

TWO NEW SPECIES OF *DICRANOCENTRUS* FROM PUERTO RICO AND THE DOMINICAN REPUBLIC (COLLEMBOLA: ENTOMOBRYIDAE)

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ABSTRACT

Two new species of *Dicranocentrus* are described: *D. celatus* from the Caribbean National Forest, Puerto Rico and Provincia La Vega, Dominican Republic, and *D. zebratus* from the latter locality. Both are closely related to *D. millsii* Mari Mutt (Cuba and Haiti). Body color pattern, number of tenacular setae and shape of the basal seta of the maxillary palp are the most significant characters used to distinguish these species. Specimens from the Dominican Republic previously identified as *D. millsii* belong to the two new species described in this paper.

During a recent visit to the Caribbean National Forest (El Yunque) I collected a number of large *Dicranocentrus* that represent a new species. Comparisons with specimens in my collections from the Dominican Republic led to the discovery that some individuals from that country reported by myself (1981) as *D. millsii* Mari Mutt 1979 belong to the same species found in Puerto Rico while the others represent a second new species.

Abbreviations such as Ant. 2, Th. 2, Abd. 2, etc. used in the descriptions stand for second antennal segment, second thoracic segment, second abdominal segment, etc. All the specimens studied for this contribution are deposited in my collection.

Dicranocentrus celatus new species
Dicranocentrus sp. Mari Mutt 1977:282.
Dicranocentrus millsii Mari Mutt.
Mari Mutt 1981:97 (misidentification).

Length to 3.2 mm. Violet pigment on Ant. 4 to Ant. 6, anterior portion of head, sides of Th. 2 and Th. 3, femora and tibiotarsi, boundaries between abdominal segments and apex of colophore (Fig. 1). Large specimens with Th. 3 to Abd. 6 evenly light blue-violet. Length of antenna/length of head: 4.8, Ant. 5/Ant. 6:1.5. Apex of Ant. 6 (Fig. 5) with short bifurcated pin seta apparently absent in some specimens. Macrochaetotaxy of anterior half of head as in Fig. 4, posterior half without macrochaetae. Eyes G and H reduced, invisible in cleared heads. Interocular chaetotaxy as in Fig. 3, one specimen with 2 inner setae. Prelabral and labral setae smooth. Setae of first row about 2× length of setae of second row, setae of third row subequal. Labral intrusion slender (Fig. 13). Outer labral papillae broad and upturned, inner pair conelike (Fig. 6). Setae of maxillary palp similar in length but basal seta thick and not sharply pointed (Fig. 11). Differentiated seta of outer labial papilla short, its apex far behind apex of papilla (Fig. 12). Posterior labial row internal to seta *e* with 1 ciliated seta, 1 smooth seta and 4-5 scales (Fig. 7), 1,

and 1, smooth. All setae on venter of head smooth. Along cephalic groove 2 + 2 anterior setae (post-labial quadrangle) and 2 + 2 long, finely ciliated setae near posterior margin of head. Trochanteral organ (Fig. 9) with up to 53 setae. Tibiotarsi without smooth setae. Inner pair of unguate teeth extremely reduced (Fig. 2), barely visible at 1000 \times ; unpaired tooth very small but more easily seen. Unguiculus with an outer tooth anterior to or near middle of appendage. Tenent hair clavate but apex is thin and may appear lanceolate in lateral view. Body macrochaetotaxy as in Fig. 8. Anterior face of colophore with several finely ciliated setae, many scales and 2 + 2 long, finely ciliated setae. Tenaculum without setae. Dorsum of manubrium with many scales and no smooth setae. Inner margin of dens with a row of up to 25 spines (Fig. 10). Mucro normal, with basal spine. Lateral anal valves without smooth setae.

Diagnosis. *Dicranocentrus celatus* is very close to *D. millsii* Mari Mutt 1979, known from Cuba and Haiti. The main difference between both species is shape of the basal seta of the maxillary palp. In *D. celatus* the basal seta is thick and not sharply pointed (Fig. 11) while in *D. millsii* is slender and sharply pointed (cf. Fig. 14). The basal and apical setae of *D. celatus* are subequal in length but in *D. millsii* basal seta is noticeably longer. Other differences between these species are the absence of tenacular setae in *D. celatus* (1 seta in *D. millsii*), the pin seta of *D. celatus* is short and broadly bifurcated while that of *D. millsii* is long and has two small points (Fig. 5, 19), and the inner basal unguate teeth of *D. celatus* are extremely reduced (small but easily seen in *D. millsii*).

