of the female; the male pronotum is duller, more velvety (as in *T. floridana*), and less densely punctate than that of the female. The males seem to be about three times more abundant than the females (this ratio is reversed in *T. floridana*).

LITERATURE CITED

- Blatchley, W. S. 1930. Scarabaeidae of Florida. Fla. Ent., 14(2): 32-33.
- Casey, Thomas L. 1909. Studies in the Caraboidea and Lamellicornia. Canad. Ent., 41(8): 253-284.
- Casey, Thomas L. 1915. A review of the American species of Rutelinae, Dynastinae, and Cetoniinae. Memoirs on the Coleoptera, 6: 1-394.
- Laessle, A. M. 1958. The origin and successional relationship of sandhill vegetation and sand-pine scrub. Ecol. Monog. 28: 361-387.
- Small, John K. 1925. The scrub-palmetto—*Sabal etonia*. Journ. N. Y. Bot. Gard., 26: 145-151, 2 figs.