

PROCEEDINGS
OF THE
CALIFORNIA ACADEMY OF SCIENCES
FOURTH SERIES

Vol. XXXIX, No. 12, pp. 141-184; 11 figs.

July 9, 1973

THE GENUS *MECAS* LECONTE
(COLEOPTERA: CERAMBYCIDAE)

By

John A. Chemsak and E. G. Linsley

University of California, Berkeley

The genus *Mecas* is a group of lamiines generally distributed from Guatemala to southcentral Canada. A single species occurs in North America west of the Rocky Mountains, but none are known from northeastern North America. Based upon present knowledge, most of the species are associated with weedy composites. A few of them are also lampyrid and/or cantharid and lycid mimics. Although the genus has been recently revised (Breuning, 1955), available information and material have necessitated a further reclassification of the group.

CLASSIFICATION AND NOMENCLATURE

The first named species of *Mecas* as currently recognized (*M. pergrata*, *M. cana*, *M. cinerea*) were assigned by their authors to the genus *Saperda* Fabricius (Say, 1824; Newman, 1840). LeConte (1852, 1859a) transferred *S. pergrata* to *Stenostola* Mulsant, a generic name he also used for his '*saturnina*' (LeConte, 1859a), but left '*cana*', which he did not know, in *Saperda* (he had no reason to refer to '*cinerea*' which was from Mexico). In 1847, Haldemen described '*femoralis*' in the genus *Phytoecia* Mulsant, which LeConte (1852) made the monobasic type of his genus *Mecas*. Twenty-one years later, LeConte (1873a) added a second species, *M. marginella*, and defined the genus (1873b) in such a manner that all of the above species could be included, although he did not mention them by name. Unfortunately, Lacordaire (1872) overlooked *Mecas* which would have fallen in his Tribe IV (Phytoecides), although he included the related *Dylobolus* Thomson (which Bates later regarded as a synonym of *Mecas*) in his Groupe IV (Arenicides) and *Pannychis* Thomson (which we regard as a

subgenus of *Mecas*) in his Groupe III (Amphionychides). LeConte's expanded concept of the genus was first applied to the North American species by Horn (1878) and to the Mexican species by Bates (1881). Casey (1913) provided a key to the species in his collection and Breuning (1955) published a revision of the genus. However, this revision is incomplete, since three of the species, *M. inornata* of authors, *M. cineracea* Casey, and *M. bicallosa* Martin were omitted. These were incorrectly transferred by Breuning to the genus *Saperda*, although their published characters (including the cleft or toothed claws in both sexes) and recorded host plants (weedy composites) are typical of the species currently and historically referred to *Mecas* (the species of *Saperda* are wood borers).

Although the evolution of the generic concept of *Mecas* until the revision by Breuning was fairly straightforward, there has been considerable uncertainty regarding the identity of some of the species. The most serious confusion involves the name '*Saperda inornata*' described from Missouri Territory by Say (1824), who used the broad concept of *Saperda* current in his time. LeConte (1852), not knowing what species Say had before him, included it in his treatment of *Saperda*, quoting from Say's description as he did for other species which he had not identified. Obviously uncertain, he speculated that it might be the male of his *S. concolor* from Sante Fe, New Mexico, which he described in the same paper (LeConte, 1852). However, he apparently decided later that '*inornata* Say' belonged to the genus *Mecas*, and the specimens standing under that name in his collection belong to this genus. Further, the name '*inornata* Say' does not appear in his key to the species of *Saperda* (LeConte, 1873a). Horn (1878), in his key to the species of *Mecas*, included the name '*inornata*,' applying it to the species previously described by LeConte as '*saturnina*,' which Horn regarded as a synonym of '*inornata*.' However, Blanchard (1887) found two species differing in claw structure standing under the name '*saturnina*' in his collection. These had not been differentiated in Horn's Key. This discovery prompted Horn (1888) to apply the name '*saturnina*' LeConte to the species with the claws moderately deeply cleft with the inner division lobe-like. On this basis of distinction Gahan (1888) placed *Saperda cinerea* Newman and *Mecas senescens* Bates as synonyms of *Mecas inornata* (Say) and *Mecas saturnina* (LeConte) as a synonym of *Mecas cana* (Newman). We agree that *M. saturnina* and *M. cana* are conspecific, although in the material before us the two appear to be allopatric. *Mecas cinerea* (Newman) and *M. senescens* Bates also appear to be conspecific, but are not closely related to any species from the United States and thus could not under any circumstances be called '*inornata* Say.' Although various species of *Mecas* have been treated taxonomically in the intervening years as '*M. inornata* Say' (see synonymical bibliographies), the species which most closely fits Say's very brief description is *M. confusa* (described below) or, possibly, *M. cineracea* Casey.

In 1924, Martin named a species *M. bicallosa* on the assumption that 'inornata Say' was *Saperda* in the modern sense and a senior synonym of *S. concolor* LeConte (see above), although the arguments advanced for this decision were not conclusive (Martin also assumed that he was formally naming the species that previously had been called *M. inornata*; however, the species before him was from the Great Basin and the ranges accorded to *M. inornata* by Horn and Blanchard are to the east of this area). Martin's placement of *S. concolor* LeConte as a synonym of *S. inornata* Say was accepted by Breuning (1952) and Nord and Knight (1970). These latter appealed to the International Commission on Zoological Nomenclature to use its plenary powers to designate as neotype of *Saperda inornata* Say the type of *Saperda concolor unicolor* Felt and Joutel, and place 'inornata' on the Official List of Specific Names in Zoology. While such an action would eliminate some nomenclatural confusion in the genus *Mecas*, its impact on the literature of the North American *Saperda* will be unfortunate. Proposing to relegate the name 'inornata Say' to the list of *nomina dubia* might have been a preferable solution to the problem.

DISTRIBUTION

The known species of *Mecas* occur in the area from western Canada to southeastern United States, Mexico, and Guatemala. Of the 15 species recognized by us, five are restricted to northern and central Mexico and another ranges into Guatemala; six occur in both the United States and Mexico and three are thus far known only from the United States.

A single species, *M. bicallosa*, is found west of the Rocky Mountains, occupying the Great Basin and extending into British Columbia and northern Baja California. Most of the species occurring in the United States are found in either the southeastern and/or southwestern portions of the country. Only three species, *M. femoralis*, *M. marginella*, and *M. confusa*, are not yet known from Mexico but probably only *M. femoralis* does not occur there. The most widely distributed species, *M. rotundicollis*, ranges from Costa Rica to Kansas and Arizona. Of the remaining four species common to both countries, *M. cana saturnina*, *M. pergrata*, and *M. cineracea* apparently occur only in northeastern Mexico but are more widely distributed in the United States. The other species, *M. menthae*, ranges from Distrito Federal north along the western slope of the Sierra Madre to Arizona and New Mexico. Five of the six Mexican species, *M. sericea*, *M. humeralis*, *M. cinerea*, *M. cirrosa*, and *M. ambigena* are apparently largely restricted to central Mexico from Chihuahua and San Luis Potosi to Puebla. The sixth, *M. obereoides*, extends into Guatemala.

In many respects the distribution of *Mecas* is comparable to that of *Elytroleptus* (Linsley, 1962; Chemsak and Linsley, 1965). Of the 17 species of *Elytroleptus*, 9 are known only from Mexico, 7 from the United States and Mexico,

and one from the United States only. The majority of the species, as in *Mecas*, are found in central and northern Mexico and southwestern United States. Since nothing is known of the biology of the species of *Elytroleptus*, the significance of the distributional similarity, if any, is not evident.

FORM AND COLORATION

Most of the species of *Mecas* are concolorous with the integument black and densely clothed with pale recumbent pubescence. A few of the species, *M. femoralis*, *M. pergrata*, and *M. cinerea* frequently or always possess reddish femora and the latter two often have the elytra and/or pronotum partly reddish. Some of the members of the genus are distinctive by the narrow, densely pubescent white bands on the suture and epipleurae of the elytra.

The most striking divergence from the typical appearance is to be found in *M. sericea*, *M. rotundicollis*, and *M. obereoides*. The first of these, *M. sericea*, is definitely lycid-like in aspect usually possessing two lateral dark bands at the base and apex of the elytra. The basal band may be reduced or absent and occasionally both bands are lacking. Since this species is mimetic, the variation in color is probably an expression of resemblance to different lycid models within the range of the species. *Lycus sallei* Gorham is a possible model with two dark elytral bands and we have another similarly marked *Lycus* from Sinaloa and Colima.

Mecas rotundicollis is unquestionably a lampyrid mimic throughout most of its range, although in some areas a cantharid may be the model. As is the case in *M. sericea*, *M. rotundicollis* apparently mimics different species of models in different parts of its range. Variation is expressed primarily by the presence or absence of yellow pubescence on the apical abdominal sternites and yellow pubescent bands on the suture and epipleurae of the elytra. We have been unable to find a geographical trend in these characteristics but most of the available specimens from Arizona lack the yellow pubescence.

The third species, *M. obereoides*, may be involved in a mimetic ring with a cantharid model. Very little variation in color is expressed in this species but it is one of the most distinctive in the genus. Field studies will be necessary to confirm involvement with mimicry.

The remaining species of *Mecas* are all quite similar in form and coloration. Differences between species involve such characteristics as tarsal claw structure, number of glabrous calluses on the pronotum, and relative lengths of antennal segments.

BIOLOGY

Little has been recorded on the biology of species of *Mecas*. The most complete accounts known to us are those of Baerg (1921) and Stride and Warwick (1962). Baerg's report describes injury to Jerusalem artichokes in Arkansas and probably

refers to *M. cana saturnina* (LeConte) or the species named below as *Mecas confusa*, new species. Baerg's account, under the name "*Mecas inornata* Say" is as follows:

This beetle, half an inch long, of a light gray color, is a girdler that attacks artichoke (*Helianthus tuberosus*). The beetles begin ovipositing early in July. The females when laying eggs girdle the main stem about six inches from the top. Two girdles are made, about 1-1¼ inches apart. Immediately above the lower girdle is the egg puncture. This is exactly similar to the method followed by the Raspberry cane girdler (*Oberea bimaculata*). The girdles are not clean cuts such as we find in woody plants, but rather a series of holes encircling the stem. Apparently one female will deposit in a large number of plants. In spite of the fact that only a few beetles could be located, practically all the plants in the field were attacked in the course of a few days.

As a result of the injury, the leader in the plant dies and the plant develops a bushy type of branching.

The young larvae upon hatching begin to feed between the girdles and later proceed towards the base of the plant. They confine their injury largely to the pith. Apparently under certain weather conditions the artichoke is not well fitted as a host plant. In only one out of four or five plants showing egg punctures was there a full grown larva. In most of the other plants the larva had begun to feed and some time later died, presumably it had been injured by the growing stalk.

The larvae attain full growth, that is about seven-eighths of an inch in length, some time in November. At this time the larvae are found at the very base of the stalk, about two inches below the surface of the ground, in an enlargement of the tunnel which has been padded with fine bits of pulp.

The pupal stage has not been observed but since the adults appear early in July, the larvae will presumably pupate some time in May or early in June.

It seems reasonable to assume that this species will attack most of the species in the genus *Helianthus*. None of these were near the artichokes, and no data have been secured. The only host plant other than artichoke that could be located is the common ragweed (*Ambrosia artemisiifolia*).

The observations of Stride and Warwick were made on *M. saturnina* in Australia where that species had been introduced as a biological control agent for *Xanthium* (Wilson, 1960). The habits as they reported are almost identical with Baerg's account and an additional observation was the plugging of the oviposition hole with a gummy substance after the single egg had been laid. Stride and Warwick advance a hypothesis whereby the double-girdling behavior of *M. saturnina* may be regarded as a device originally evolved to permit the use of succulent green shoots of otherwise woody plants as food for cerambycid larvae. Presumably, it has been retained in *M. saturnina* because it promotes advantageous changes in the herbaceous host plant attacked, possibly increased pithiness.