Dicranocentrus celatus is also closely related to *D. zebratus* n. sp. but they differ markedly in color pattern (Fig. 1, 15) and in the shape of the basal seta of the maxillary palp (Fig. 11, 14). In addition, specimens of *D. celatus* have the dental spines arranged in a single row (more than one row proximally in *D. zebratus*), their inner pair of unguate teeth are extremely reduced (small but easily visible in *D. zebratus*) and the outer labral papillae are broadly rounded (with small cone-like projection in *D. zebratus*).

Dicranocentrus marias Wray 1953, the other member of the genus known from Puerto Rico, can be easily distinguished from *D. celatus* by the number of macrochaetae on Th. 2 to Abd. 1, absence of scales on the labium and dorsum of manubrium, presence

of smooth setae on the tibiotarsi and dorsum of manubrium, number and arrangement of dental spines (about 40 in compact proximal group of various rows in *D. marias*, about 23 in one long row in *D. celatus*), and by the ratio length of Ant. 5/Ant. 6 (2.7 in *D. marias*, 1.5 in *D. celatus*).

Material Examined. Puerto Rico, Luquillo, Caribbean National Forest, along Big Tree trail about 0.3 km from entrance at Rd. 191, leaf litter, 12.VIII.1984, J. A. Mari Mutt, holotype and 23 paratypes (10 on slides). Dominican Republic, Prov. La Vega, El Rio-Bonao, Km 24, 200-800 m, ravine leaf litter, 7.11.1975, W. L. Brown, FM 75-281, 12 specimens (3 on slides).

Dicranocentrus zebratus new species
Dicranocentrus sp. Mari Mutt 1977:282.
Dicranocentrus millsii Mari Mutt. Mari Mutt 1981:97 (misidentification).

Length to 4.0 mm. A transverse dorsal band of blue-violet pigment on each segment from Th. 2 to Abd. 5, bands progressively larger towards posterior of body (Fig. 15). Antennae and legs lightly pigmented distally, furcula yellow. Length of antennae not determined, incomplete in all specimens. Head and body macrochaetotaxy, eyes and interocular chaetotaxy, prelabral and labral setae, as in *D. celatus*. Outer labral papillae not as large as in *D. celatus*, with apex cone-like instead of broadly rounded. Basal seta of maxillary palp slender, sharply pointed, longer than apical seta (Fig. 14). Differentiated seta of outer labial papilla not reaching apex of its papilla (Fig. 16). Labial chaetotaxy and setae along cephalic groove as in *D. celatus*. Trochanteral organ with up to 68 setae. Morphology of claws and tenent hair as in *D. celatus* except inner pair of unguate teeth larger. Distribution of setae and scales on colophore as in *D. celatus*. Tenaculum without setae. Dorsum of manubrium with scales and no smooth setae. Dens with up to 46 spines along inner margin (Fig. 17), proximally in various rows and distally in 1 row extending past middle of appendage. Mucro normal, with basal spine.

Diagnosis: This species is closely related to *D. millsii* and *D. celatus*. From the first it may be separated by the body coloration and absence of tenacular setae. The diagnosis of *D. celatus* lists the characters that distinguish it from *D. zebratus*.

Comments. A specimen 3.0 mm long has a macrochaeta along the midline of the head equidistant from setae S_0 and M_1 , but

an individual 1.9 mm long has a microchaeta in this position. Perhaps during growth the microchaeta transforms into a macrochaeta. If the latter is always present, it would be a character hitherto unknown in the genus. Unfortunately, the midline of the head is not visible in the whole-mounted specimen (Fig. 15). The fourth individual of the type series has been kept in alcohol,

Material Examined; Dominican Republic, Prov. La Vega, el **Río-Bonao**, km 24, 600-800 m, ravine leaf litter, 7.11.1975, W. L. Brown, FM 75-281, 3 specimens on slides. Prov. La Vega, **Ciénaga**, 1,100 m. soil and leaf litter, 4.11.1975, W. L. Brown, FM 75-280, 1 specimen in alcohol.

Dicranocentrus millsii Mari Mutt 1979

The original description of this species included two subspecies: *D. millsii millsii* from Haiti and *D. millsii cubensis* from Trinidad Mountains, Cuba. Members of the latter subspecies were darker (Fig. 20), lacked an inner row of dental spines and sometimes possessed a distal tooth along the inner margin of the unguis.