Earlier reports also refer to stem- and root-boring habits of *Mecas* (Riley, 1880; Beutenmuller, 1896; Leng and Hamilton, 1896). Most aspects of adult behavior are lacking from the older literature but Townsend (1884) reported that

'*Mecas inornata*' takes wing and flies away when it observes someone approaching, but drops to the ground and feigns death when unexpectedly disturbed.

Adults of *M. menthae*, new species were found in numbers by their collectors on the upper leaves of the mint, *Agastache*, during the day.

HOST RELATIONSHIPS

Precise host data for most species of *Mecas* are lacking. In part this results from uncertainty regarding the identity of the species of *Mecas* associated with published host records and in part from the fact that most records, both published and unpublished, are based upon collections of adults from plants and not upon reared material. Nevertheless, there is an interesting consistency among the records that are available. With very few exceptions the plants involved are weedy, herbaceous composites which have special chemical characteristics expressed in terms of aromatic, medicinal, irritant, or toxic properties. The list of known or suspected hosts based upon field collections, with notations of some of their properties as reported by Blake (1951) and Kingsbury (1967) is as follows:

COMPOSITAE

Ambrosia (Ragweed).

A. artemisiifolia Linnaeus (Common Ragweed). One of the most widespread causes of hayfever.

Artemisia (Sagebrush).

A. tridentata Nuttall (Big Sage). Used medicinally by Indians and early white settlers in the West; a hay fever plant; toxic to livestock if eaten in excess.

Aster (Aster).

A. tanacetifolius Humboldt, Bonpland, & Kunth (Tansyleaf Aster). Used medicinally by the Indians; some species of aster absorb Selenium and become toxic.

Baileya (Baileya).

B. multiradiata Harvey & Gray (Desert Marigold). Causes mortality in sheep, particularly, but not exclusively, on over-grazed land.

Gaillardia (Blanket-flower).

G. pulchella Fougereux de Bondaroy. A related species, *G. pinnatifida* Torrey, was used by the Hopi Indians as a diuretic.

Guardiola (Guardiola).

G. tulocarpus Gray.

Helenium (Sneezeweed).

H. hoopesii Gray (Orange Sneezeweed). Contains a toxic glucoside (dugaldin) which causes spewing sickness in sheep.

H. microcephalum DeCandolle (Sneezeweed). Toxic to livestock.

H. tenuifolium Nuttall (Bitter Sneezeweed). Toxic to livestock and suspected of poisoning humans.

Helianthus (Sunflower).

H. annuus Linnaeus (Common Sunflower). Toxic to cattle in large amounts; the seeds are edible.

H. tuberosus Linnaeus (Jerusalem Artichoke). Roots edible.

Verbesina (Crown-beard).

V. encelioides (Cavanilles) Bentham & Hooker (Golden Crownbeard). Used by Indians and White pioneers in the West for treatment of boils and skin disease; Hopis reported to bathe in water in which plant has been soaked to relieve pain of spider bites.

Xanthium (Cocklebur).

X. spinosum Linnaeus (Spiny Cocklebur). Seeds and seedlings contain a glucoside (Xanthostrumarin) poisonous to swine and poultry.

LABIATAE

Agastache (Giant-hyssop)

A. species (Horsemint).

Genus *Mecas* LeConte

Mecas LeCONTE, 1852, Jour. Acad. Sci. Philadelphia, vol. 2, no. 2, p. 155; 1873, Smithsonian Misc. Coll., no. 265, p. 347; HORN, 1878, Trans. American Ent. Soc., vol. 7, p. 44; BATES, 1881, Biologia Centrali-Americana, Coleoptera, vol. 5, p. 203; LeCONTE and HORN, 1883, Smithsonian Misc. Coll., vol. 507, p. 332; LENG and HAMILTON, 1896, Trans. American Ent. Soc., vol. 23, pp. 151, 152; CASEY, 1913, Memoirs on the Coleoptera, vol. 4, p. 360; BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 138.

Form elongate, usually parallel. Head with front convex, interantennal area usually concave; mandibles rather short, apices curved, acute; palpi slender, maxillary pair longer than labial; eyes rather small, finely faceted, deeply emarginate, upper lobe small; antennae usually slender, sparsely or densely fringed with long hairs beneath, particularly on basal segments; third segment usually longer than first, fourth subequal to or shorter than third, outer segments short or long. Pronotum wider than long, sides usually rounded; disk variably pubescent, often with glabrous calluses; prosternum short, intercoxal process narrow, expanded at apex, coxal cavities closed behind; mesosternum with coxal cavities open; metasternum with episternum broad in front, narrowing behind. Legs short; intermediate tibiae with a dorsal sinus; tarsal claws bifid. Abdomen normally segmented; last sternite deeply impressed in the male, linearly impressed in the female.

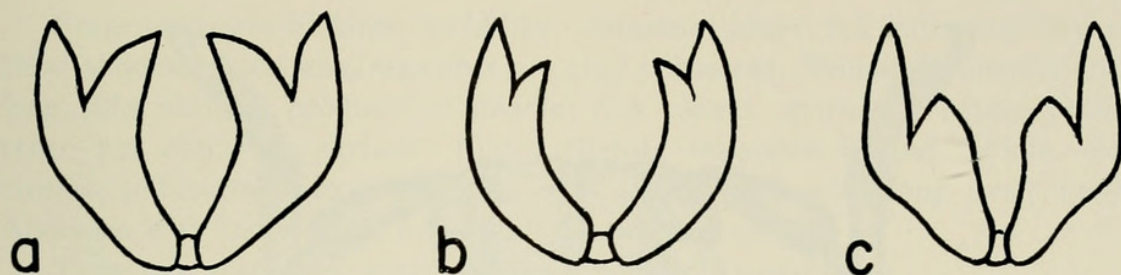
TYPE SPECIES. *Phytoecia femoralis* Haldeman (monobasic).

This genus is distinctive from others in its tribe by the proportions of the antennal segments, the frequent presence of dorsal calluses on the pronotum, the shape of the metepisternum, and by the nature of the impressions of the last abdominal sternite, which are concave in the male and linear in the female. Many of the species resemble *Saperda* but the bifid claws will readily separate them.

There are at present 15 known species of *Mecas* assignable to three subgenera, all occurring in the New World.

KEY TO THE KNOWN SPECIES OF THE GENUS *Mecas*

1. Pronotum with sides rounded or subparallel; elytra not expanded apically behind middle; appearance not lyciform 2
- Pronotum with sides obtusely produced at middle; elytra expanding slightly toward apices; integument yellow and black; appearance lycid-like. *Mecas* (*Pannychis*). 14–20 mm. Chihuahua to Veracruz *M. sericea*
- 2(1). Pronotum not densely fringed with short, erect, golden pubescence, erect hairs moderately long; elytral apices broadly rounded or rotundate-truncate; abdomen with pubescence of sternites unicolorous. *Mecas*, sensu stricto. 3
- Pronotum densely fringed with short, erect, golden pubescence with scattered long setae intermixed, dorsal surface with a pair of longitudinal vittae on each side of middle composed of short, appressed, golden pubescence; integument usually concolorous golden yellow, less commonly mottled or vittate with black, rarely wholly black; elytral apices angulate, obliquely truncate or emarginate; abdomen often with last three sternites margined laterally with longitudinal bands of yellowish-white pubescence suggesting luminescent organs of a lampyrid. *Mecas* (*Dylobolus*). 8–14 mm. South-western United States to Costa Rica. *M. rotundicollis*
- 3(2). Pronotal pubescence dense, appressed, obscuring surface, intact or broken by well defined black polished callosities and usually also a median impunctate area on disk. 4
- Pronotal pubescence very sparse, erect, not obscuring surface which has five tubercles, one median, two antemedian, and two lateral, the surface red to yellow, concolorous or margined laterally with black and/or with black spots on the median or median and lateral tubercles. 8–10 mm. Sinaloa and San Luis Potosi to Guatemala *M. obereoides*
- 4(3). Pronotum with pubescence intact, not interrupted by polished black callosities. 5
- Pronotum with at least two polished black callosities and usually a median elongate impunctate area on disk. 8
- 5(4). Pronotum and elytra with concolorous pubescence which obscures the surface; sternum uniformly, densely pubescent. 6
- Pronotum and elytra with longitudinal bands of dense, appressed, often yellowish pubescence at middle and sides, remaining pubescence not completely obscuring surface; sternum margined with a row of dense, appressed, yellowish pubescence. Length, 6.5–8 mm. Southeastern United States to New Mexico. *M. marginella*
- 6(5). Tarsal claws with inner tooth much smaller than outer one. Smaller species, 6–11 mm. in length (fig. 1b). 7
- Tarsal claws with inner tooth almost as long as outer one. Length, 10–14 mm. Kansas to Texas (fig. 1a). *M. confusa*
- 7(6). Femora always reddish; pubescence finer, not completely obscuring surface. Length, 6–8 mm. Southeastern United States. *M. femoralis*
- Femora always black; pubescence thick, obscuring surface. Length, 6–11 mm. Southeastern United States to Arizona, Colorado, and northeastern Mexico. *M. cineracea*
- 8(4). Pronotum with four rounded glabrous calluses in addition to median impunctate area. 9
- Pronotum with two rounded glabrous calluses in addition to elongate median impunctate area. 10

FIGURE 1. Some variations in the form of the tarsal claws in the genus *Mecas*.

- 9(8). Form elongate, elytra about 3 times as long as broad; antennae at least as long as body; elytra uniformly pubescent, margins and suture not distinctly pubescent. Length, 8–13 mm. San Luis Potosi to Morelos and Nayarit. *M. cinerea*
 Form rather stout, short, elytra about 2½ times as long as broad; antennae shorter than body; elytra with margins and suture densely pale pubescent. Length, 6–12 mm. Great Plains to southeastern United States, New Mexico, and northeastern Mexico. *M. pergrata*
- 10(8). Tarsal claws with inner tooth short, obtuse, lobe-like (fig. 1c). 11
 Tarsal claws with inner tooth acute, spine-like. 12
- 11(10). Antennae shorter than body, densely clothed beneath with long curved hairs, segments robust, flattened; elytra uniformly gray pubescent. Length, 10.5–13 mm. Guanajuato and Queretero. *M. cirrosa*
 Antennae longer than body, sparsely clothed beneath with long erect hairs, segments slender; elytra broadly clothed with brownish pubescence along epipleurae; humeri glabrous. Length, 10.5–13 mm. Jalisco. *M. humeralis*
- 12(10). Antennae much shorter than body, outer segments short. 13
 Antennae at least as long as body, outer segments elongate. 14
- 13(12). Appressed pubescence gray, uniform on elytra; pronotum irregularly, separately punctate; elytra lacking long erect dark hairs over apical one half. Length, 10–15 mm. Washington to northern Baja California and Colorado. *M. bicallosa*
 Appressed pubescence brownish, denser on margins and suture of elytra; pronotum coarsely, confluent punctate; elytra densely clothed with dark erect hairs over apical one half. Length, 9–10 mm. Durango to Mexico. *M. ambigena*
- 14(12). Elytra sparsely, separately punctate, lacking long erect hairs; pronotal calluses small, median impunctate area vague. 15
 Elytra coarsely, contiguously punctate, densely clothed with long erect hairs; pronotal calluses large, median impunctate area distinct. Length, 8–13 mm. Arizona to Nayarit and Distrito Federal. *M. menthae*
- 15(14). Elytra with distinct longitudinal pubescent bands along margins and suture. Length, 10–16 mm. Florida. *M. cana cana*
 Elytra uniformly grayish or yellowish pubescent, suture and margins without pubescent bands. Length, 10–16 mm. Eastern United States to South Dakota and northeastern Mexico. *M. cana saturnina*

Subgenus *Pannychis* Thomson

Pannychis THOMSON, 1864, *Systema cerambycidarum*, p. 127; 1868, *Physis*, vol. 2, p. 197; LACORDAIRE, 1872, *Genera des coléoptères*, vol. 9, pp. 882, 889; BATES, 1881, *Biologia Centrali-Americana*, *Coleoptera*, vol. 5, p. 205; GILMOUR, 1962, *Rev. Biol. Trop.*, vol. 10, pp. 125, 137.

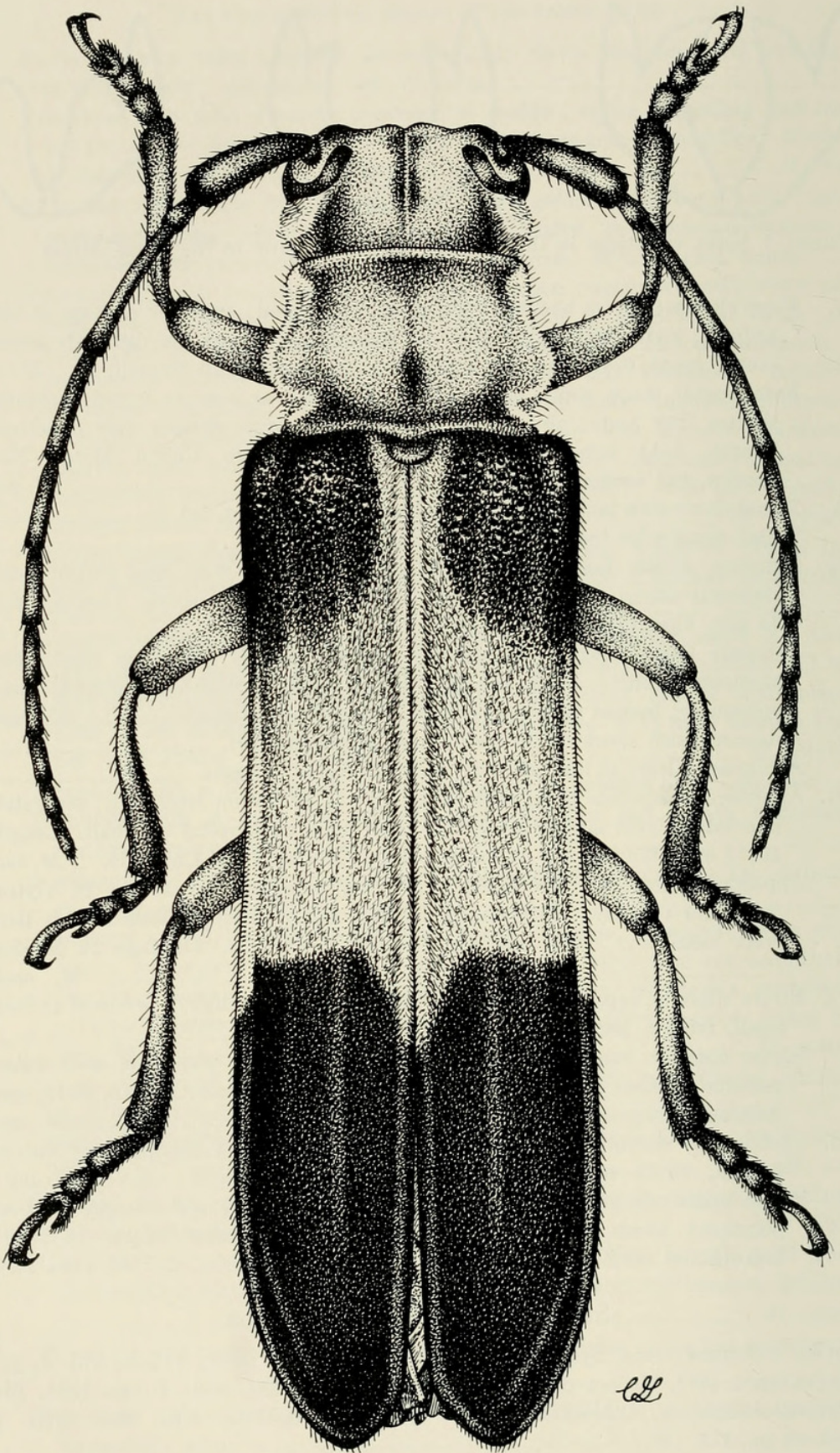


FIGURE 2. *Megas (Pannychis) sericea* (Thomson), ♀.

Form moderate to large, lycid-like. Antennae short, not extending beyond third abdominal segment, segments not gray pubescent. Pronotum broader than long, sides obtusely produced at middle; disk convex, sparsely punctate, pubescence not obscuring surface. Elytra slightly expanded behind middle, disk costate, pubescence bicolored. Legs with tarsal claws with long inner tooth. Abdomen with last sternite impressed at apex in females.

TYPE SPECIES. *Pannychis sericeus* Thomson (monobasic).

The lycid-like form and coloration and the obtusely produced pronotal sides make this subgenus very distinctive. A single species is known from Mexico.

Mecas (*Pannychis*) *sericea* (Thomson).

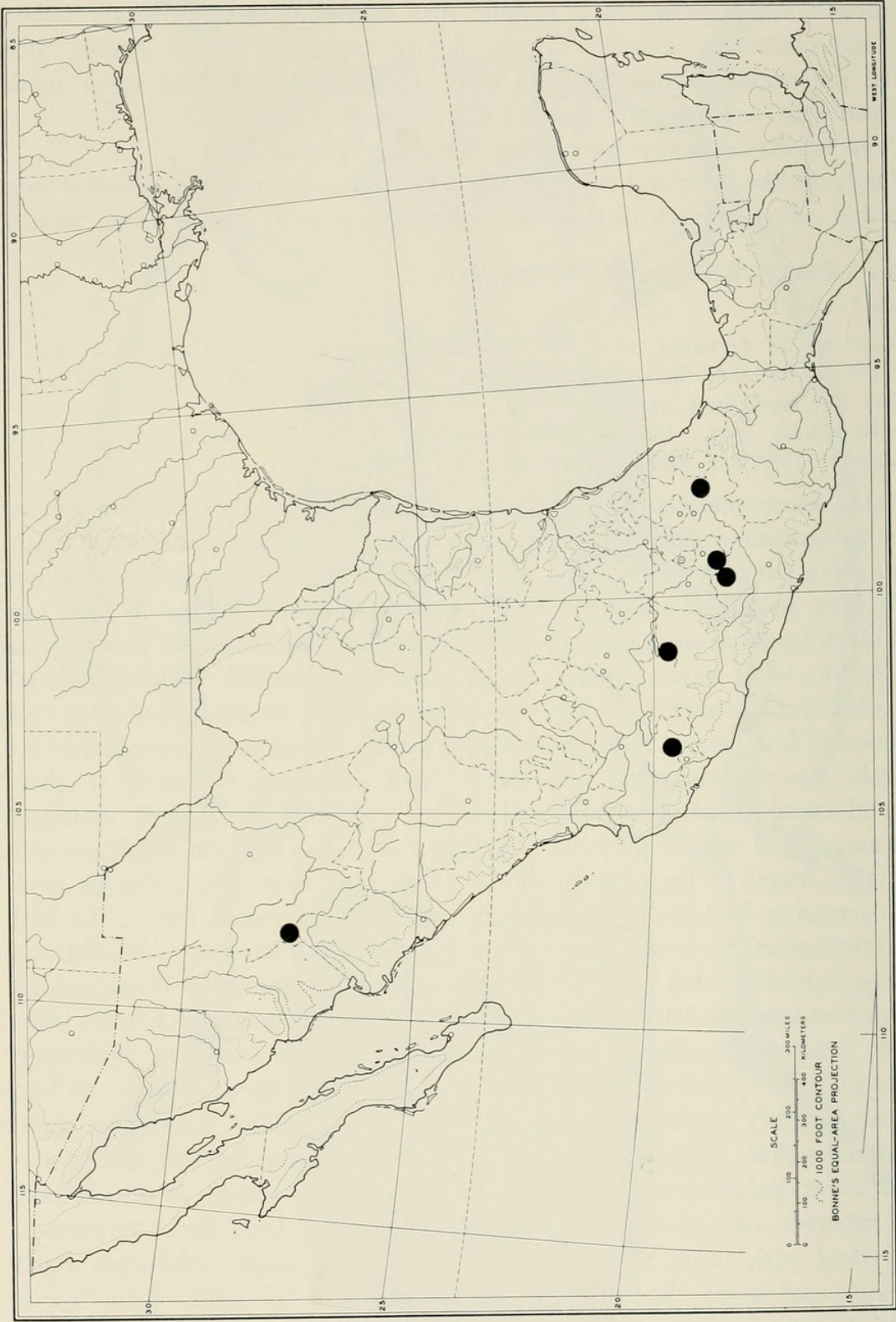
(Figures 2, 3.)

Pannychis sericeus THOMSON, 1864, Systema cerambycidarum, p. 127; 1868, Physis, vol. 2, p. 197; BATES, 1881, Biologia Centrali-Americana, Coleoptera, vol. 5, p. 205; GILMOUR, 1962, Rev. Biol. Trop., vol. 10, p. 137.

Pannychis ducalis BATES, 1881, Biologia Centrali-Americana, Coleoptera, vol. 5, p. 205; GILMOUR, 1962, Rev. Biol. Trop., vol. 10, p. 137. New synonymy.

MALE. Form moderate sized to rather large, elytra slightly expanding toward apices; integument yellowish, antennae black, legs variable, tibiae usually black, femora often partially black, head usually with 3 black bands over vertex and behind eyes, pronotum usually with 3 longitudinal bands joining at base and broad black bands at sides beneath, elytra yellow or with basal and broad apical black bands, basal bands often reduced or lacking, beneath variably colored. Head with front convex, coarsely, shallowly punctate; interantennal area concave, median line deep; vertex shallowly punctate; pubescence dense, appressed on cheeks, sparse, short, and suberect on front; antennae extending to about third abdominal segment, segments all clothed with very short, dark, depressed pubescence, basal segments with a few long erect setae beneath, third segment subequal in length to first, fourth shorter than third, remaining segments gradually decreasing in length, eleventh appendiculate, segments from fifth with vague longitudinal poriferous areas. Pronotum broader than long, sides obtusely produced at middle; disk convex, almost impunctate; pubescence dense, golden, appressed at sides, a little sparser on disk with a few long, erect hairs interspersed; prosternum sparsely pubescent; meso- and metasternum moderately densely pubescent, distinctly punctate at sides. Elytra about 3 times as long as broad, slightly expanding behind middle; each elytron lightly bicostate, epipleurae vertical; punctures at base coarse, dense, becoming fine and sparser toward apex; pubescence short, dense, subdepressed, colored as integument, longer suberect hairs present basally; apices rounded. Legs finely pubescent; tarsal claws with inner tooth slightly shorter than outer. Abdomen finely moderately pubescent; last sternite deeply impressed for most of its length. Length, 14–19 mm.

FEMALE. Form more robust, elytra slightly more expanded behind middle.



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FIGURE 3. Known occurrence of *Mecas (Pannychis) sericea* (Thomson).

Antennae extending to about first abdominal segment. Abdomen with last sternite linearly impressed, concave at apex, apex broadly V-shaped. Length, 14–20 mm.

TYPE LOCALITY. Of '*sericeus*,' Mexico; '*ducalis*,' Orizaba, Mexico.

RANGE. Chihuahua, Mexico to Veracruz (fig. 3).

FLIGHT PERIOD. July to October.

REMARKS. This striking species undoubtedly is one of the lycid mimics. It is variable in coloration and, as is found among members of *Elytroleptus* (Chemsak and Linsley, 1965), all yellow individuals occur as well as ones with only the apices of the elytra black or with both the apices and base black. It would not be surprising to encounter individuals with all black elytra.

MATERIAL EXAMINED. MEXICO. Chihuahua: 1 ♀, 3 miles SE. of Temoris, VII-25-69 (R. C. Gardner, C. S. Glaser, T. A. Sears); Jalisco: 1 ♂, 10 miles SW. of Tecalitlan, X-10-64 (A. E. Michelbacher); 1 ♂, Ciudad Guzman, Jalisco, IX-15-63 (M. C. Colorado); Morelos: 1 ♂, Tequesquitengo, VII-15-61 (R. & K. Dreisbach); Michoacan: 1 ♀, near Morelia, IX-5-52 (G. H. Dieke); Guerrero: 1 ♀, Iguala, VII-21-62 (H. E. Milliron); 1 ♀, 10 miles N. of Mercurula, VIII-26-58 (E. L. Mockford); 1 ♂, Thaxmalac, IX-22-42 (W. F. Fosberg); Puebla: 1 ♂, 19 miles NW. of Cacaloapan, VII-30-65 (W. A. Foster).