In my 1981 paper on Neotropical *Dicranocentrus*, I synonymized both names because a few cuban specimens with some dental spines forming a short inner basal row were found. The present study reveals that cuban specimens have a longer basal seta on the maxillary palp (Fig. 18) and their outer labral papillae end in conelike projections instead of being broadly rounded as in *D. millsii* from Haiti.

LITERATURE CITED

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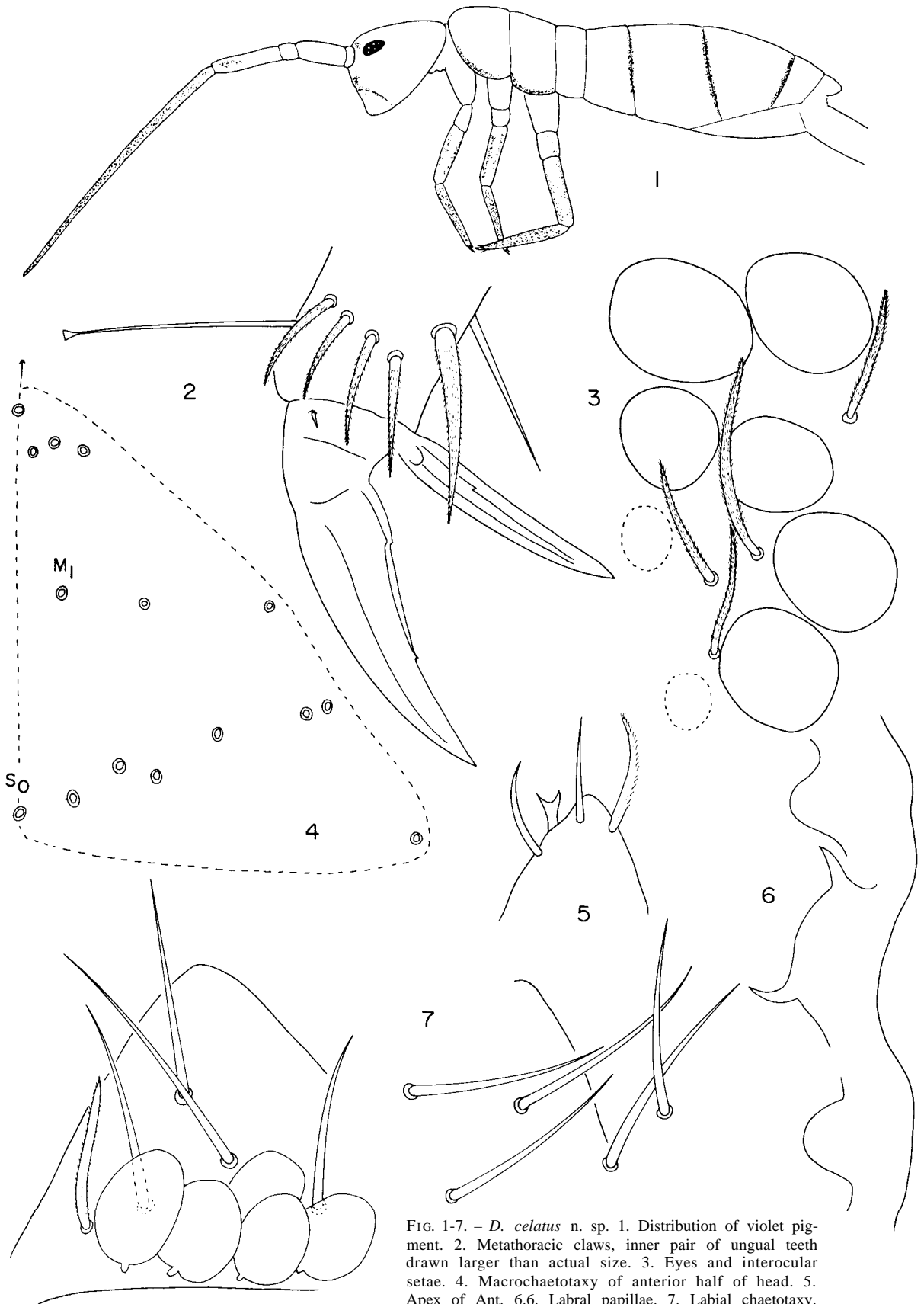


FIG. 1-7. — *D. celatus* n. sp. 1. Distribution of violet pigment. 2. Metathoracic claws, inner pair of unguis teeth drawn larger than actual size. 3. Eyes and interocular setae. 4. Macrochaetotaxy of anterior half of head. 5. Apex of Ant. 6.6. Labral papillae. 7. Labial chaetotaxy.

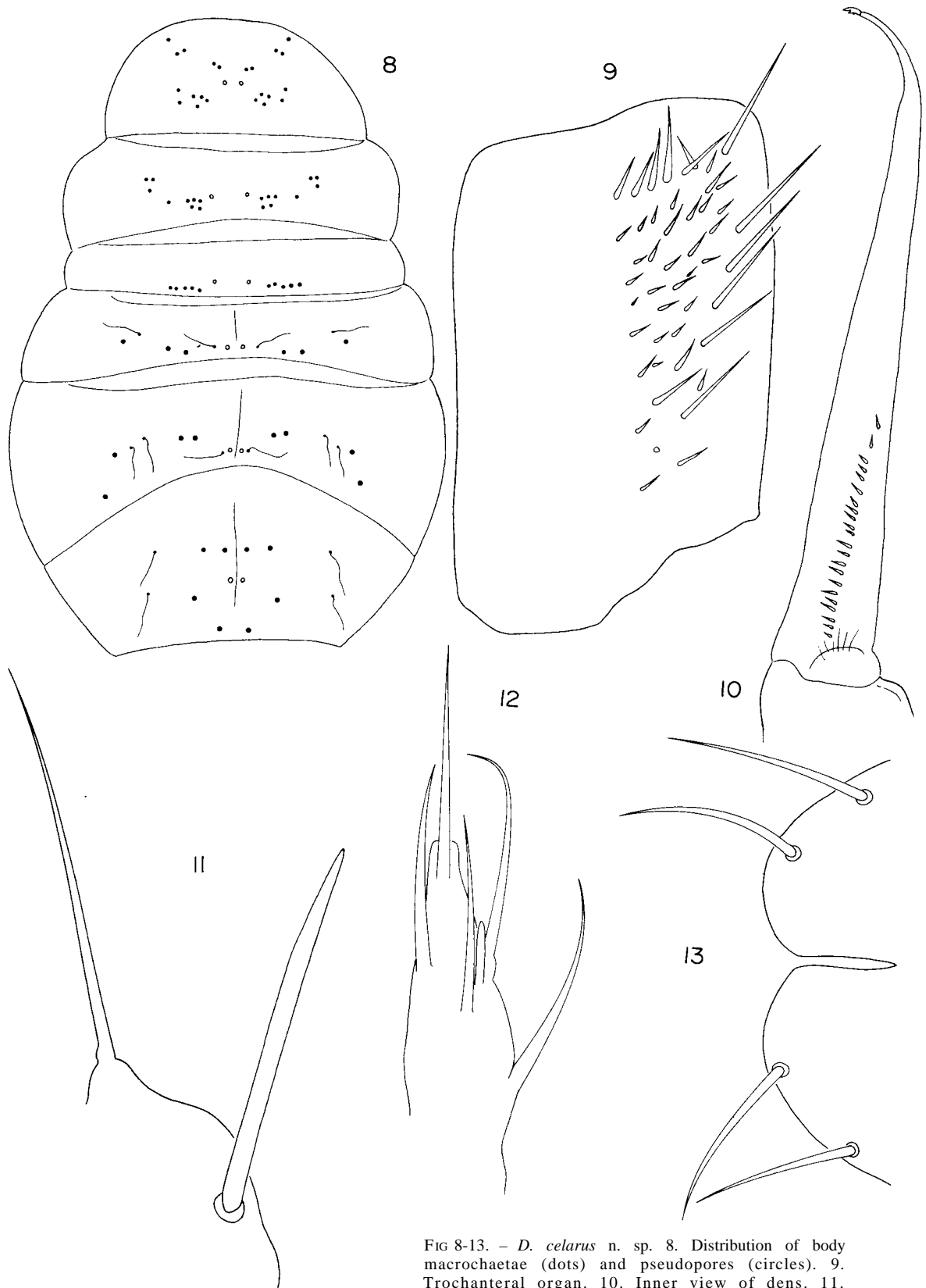


FIG 8-13. - *D. celarus* n. sp. 8. Distribution of body macrochaetae (dots) and pseudopores (circles). 9. Trochanteral organ. 10. Inner view of dens. 11. Maxillary palp. 12. Outer labial papilla. 13. Setae of third labral row and median intrusion.