Subgenus *Dylobolus* Thomson

Dylobolus THOMSON, 1868, *Physis*, vol. 2, p. 195; LACORDAIRE, 1872, *Genera des coléoptères*, vol. 9, pp. 897, 900.

Form slender, elongate. Antennae slender, third segment slightly curved. Pronotum with sides rounded, disk densely fringed with short, erect, golden pubescence. Elytra with apices angulate, usually obliquely emarginate. Legs with tarsal claws with inner tooth almost as long as outer one. Abdomen frequently with yellowish appressed pubescence at sides of apical sternites.

TYPE SPECIES. *Dylobolus rotundicollis* Thomson (monobasic).

This subgenus differs from the others by the pubescence of the pronotum and emarginate or truncate elytral apices. The single known species is a lampyrid mimic.

Mecas (*Dylobolus*) *rotundicollis* (Thomson).

(Figures 4, 5, 6.)

Dylobolus rotundicollis THOMSON, 1868, *Physis*, vol. 2, p. 196.

Mecas rotundicollis, BATES, 1881, *Biologia Centrali-Americana*, Coleoptera, vol. 5, p. 205; BREUNING, 1955, *Mem. Soc. Roy. Ent. Belgique*, vol. 27, p. 148.

Mecas ruficollis HORN, 1878, *Trans. American Ent. Soc.*, vol. 7, p. 44; BATES, 1881, *Biologia Centrali-Americana*, Coleoptera, vol. 5, p. 205; LENG and HAMILTON 1896, *Trans. American Ent. Soc.*, vol. 23, pp. 152; CASEY, 1913, *Memoirs on the Coleoptera*, vol. 4, p. 362.

Mecas ruficollis morpha *mediomaculata* BREUNING, 1955, *Mem. Soc. Roy. Ent. Belgique*, vol. 27, p. 149. New synonymy.

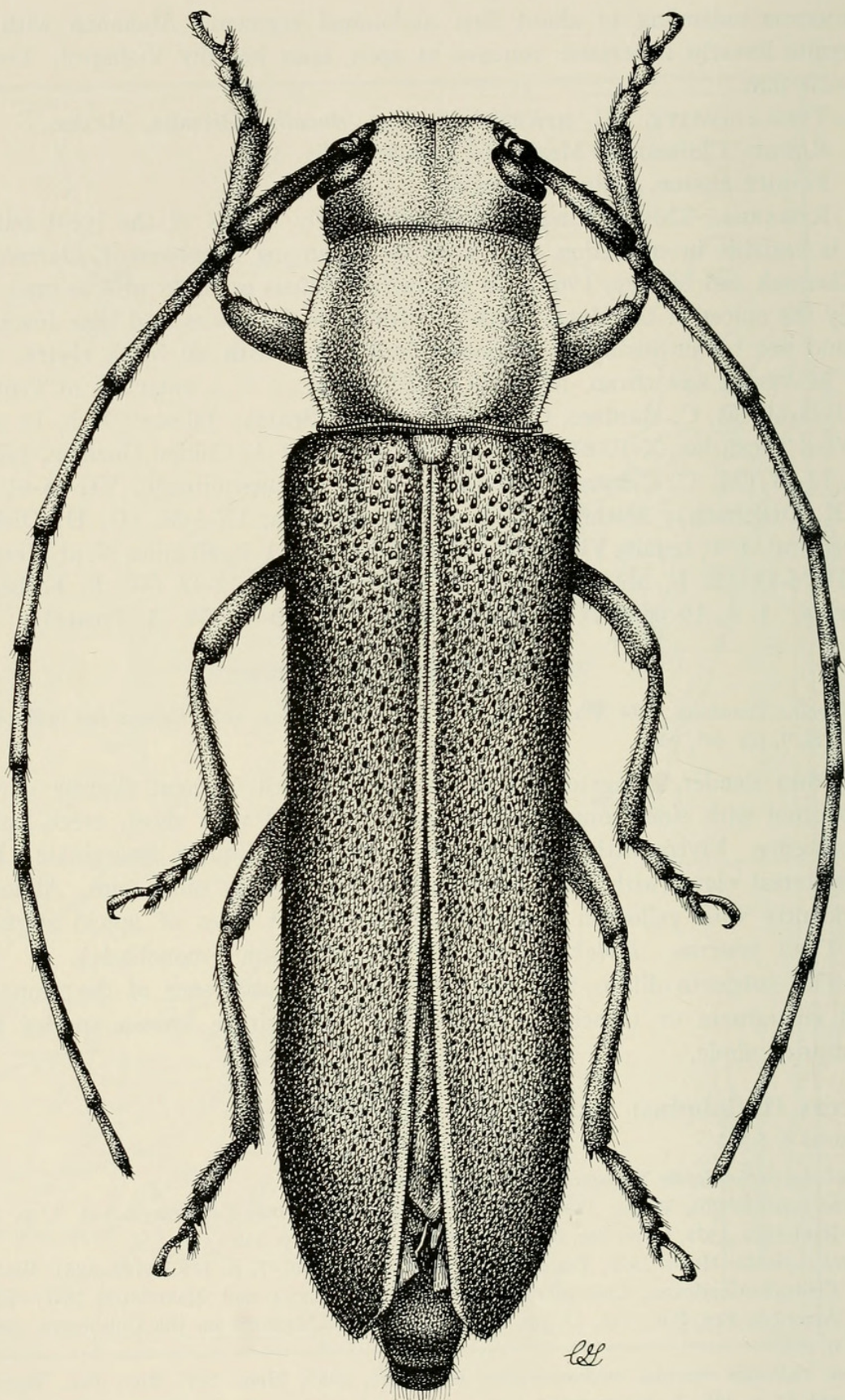


FIGURE 4. *Megas (Dylobolus) rotundicollis* (Thomson), ♂.

Mecas rotundicollis morpha *ruficollis*, BREUNING, 1955, Mem. Soc. Roy. Belgique, vol. 27, p. 149.

Mecas laticeps BATES, 1881, Biologia Centrali-Americana, Coleoptera, vol. 5, p. 204; BREUNING, 1955; Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 151. New synonymy.

Mecas laticeps morpha *sutureflava* BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 151. New synonymy.

Mecas laticeps morpha *mediopunctata* BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 151. New synonymy.

Mecas mexicana BATES, 1881, Biologia Centrali-Americana, Coleoptera, vol. 5, p. 204.

Mecas rotundicollis morpha *mexicana*, BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 149.

Mecas vitticollis CASEY, 1913, Memoirs on the Coleoptera, vol. 4, p. 362.

Mecas laticeps morpha *vitticollis*, BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 152.

MALE. Form moderate sized, elongate, sides parallel; color black, head and pronotum orange, usually with dark spots or bands, legs often orange, thoracic sterna often orange, abdomen usually with broad bands of yellow appressed pubescence at sides of last three sternites, elytra frequently with narrow bands of appressed yellowish pubescence down suture and epipleurae. Head rather small; front convex, median line extending from clypeus to neck; interantennal area concave; vertex moderately coarsely, densely punctate; pubescence dense, yellowish, appressed with short, dark, erect hairs numerous interspersed; antennae shorter than body, scape finely, very densely punctate, third segment longer than first, fourth shorter than third, fifth subequal to first, segments from sixth gradually decreasing in length, scape rather densely clothed with short subdepressed hairs, underside of segments densely clothed with short, pale, appressed pubescence, basal segments with a few long erect hairs beneath. Pronotum usually broader than long, sides rounded; disk convex, sparsely to rather densely punctate; pubescence usually dense, consisting of short, dense, subappressed, longitudinal bands, one on each side of middle and at lateral margins, longer erect hairs numerous interspersed; prosternum densely pubescent; meso- and metasternum finely, densely punctate at middle, coarsely at sides, pubescence dense. Elytra over three times longer than broad; suture and epipleurae usually with narrow bands of appressed yellow pubescence; punctures rather coarse, dense, becoming finer and sparser toward apex; surface clothed with fine appressed pubescence, short, recurved hairs numerous interspersed, apices obliquely truncate. Legs finely, densely pubescent; tarsal claws with inner tooth almost as long as outer. Abdomen elongate, densely pubescent; last three sternites usually clothed with broad yellow bands at sides; last sternite deeply impressed for most of its length. Length, 9–16 mm.

FEMALE. Form similar, more robust. Antennae slightly shorter than in male. Abdomen with last sternite linearly impressed for its entire length; last tergite strongly, obtusely conical at apex. Length, 10–19 mm.

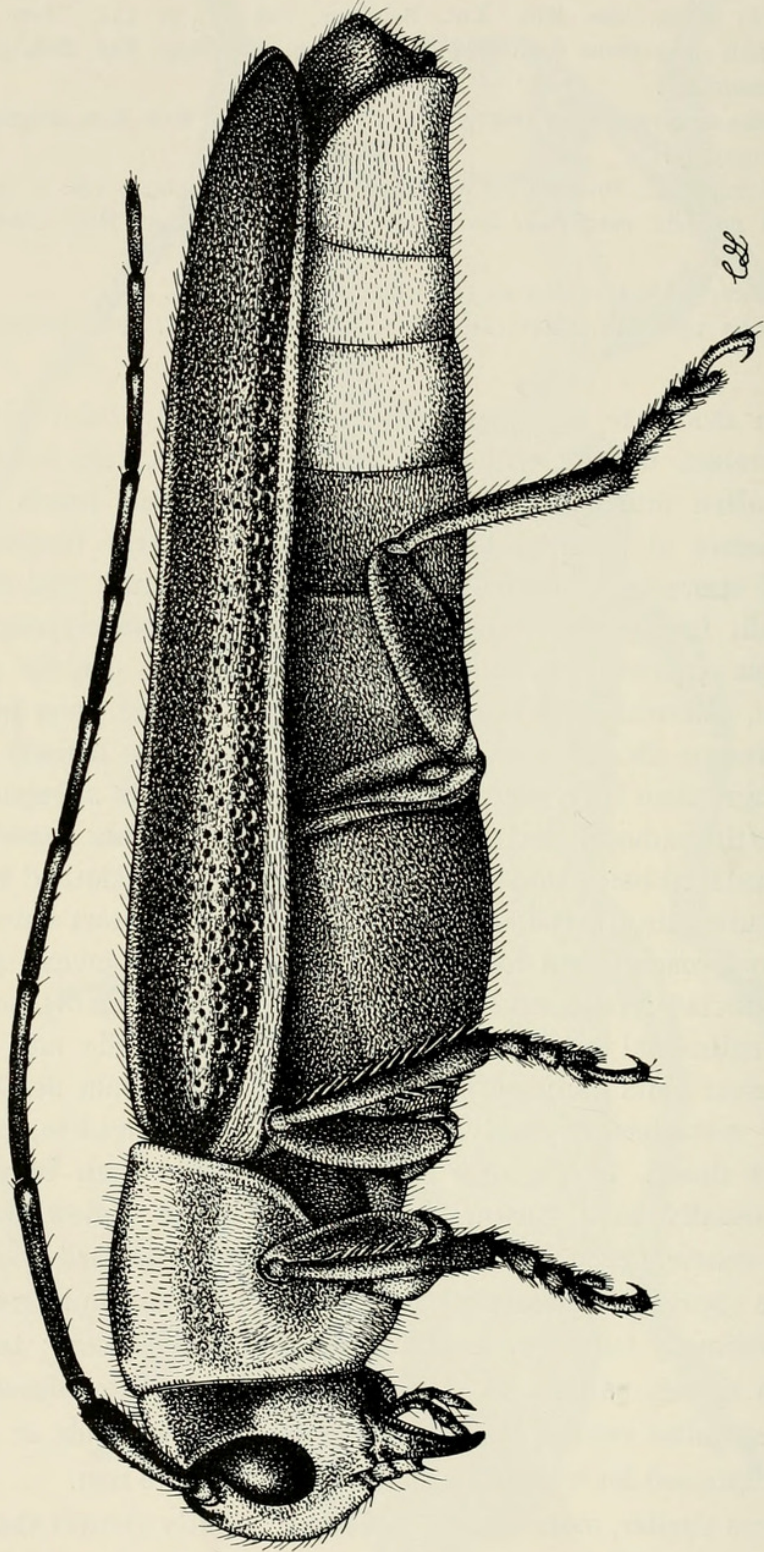


FIGURE 5. *Mecas* (*Dylobolus*) *rotundicollis* (Thomson), ♀. Lateral view illustrating the yellow pubescent lampyrid-like apical abdominal sternites.

TYPE LOCALITY. Of 'rotundicollis,' Mexico; 'ruficollis,' Texas; 'laticeps,' Guanajuato, Mexico; 'mexicana,' Izucar, Mexico; 'vitticollis,' Durango City; 'mediomaculata,' Guerrero; 'sutureflava,' Temax, Yucatan; 'mediopunctata,' Mexico.

RANGE. Oklahoma to Arizona, Texas, and south to Costa Rica (fig. 6).

FLIGHT PERIOD. May to December.

HOST PLANTS. Adults have been collected on flowers of *Guardiola tulocarpa* (Compositae) and on *Eysenhardtia polystachya* (Leguminosae).

REMARKS. This species is a lampyrid mimic, resembling different models in different parts of its range, as is evident by the polychromatism expressed in the specimens at hand. These color differences are expressed especially in the presence or absence of yellowish longitudinal sutural and epipleural bands on the elytra and in the yellowish apical sternites of the abdomen. There are varying combinations of these characters but we have been unable to correlate them geographically, although this might be possible with larger series of specimens and model-mimic associations over the entire range.

In addition to the above differences, individuals also vary considerably in size, color of head, pronotum, sternum, and legs.

MATERIAL EXAMINED. UNITED STATES. Oklahoma: 1 ♂, 1 ♀, Edmond, VII-9-57 (D. Alexander); Arizona: 2 ♂♂, Dry Canyon, Sands Ranch, SE. end Whetstone Mts., Cochise Co., VII-10-52 (H. B. Leech, J. W. Green); 1 ♀, Tombstone, VIII-13-40 (E. S. Ross); 1 ♀, Madera Canyon, Pima Co., IX-1-54 (Menke & Stange); 1 ♂, 5 mi. W. Portal, Chiricahua Mts., VIII-12-58 (P. Opler). Texas: 1 ♂, New Braunfels; 1 ♂, 1 ♀, San Antonio, May, VI-11-36 (C. D. Orchard); 1 ♂, 13 mi. W. of San Marcos, Comal Co., VI-24-25-61 (R. L. Westcott); 1 ♂, Brownsville; 1 ♂, Van Horn, V-23-32 (E. G. Linsley). MEXICO. Tamaulipas: 1 ♂, Ciudad Victoria, VI-8-51 (P. D. Hurd); 1 ♂, Rio Corona, 21.3 mi. N. of Ciudad Victoria, X-25-65 (G. E. Ball, D. R. Whitehead). Nuevo Leon: 1 ♂, 2 ♀♀, Monterrey, XI-30-65, X-12-52. San Luis Potosi: 1 ♀, El Huizache, VIII-22-61 (R. & K. Dreisbach). Veracruz: 3 ♂♂, 1 ♀, Veracruz, XI-1-57, IX-24-61 (R. & K. Dreisbach). Chihuahua: 1 ♂, 3 mi. E. of Temoris, VIII-26-69 (Sears, Gardner, Glaser). Durango: 1 ♀, Encino, VII-27-47, 6200 ft. (Schramel); 1 ♂, 11 mi. W. of Durango, VIII-2-64, 7000 ft. (L. Kelton); 1 ♂, 7 mi. W. of Durango, VII-23-64 (W. R. M. Mason); 1 ♂, 25 mi. S. of Durango, VII-24-64 (L. Kelton); 1 ♂, 2 ♀♀, 8 mi. S. of Canutillo, VIII-9-51, on flowers of *Guardiola tulocarpa* (P. D. Hurd). Hidalgo: 1 ♂, Ajacuba, VI-21-37 (M. A. Embury); 2 ♂♂, 2 ♀♀, Pachuca, VI-15-35, VII-10-37 (Embury), VII-31-35 (Embury); 1 ♀, Zimapan, VII-14-68 (M. Wasbauer, J. Slansky). Distrito Federal: 2 ♀♀, Temascaltepec, 1931 (G. B. Hinton). Nayarit: 6 ♂♂, 5 ♀♀, Tepic, IX-13-57 (R. & K. Dreisbach), IX-15-17-53 (B. Malkin), IX-24-47 (B. Malkin); 1 ♀, Campostella, IX-16-57 (R. & K. Dreisbach). Jalisco: 1 ♀, 13



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FIGURE 6. Known occurrence of *Mecas (Dylobolus) rotundicollis* (Thomson).

mi. N. of Chapala, VIII-1-63 (P. J. Spangler); 1 ♂, San Juan Lagos, VII-27-51, on *Eysenhardtia polystachya* (P. D. Hurd); 1 ♀, Tlaquepaque, VI-28-45 (N. C. H. Krauss); 1 ♀, Ajijic, VII-28-54 (Cazier, Gertsch, Bradts); 1 ♂, 17 mi. SSW. of Guadalajara, VIII-22-70 (M. & J. Wasbauer). Colima: 1 ♀, Pine zone, SE. Slope Mt. Colima, XII-48 (E. S. Ross). Michoacan: 1 ♂, 5 km. W. of Zacapu, VII-13-51 (H. E. Evans); 1 ♂, Morelia, IX-30-45; 1 ♂, 6 mi. NW. of Quiroga, VII-11-63 (Parker, Stange); 1 ♂, 1 ♀, Quiroga, VII-15-56 (R. & K. Dreisbach); 2 ♂♂, 1 ♀, Tuxpan, IX-6-03 (McClendon), IX-18-57 (Scullen). Morelos: 2 ♂♂, 1 ♀, Hujintlan, VIII-22-56 (R. & K. Dreisbach); 1 ♀, Lake Tequesquitengo, IX-13-57 (Schullen); 2 ♂♂, Cuernavaca, X-02, X-29-57 (Dreisbach); 1 ♀, Morelos, Oct. Guerrero: 1 ♀, Rio Balsas (Wickham). Puebla: 1 ♂, 3 mi. N. of Petalcingo, VIII-21-63 (Parker, Stange); 1 ♂, 55 mi. S. of Acatlan, VII-30-63 (J. Doyen); 1 ♂, Tehuacan, VI-23-51 (Evans); 1 ♂, 19 mi. NW. of Cacaloapan, VII-30-63 (Foster). Oaxaca: 8 ♂♂, 1 ♀, Oaxaca, VII-20-37 (Embury); 2 ♂♂, 1 ♀, Oaxaca, IX-13-20-47 (Malkin); 1 ♂, 1 ♀, Monte Alban, VIII-3-54 (P. & C. Vaurie), X-12-63 (A. E. Michelbacher); 2 ♀♀, 18 mi. NW. of Totolapan, VII-28-63 (Doyen, Foster); 1 ♀, Temescal, VII-5-65 (G. H. Nelson). Chiapas: 1 ♀, Jct. Hwys. 190-195, VI-6-69 (H. F. Howden); 3 ♂♂, 2 ♀♀, San Jeronimo, Volcan Tacana, X-1-10-70, XI-7-70 (E. C. Welling). GUATEMALA. 1 ♀, El Salto, Escuintla, 1934 (F. A. Bianchi). COSTA RICA. 1 ♂, La Pacifica, 4 km. NW. of Canas, Guanacaste, XI-17-71 (P. A. Opler).

Subgenus *Mecas sensu stricto*

Mecas LECONTE, 1852, Jour. Acad. Nat. Sci. Philadelphia, (2) vol. 2, p. 155; 1873, Smithsonian Misc. Coll., vol. 11, no. 265, p. 347; BLATCHLEY, 1910, Coleoptera—in Indiana, p. 1090; KNULL, 1946, Ohio Biol. Survey, Bull. vol. 39, p. 274.

Form moderate sized, parallel; body usually densely clothed with appressed pubescence. Pronotum with or without dorsal calluses, sides broadly to narrowly rounded. Elytra parallel, apices rounded, disk not costate. Legs with tarsal claws variable, inner tooth long or short.

TYPE SPECIES. *Phytoecia femoralis* Haldemen (monobasic).

The members of this subgenus are easily recognizable by the densely pubescent body, subcylindrical and usually densely pubescent pronotum which frequently has glabrous dorsal calluses.

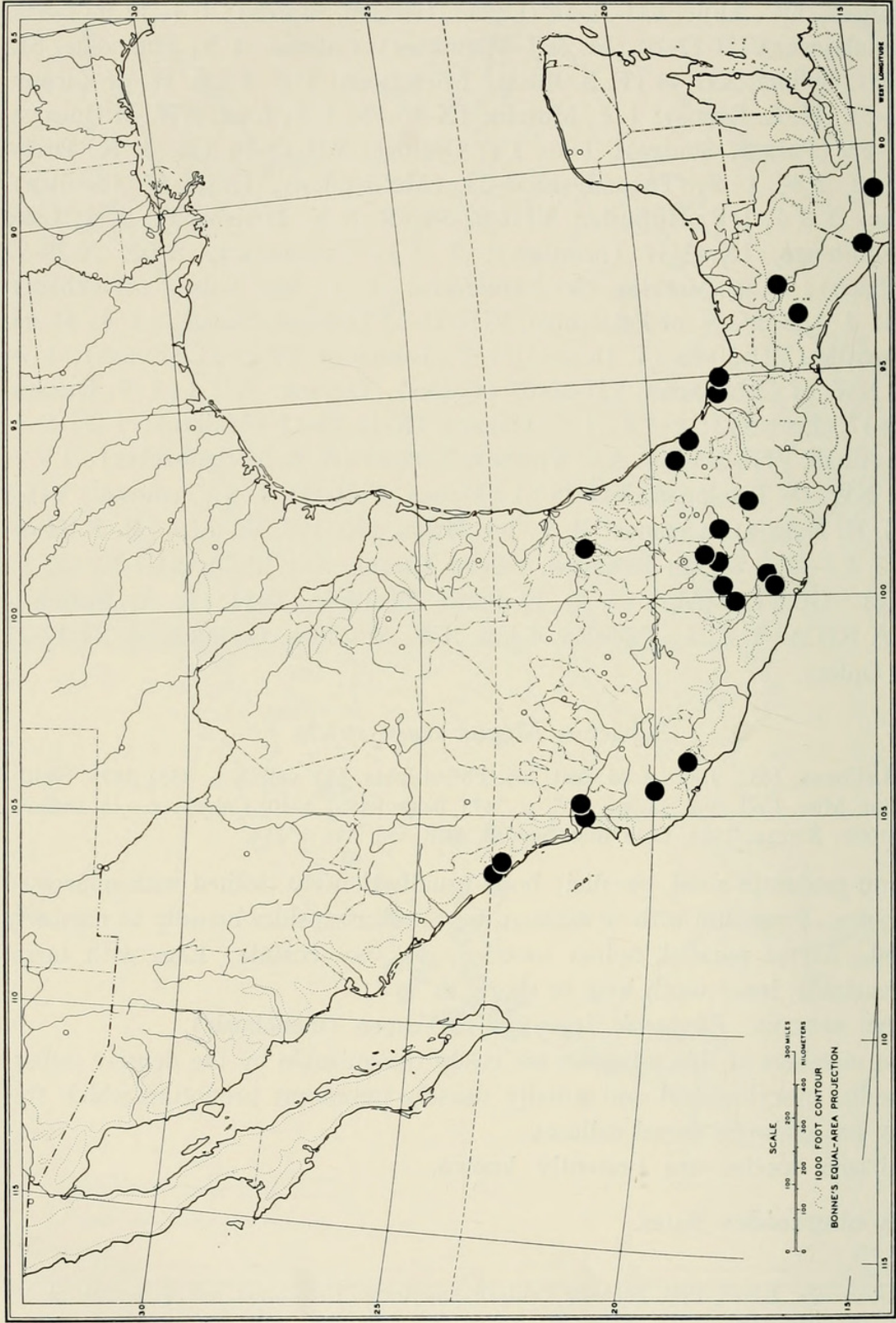
Thirteen species are presently known.