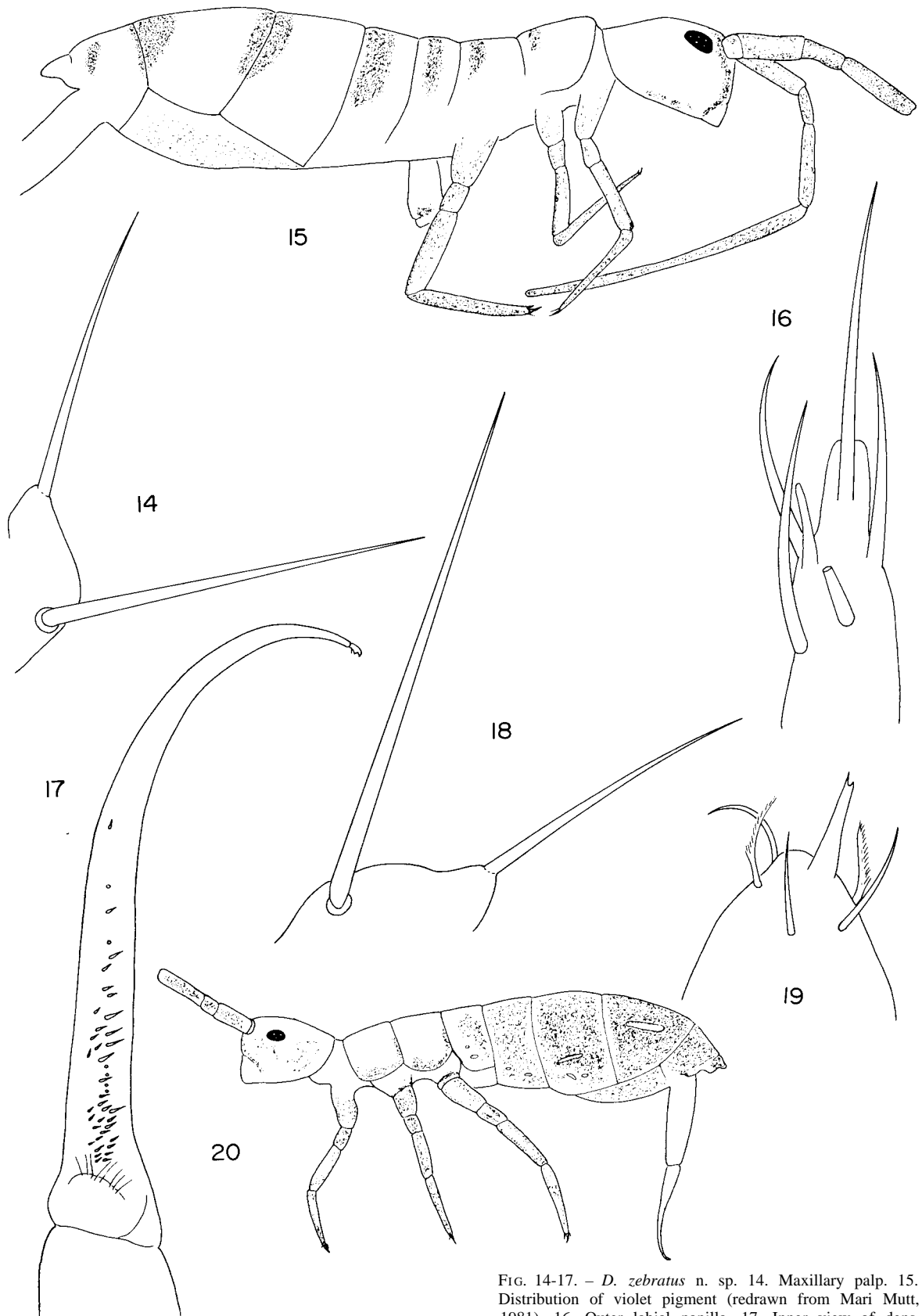


FIG. 14-17. — *D. zebratus* n. sp. 14. Maxillary palp. 15. Distribution of violet pigment (redrawn from Mari Mutt, 1981). 16. Outer labial papilla. 17. Inner view of dens. 18-20. *D. millsii* from Cuba. 18. Maxillary palp. 19. Apex of Ant. 6. 20. Distribution of violet pigment.