Mecas obereoides Bates.

(Figure 7.)

Mecas obereoides BATES, 1881, Biologia Centrali-Americana, Coleoptera, vol. 5, p. 204, pl. 15, fig. 16; BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 150.

Mecas laminata BATES, 1881, Biologia Centrali-Americana, Coleoptera, vol. 5, p. 204; BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 150.



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FIGURE 7. Known occurrence of *Mecas obereoides* Bates.

Mecas laminata morpha *rufobasalis* BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 150. New synonymy.

Mecas laminata morpha *discopunctata* BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 150. New synonymy.

Mecas laminata morpha *discoimpunctata* BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 150. New synonymy.

MALE. Form moderate sized, elongate, sides parallel; color black, vertex of head and pronotum orange, pronotum usually with three black spots, one median and two lateral. Head with front convex, densely clothed with gray appressed pubescence which covers basal half of mandibles, erect dark hairs numerous on front; interantennal area convex; vertex moderately coarsely punctate; antennae slightly longer than body, densely gray pubescent beneath with a few long erect hairs present on basal segments, scape slightly shorter than third segment, fourth equal to third, fifth shorter than first, segments six to nine subequal, remaining two segments shorter. Pronotum usually a little broader than long, sides narrowly rounded; disk convex, middle with a usually black glabrous callus, frequently a vague callus present on each side of middle anterior to median one, two black glabrous spots present laterally; punctation irregular, moderately coarse; pubescence sparse, fine with a few long erect hairs present at sides; prosternum densely clothed with gray recumbent pubescence; meso- and metasternum densely clothed with gray recumbent pubescence, sides moderately coarsely punctate. Elytra about three times as long as broad; each elytron costate down middle, area between costae and suture impressed; punctures coarse, dense, becoming finer toward apex; pubescence short, dense, appressed, with longer suberect hairs numerous interspersed; apices rounded. Legs densely pubescent; tarsal claws with inner tooth slightly smaller than outer. Abdomen densely clothed with gray appressed pubescence; last sternite shallowly impressed for most of its length. Length, 10–14 mm.

FEMALE. Form similar, slightly more robust. Antennae about as long as body. Abdomen with last sternite linearly impressed for its entire length, shallowly concave at middle at apex. Length, 10–15 mm.

TYPE LOCALITY. Of '*obereoides*,' Cuernavaca, Mexico; '*laminata*,' not restricted; '*rufobasalis*,' Mexico; '*discopunctata*,' Mexico; '*discoimpunctata*,' Mexico.

RANGE. San Luis Potosi and Sinaloa, Mexico to Guatemala (fig. 7).

FLIGHT PERIOD. June to December.

HOST PLANTS. Unknown.

REMARKS. The sparsely pubescent orange pronotum and the dark pronotal spots will readily separate this species from other known species of *Mecas*. The coloration is almost constant in the series at hand. However, specimens from the eastern parts of Mexico tend to have dark appressed elytral pubescence while in those from the western portions to Guatemala this tends to be grayish.

MATERIAL EXAMINED. MEXICO. San Luis Potosi: 1 ♀, 30 mi. N. of

Tamazunchale, X-6-57 (H. A. Scullen). Veracruz: 2 ♂♂, 3 ♀♀, Veracruz, VIII-1-6-61 (R. & K. Dreisbach); 1 ♀, Jalapa, IX-28 to X-3-61 (R. & K. Dreisbach); 1 ♂, 1 ♀, Puente Nacional, VIII-3-56 (R. & K. Dreisbach), VII-23-24-65 (Flint & Ortiz); 2 ♀♀, San Andreas Tuxtla, X-25-57 (R. & K. Dreisbach); 1 ♂, 1 ♀, Hueyapan, X-30-57 (R. & K. Dreisbach); 1 ♂, Cerro Venado, Los Tuxtlas Range, XII-29-62 (Edmonds, Robinson). Sinaloa: 1 ♂, Venedillo, VII-31-18; 2 ♂♂, 20 mi. E. of Villa Union, VIII-19-64 (M. E. Irwin, E. I. Schlinger). Nayarit: 2 ♂♂, 1 ♀, 15 mi. N. of Tepic, VII-25-54 (Cazier, Gertsch, Bradts); 1 ♂, 1 ♀, 18 mi. N. of Tepic, VIII-16-60 (D. C. Rentz); 3 ♂♂, Tepic, IX-21-24-53 (B. Malkin), IX-13-57 (R. & K. Dreisbach); 1 ♂, 14 mi. E. of San Blas, VII-21-54 (Schlinger). Colima: 1 ♂, Colima (Conradt). Jalisco: 1 ♀, Puerto Los Mazos, 9 mi. NW. of Autlan, VIII-28-70 (M. & J. Wasbauer). Guerrero: 2 ♂♂, 1 ♀, Teloloapan, VIII-15-21-57 (D. Douglas); 1 ♂, 1 ♀, 3 mi. S. of Acahuizlotla, XI-17-46 (E. C. Van Dyke); 1 ♂, Taxco, VIII-16-18-56 (A. E. Lewis); 1 ♂, Highway 95, 23 mi. N. of Acapulco. VII-30-65 (Cornell U. Mex. field party); 1 ♂, 5 mi. W. of Mex. 92, Cacahuamilpa Caves, VIII-16-18-56 (A. E. Lewis). Morelos: 6 ♂♂, 2 ♀♀, Hujintlan, VII-22-56 (R. & K. Dreisbach); 1 ♀, Lake Tequesquitengo, IX-13-57 (H. A. Scullen); 1 ♂, Tequesquitengo, VII-15-61 (Dreisbach); 1 ♂, Xochicalco, VII-13-61 (Dreisbach); 5 ♂♂, 1 ♀, Cuernavaca, VII-15-52 (G. M. Boush), VIII-9-13-38 (L. Lipovsky), VIII-1-6-21 Sept. (Barrett), IX-8-90 (D. De-long); 1 ♂, 1 ♀, 22 mi. S. of Cuernavaca, IX-10-57 (Scullen); 1 ♂, 45 mi. S. of Cuernavaca, IX-12-57 (Scullen). Puebla: 1 ♂, 5 mi. S. of Izucar de Matamoros, VIII-1-63 (Parker, Stange). Oaxaca: 1 ♂, 10 mi. NE. of Huajuapán de Leon, VI-27-65 (Doyen). Chiapas: 1 ♀, Santo Domingo, 15 mi. SE. of Simojovel, VII-8-15-58 (J. A. Chemsak); 6 ♂♂, 9 ♀♀, San Jeronimo, Volcan Tacana, VIII-10 to X-12-70 (E. C. Welling). GUATEMALA. 1 ♀, El Salto, Escuintla, 1934 (F. Bianchi).

***Mecas marginella* LeConte.**

Mecas marginella LECONTE, 1873, Smithsonian Misc. Coll., vol. 11, no. 264, p. 239; HORN, 1878, Trans. American Ent. Soc., vol. 23, p. 152; BLATCHLEY, 1910, Coleoptera—in Indiana, p. 1090; CASEY, 1913, Mem. Coleoptera, vol. 4, p. 361; BREUNING, 1955, Mem. Soc. Roy. Belgique, vol. 27, p. 147.

MALE. Form small, subparallel; color black, pronotum with three longitudinal bands of yellowish to whitish appressed pubescence, elytra with narrow bands of pale pubescence down suture and lateral margins. Head with front convex, deeply punctate, densely clothed with appressed pale pubescence, long erect hairs numerous; interantennal area broadly concave; vertex coarsely, densely punctate; antennae a little longer than body, very sparsely gray pubescent beneath, long erect hairs numerous on basal segments, third segment longer than scape, fourth subequal to third, fifth shorter than fourth. Pronotum

broader than long, sides subparallel; punctures moderately coarse, dense, calluses absent; pubescence dense, appressed, lateral bands broad, yellowish, median band narrower, usually whitish, remainder of surface finely pubescent, long, erect hairs numerous; prosternum densely pubescent; meso- and metasternum densely pubescent, rather coarsely punctate at sides, metepisternum yellow pubescent over posterior half. Elytra over twice as long as broad; punctures coarse, close, becoming finer toward apex; pubescence between longitudinal bands fine, appressed, with longer erect hairs numerous interspersed; apices rounded. Legs finely, densely pubescent; tarsal claws with teeth subequal in length. Abdomen densely pubescent, narrowly yellow at sides of apical sternites; last sternite deeply impressed for its entire length. Length, 6.5–8 mm.

FEMALE. Form and size similar. Antennae about as long as body. Abdomen with last sternite shallowly impressed near apex. Length, 6.5–8 mm.

TYPE LOCALITY. Western States and Texas.

RANGE. Southeastern United States to New Mexico.

FLIGHT PERIOD. March to July.

HOST PLANTS. Unknown. One specimen was collected on *Colubrina texensis* (Rhamnaceae) in Texas, but it is very unlikely that this shrub is a host.

REMARKS. The absence of pronotal calluses and the distinctive pubescent bands make this species easily recognizable. Breuning (1955) states that the head, pronotum, and elytra are densely and very finely punctate but this is an illusion produced by the pubescence. Actually, they are coarsely punctate, the elytra less so apically.

MATERIAL EXAMINED. Twenty-one specimens from South Carolina, Alabama, Texas, and New Mexico.

Mecas confusa Chemsak and Linsley, new species.

(Figure 8.)

Mecas inornata (not Say), BLANCHARD, 1887, Ent. Amer., vol. 3, p. 86; HORN, 1888, Trans. Amer. Ent. Soc., vol. 15, p. 301; LENG and HAMILTON, 1896, Trans. Amer. Ent. Soc., vol. 23, p. 152; BLATCHLEY, 1910, Coleoptera—in Indiana, p. 1090.

MALE. Form moderate sized, subparallel; color black, body densely clothed with thick, grayish, recumbent pubescence which obscures the surface. Head with front convex, finely densely punctate, darker suberect hairs short, about half as long as second antennal segment; interantennal area very shallowly concave; vertex sparsely punctate, large punctures well separated; antennae about as long as body, scape finely gray pubescent, remaining segments to ninth gray pubescent beneath, third segment longer than scape, fourth shorter than third, fifth shorter than first, remaining segments gradually decreasing in length. Pronotum broader than long, sides rounded, base impressed; disk convex, calluses absent; large deep punctures irregular, well separated, each

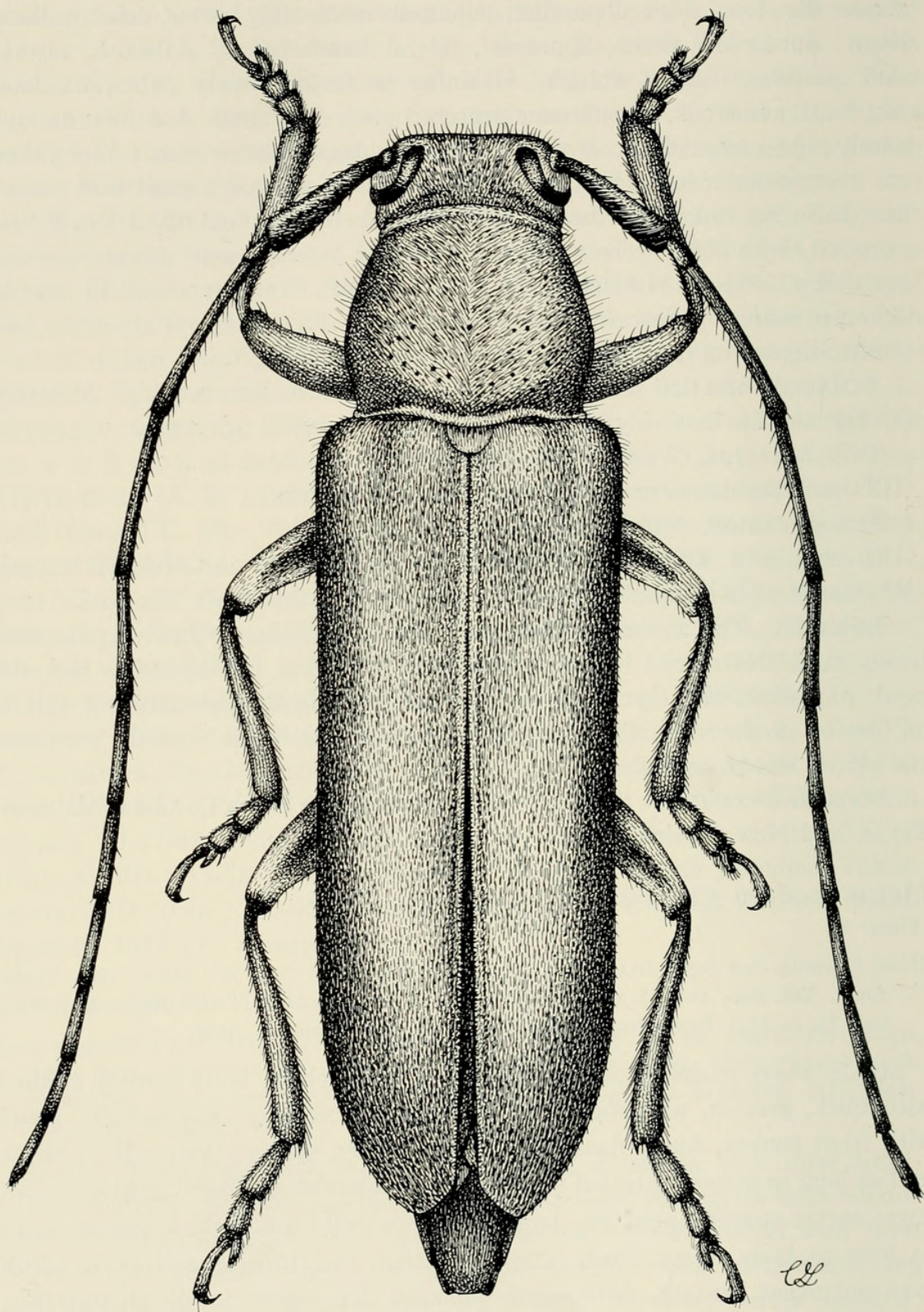


FIGURE 8. *Mecas confusa* Chemsak and Linsley, ♂.

puncture bearing a long erect hair; pro-, meso- and metasterna densely clothed with recumbent pubescence which obscures the surface. Elytra less than $2\frac{1}{2}$ times as long as broad; punctures coarse, close, linearly arranged, becoming obsolete at apex; recumbent pubescence completely obscuring surface, base with numerous rather short suberect hairs, these becoming shorter and recurved toward apex; apices obliquely subtruncate. Legs very densely pubescent; tarsal claws with inner tooth almost as long as outer. Abdomen very densely pubescent; last sternite impressed for its entire length. Length, 10–13 mm.

FEMALE. Similar in form and size. Abdomen with last sternite linearly impressed, apex broadly V-shaped. Length, 10–14 mm.

MATERIAL EXAMINED. Holotype male (California Academy of Sciences) from Luling, Gonzales Co., Texas, V-3-53 (B. J. Adelson). Allotype from Gonzales, Gonzales Co., Texas, V-2-53 (M. Wasbauer). Paratypes as follows: 2 ♂♂, same data as holotype; 1 ♂, 1 ♀, same data as allotype; 1 ♀, Ft. Sam Houston, Texas (C. Grant); 1 ♀, Corpus Christi, Texas, VI-28-42 (E. S. Ross); 2 ♂♂, 1 ♀, Palmetto State Park, Gonzales Co., Texas, IV-11-53 (M. Wasbauer), V-10-53 (B. J. Adelson); 1 ♂, Lee Co., Texas, May (R. Oertel); 1 ♀, Hidalgo Co., Texas, VI-22-33 (S. Bromley). Other material, not paratypical includes: 1 ♀, Texas (F. Blanchard collection); 1 ♀, Lee Co., Texas, June; 1 ♀, 49 mi. N. of Raymondville, Kenedy Co., Texas, VI-30-61 (R. L. Westcott); 1 ♂, 5 ♀♀, Lake Texoma, 2 mi. E. of Willis, Oklahoma, June, July, 1965 (R. M. Bohart); 2 ♀♀, Clark Co., Kansas, June (F. H. Snow).

This species closely resembles *M. cineracea* but may be separated by its larger size, denser overall pubescence, shorter erect hairs on the front of the head, and by the structure of the tarsal claws. In *M. confusa* the inner tooth of the claws is elongate and almost as long as the outer one; in *M. cineracea* the tooth is very small. The two species are sympatric, at least in parts of Texas, but it is not now known whether they infest the same or different host plants.

***Mecas femoralis* (Haldeman).**

Phytoecia femoralis HALDEMAN, 1847, Trans. American Philos. Soc., vol. (2)10, p. 59.

Mecas femoralis, LeCONTE, 1852, Jour. Acad. Philadelphia vol. (2)2, p. 155; HORN, 1878, Trans. American Ent. Soc., vol. 7, p. 44; LENG and HAMILTON, 1896, Trans. American Ent. Soc., vol. 23, pp. 152, 153; CASEY, 1913, Memoirs on the Coleoptera, vol. 4, p. 360 (fn.); BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 143.

MALE. Size small, subparallel; color black, femora reddish; pubescence grayish. Head with front convex, densely punctate, densely clothed with appressed pubescence and numerous suberect, dark hairs; vertex rather coarsely, closely punctate, densely pubescent; antennae about as long as body, basal segments sparsely gray pubescent beneath, long, erect hairs sparse, third segment longer than first, fourth shorter than third, fifth shorter than fourth. Pronotum about as long as broad; sides almost subparallel; disk convex, rather coarsely,

closely punctate; pubescence dense, short, appressed, long, erect hairs numerous; prosternum densely pubescent; meso- and metasternum densely clothed with recumbent pubescence, sides more coarsely punctate. Elytra about $2\frac{1}{2}$ times as long as broad; punctures coarse, dense, becoming finer toward apex; pubescence dense, appressed, with longer erect hairs numerous interspersed; apices rounded. Legs moderately densely pubescent; tarsal claws with inner tooth very short. Abdomen densely pubescent; last sternite shallowly impressed over most of its length. Length, 6–8 mm.

FEMALE. Very similar in size and shape. Abdomen with last sternite impressed over apical one-half. Length, 6–8 mm.

TYPE LOCALITY. Not given.

RANGE. Southeastern United States.

FLIGHT PERIOD. May to July.

HOST PLANTS. Unknown.

REMARKS. *Mecas femoralis* can be recognized by its small size, rather uniform pubescence, lack of pronotal calluses, and reddish femora. This species appears to be rare in collections. The eleven specimens we have seen vary very little.

MATERIAL EXAMINED. Eleven individuals from North Carolina to Florida have been seen.

Mecas cineracea Casey.

Mecas cineracea CASEY, 1913, Memoirs on the Coleoptera, vol. 4, p. 360; VOGT, 1949, Pan-Pacific Ent., vol. 25, p. 184. (record)

Saperda cineracea, BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 139.

Saperda bicallosa BREUNING (not Martin), 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 140.

MALE. Form rather small, parallel; color black, body densely clothed with gray recumbent pubescence. Head with front convex, appressed pubescence obscuring punctures, longer erect hairs numerous; interantennal area almost plane; vertex moderately coarsely, separately punctate; antennae about as long as body, basal segments finely gray pubescent beneath, long erect hairs decreasing in number toward apex, third segment longer than first, fourth shorter than third, fifth a little shorter than first, remaining segments gradually decreasing in length. Pronotum broader than long, sides almost parallel, shallowly impressed at base; disk convex, without calluses, punctures coarse, separated; appressed pubescence obscuring surface, long erect hairs numerous; prosternum densely pubescent; meso- and metasternum densely pubescent, coarsely punctured at sides. Elytra about $2\frac{1}{2}$ times as long as broad; punctures coarse, contiguous, becoming finer toward apex; pubescence obscuring surface, long suberect hairs numerous near base; apices obliquely truncate. Legs very densely pubescent; tarsal claws with inner tooth small. Abdomen densely

pubescent; last sternite shallowly impressed for its entire length. Length, 6–10 mm.

FEMALE. Similar in form and size. Antennae shorter than body. Abdomen with last sternite linearly impressed. Length, 7–11 mm.

TYPE LOCALITY. Harris Co., Texas.

RANGE. Southeastern United States to Arizona and Colorado and north-eastern Mexico.

FLIGHT PERIOD. April to August.

HOST PLANTS. *Helenium microcephalum*, *Baileya multiradiata*.

REMARKS. This species may be recognized by its small size, lack of pronotal calluses, uniform coloration and pubescence, and by the small inner tooth of the tarsal claws. It was incorrectly transferred to *Saperda* by Breuning (1955).

A series of specimens from western New Mexico and Arizona have thicker pubescence than the Texas examples. However, there appears to be a gradient in this character from east to west as is apparent in the material at hand.

MATERIAL EXAMINED. More than 200 specimens from South Carolina to Florida, to Arizona and Colorado.

Mecas cinerea (Newman).

(Figure 9.)

Saperda cinerea NEWMAN, 1840, Entomologist vol. 1, p. 13.

Mecas cinerea, GAHAN, 1888, Trans. American Ent. Soc., vol. 15, p. 300.

Mecas senescens BATES, 1881, Biologia Centrali-Americana, Coleoptera, vol. 5, p. 203; CASEY, 1913, Memoirs on the Coleoptera, vol. 4, p. 360.

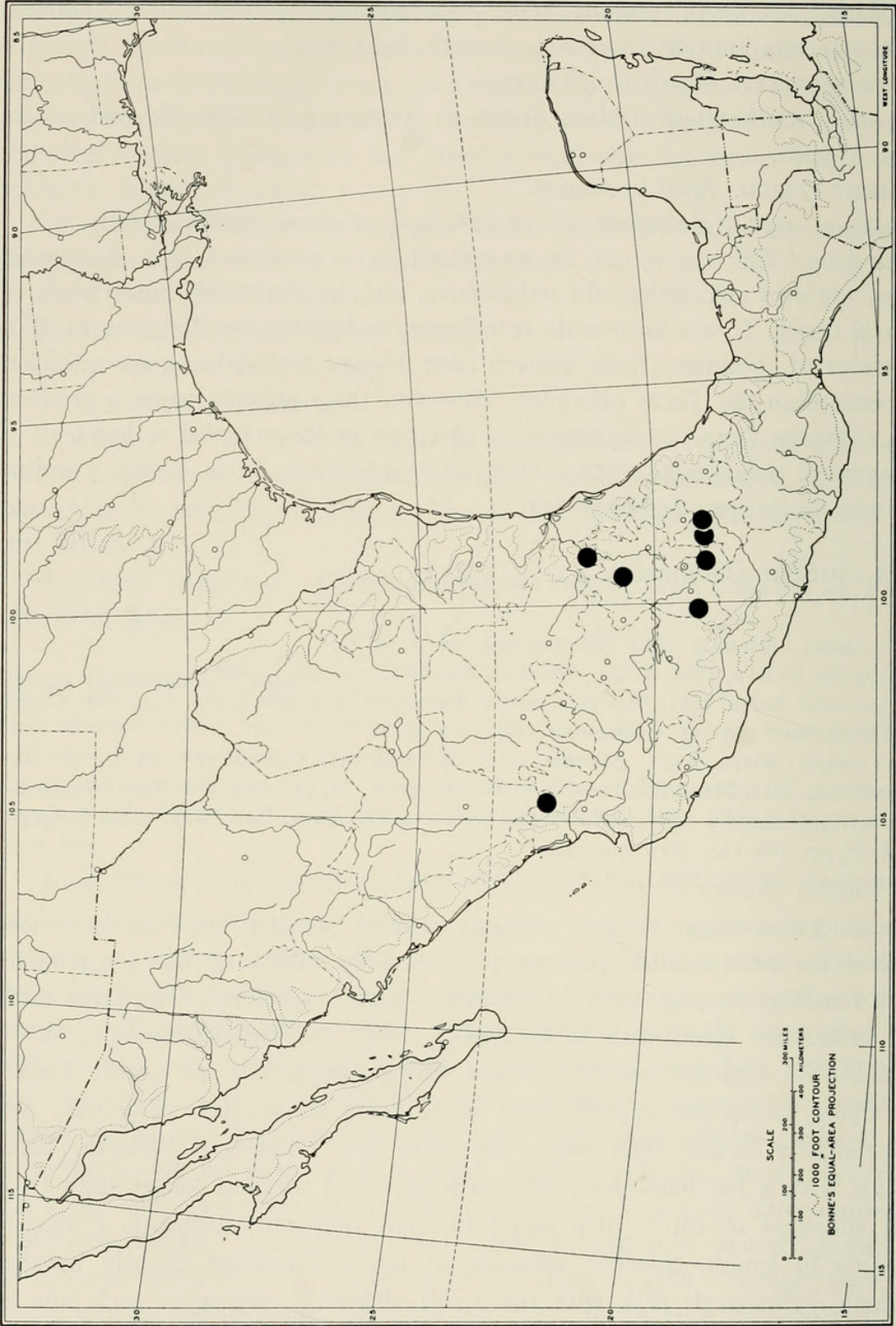
Mecas rubripes BATES, 1881, Biologia Centrali-Americana, Coleoptera, vol. 5, p. 203;

BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, pp. 140, 143. New synonymy.

Mecas rubripes morpha *callosoreducta* BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, pp. 140, 143. New synonymy.

Mecas inornata GAHAN, 1888 (not Say), Trans. Amer. Ent. Soc. vol. 15, p. 300.

MALE. Form moderate sized, elongate, slender, parallel; color black, femora and/or elytra often reddish, pronotum occasionally with a median longitudinal reddish band; pubescence gray to yellowish, dense, appressed, long erect hairs fairly numerous. Head with front convex, finely separately punctate; inter-antennal area slightly concave; vertex deeply, separately punctate; pubescence dense, obscuring surface, long erect hairs moderately numerous; antennae slightly longer than body, segments gray pubescent beneath, basal segments with a few long erect hairs beneath, third segment longer than first, fourth subequal to third, fifth equal to first, remaining segments gradually decreasing in length, eleventh subacute at apex. Pronotum slightly broader than long, cylindrical; disk with two small glabrous calluses on each side of basal median elongate callus; punctures moderately coarse, separated at middle and subconfluent at sides; appressed pubescence obscuring surface,



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FIGURE 9. Known occurrence of *Mecas cinerea* (Newman).

denser at middle and forming a vague longitudinal band, long erect hairs fairly sparse, shorter erect hairs more numerous; prosternum densely pubescent; meso- and metasternum densely pubescent, rather densely punctate at sides. Elytra usually about 3 times as long as broad; punctures coarse and contiguous basally, becoming finer and sparser toward apex; pubescence short, dense, appressed, long erect hairs numerous basally, becoming shorter and suberect toward apex; apices rounded. Legs moderately densely pubescent; tarsal claws with inner tooth slightly shorter than outer. Abdomen densely pubescent; last sternite rather shallowly impressed for its entire length. Length, 8–11 mm.

FEMALE. Form similar. Antennae about as long as elytra. Pronotum more transverse, distinctly broader than long. Abdomen with last sternite linearly impressed. Length, 8–13 mm.

TYPE LOCALITY. Of '*cinerea*,' Mexico; '*senescens*,' Puebla; '*rubripes*,' Mexico; '*callosoreducta*,' Mexico.

RANGE. San Luis Potosi to Morelos and Nayarit (fig. 9).

FLIGHT PERIOD. June to September.

REMARKS. The number of calluses on the pronotum, elongate body form, and the length of the antennae distinguish this species from the other Mexican species of *Mecas*. The body and antennal length, and different tarsal claws separate it from *M. pergrata*. It is difficult to detect a definite geographical variational trend from the material available for study. The more northern individuals are all black while most of the southern specimens possess reddish femora and often, reddish elytra. Two individuals from Nayarit have a reddish longitudinal band on the pronotum and yellowish epipleurae.

MATERIAL EXAMINED. MEXICO. San Luis Potosi: 2 ♂♂, 17 miles W. of Xilitla, 4700 ft., VII-22-54 (Univ. Kansas Mex. Exped.); Hidalgo: 1 ♂, 2 ♀♀, 7 miles NE. of Zimapan, VIII-15-58 (H. F. Howden); Distrito Federal: 5 ♂♂, 7 ♀♀, Temascaltepec, 1931 (G. B. Hinton); 1 ♂, 2 ♀♀, Real de Arriba, Temascaltepec, VII-32 (H. E. Hinton), VII-33 (Hinton and Usinger); 2 ♂♂, 5 ♀♀, Tejupilco, Temascaltepec, VI-VII-33 (Hinton and Usinger); Puebla: 1 ♀, 15 miles S. of Puebla, 6200 ft., IX-6-57 (H. A. Scullen); 1 ♂, Atlixco, VII-23-56 (R. & K. Dreisbach); Mexico: 1 ♂, 1 ♀, 3 miles N. of Valle de Bravo, VI-28-29-65 (G. H. Nelson); Morelos: 7 ♂♂, Cuernavaca VII-6-38, VII-29-61, 7000 ft. (R. & K. Dreisbach); 1 ♂, 1 ♀, Cuernavaca-Acapulco Road, VIII-22-36 (Ball & Stone); 1 ♂, 4 miles E. of Cuernavaca, 6000 ft., VI-25-59 (H. E. Evans); 1 ♂, 7 km. E. of Cuernavaca, 5700 ft., VIII-11-62 (Evans); Nayarit: 1 ♂, 1 ♀, La Mesa de Nayarit, VII-21-55 (B. Malkin).

Mecas pergrata (Say).

Saperda pergrata SAY, 1824, Jour. Acad. Philadelphia, vol. 3, p. 407; HALDEMAN, 1847, Trans. American Philos. Soc., vol. (2) 10, p. 55; LECONTE, 1859, Complete Writings of Thomas Say, vol. 2, p. 190.

- Stenostola pergrata*, HALDEMAN, 1847, Proc. American Philos. Soc., vol. 4, p. 373; LeCONTE, 1852, Jour. Acad. Nat. Sci. Philadelphia, vol. (2)2, p. 154.
- Mecas pergrata*, HORN, 1878, Trans. American Ent. Soc., vol. 7, p. 44; LENG and HAMILTON, 1896, Trans. American Ent. Soc., vol. 23, pp. 152, 153; BLATCHLEY, 1910, Coleoptera—in Indiana, pp. 1090, 1091; CASEY, 1913, Memoirs on the Coleoptera, vol. 4, p. 361; CRAIGHEAD, 1923, Dom. Canada Agr. Bull., vol. 27, p. 138; KNULL, 1946, Ohio Bio. Survey, Bull. vol. 39, pp. 274, 275, pl. 22, fig. 86; BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, pp. 140, 144, fig. 1.
- Mecas pergrata* morpho *semiruficollis* BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, pp. 140, 145. New synonymy.
- Stenostola gentilis* LeCONTE, 1852, Jour. Acad. Nat. Sci. Philadelphia, vol. (2)2, p. 154.
- Mecas discovittata* BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, pp. 140, 143. New synonymy.

MALE. Form moderate sized, parallel; color black, femora pale reddish, elytra occasionally partly reddish; pubescence dense, short, recumbent, grayish. Head with front convex, punctures rather fine, well separated; pubescence dense, appressed, long dark erect hairs numerous interspersed; appressed pubescence thicker around eyes; vertex rather densely punctate; antennae shorter than body, segments gray pubescent beneath, outer segments annulate, third segment longer than first, fourth subequal to first, remaining segments gradually decreasing in length. Pronotum broader than long, sides slightly rounded; disk convex, four glabrous calluses present in addition to median callus; punctures rather sparse, scattered; apex and base usually with a narrow band of dense yellowish pubescence, remaining surface partially obscured, long, erect hairs numerous interspersed; prosternum densely pubescent; meso- and metasternum densely pubescent, densely punctate at sides. Scutellum densely clothed with yellowish recumbent pubescence. Elytra about $2\frac{1}{2}$ times as long as broad; punctures rather coarse, contiguous at base, becoming finer toward apex; pubescence short, recumbent, partially obscuring surface, longer suberect hairs numerous, suture and lateral margins narrowly clothed with dense, yellowish, appressed pubescence; apices rounded. Legs finely, densely pubescent; femora reddish; tarsal claws with inner tooth small. Abdomen densely pubescent; last sternite shallowly impressed over most of its length. Length, 6–11 mm.

FEMALE. Similar in form and size. Antennae extending to about second abdominal segment. Abdomen with last sternite linearly impressed. Length, 6–12 mm.

TYPE LOCALITY. Of '*pergrata*,' Platte River, Nebraska; '*gentilis*,' Missouri Territory; '*semiruficollis*,' Texas; '*discovittata*,' Colorado.

RANGE. Great Plains to southeastern United States, New Mexico, and north-eastern Mexico.

FLIGHT PERIOD. April to July.

HOST PLANTS. *Aster* (roots), *Helianthus*.

REMARKS. The five glabrous spots of the pronotum, reddish femora, and the

densely pubescent lines on the suture and lateral margins of the elytra will readily distinguish this species. In certain parts of the range, the elytra tend to be reddish down the disk and frequently the pronotum is also partially reddish.

HABITS. According to Craighead (1923) larvae feed in the stems of *Aster* and down into the roots, completely hollowing the latter. Subsequently that portion of the stem of the plant breaks off at the surface of the ground. Small heaps of frass are exuded about the base of the plant. Only one larva is found in each stem.

Mecas cirrosa Chemsak and Linsley, new species.

MALE. Form moderate sized, robust; color black; pubescence dense, gray, recumbent. Head with front convex, rather finely, irregularly punctate; inter-antennal area rather deeply impressed; vertex coarsely, separately punctate; pubescence dense, appressed, long erect hairs numerous, pale and dark colored; antennae slightly shorter than body, segments robust, somewhat flattened, all segments gray pubescent beneath, dark brown above, segments from second densely fringed with long curved hairs beneath, third segment slightly longer than first, fourth a little shorter than third, fifth shorter than first, remaining segments gradually decreasing in length. Pronotum broader than long, sides broadly rounded; disk convex, each side with a small glabrous, premedian callus, narrow median callus extending almost length of disk; punctures moderately coarse, irregular, subconfluent; pubescence fine, appressed, long, pale, erect hairs numerous; prosternum densely pubescent; meso- and metasternum densely pubescent, minutely punctate. Elytra more than $2\frac{1}{2}$ times as long as broad; basal punctures moderately coarse, well separated, punctures becoming fine and quite sparse toward apex; pubescence fine, dense, appressed, basal margin with a few long, erect, pale hairs, remainder of surface with very short, suberect, dark hairs; apices rounded. Legs densely pubescent; tarsal claws with inner tooth short, obtuse, lobe-like. Abdomen densely pubescent; last sternite deeply impressed. Length, 13 mm.

FEMALE. Form similar. Antennae shorter than body, curved hairs less numerous beneath. Abdomen with last sternite linearly impressed. Length, 10.5 mm.

TYPE MATERIAL. Holotype male (California Academy of Sciences) from 5 miles N. of Guanajuato, Guanajuato, Mexico, VII-25-54 (E. I. Schlinger). The specimen that we consider as the female of this species differs in several respects. The pubescence appears thicker and the antennae have a much sparser fringe. This individual is from Km. 320, near Hacienda Balvanera, Queretero, Mexico, VII-13-55.

REMARKS. Although the tarsal claws are uniquely different from other

species of *Mecas*, we consider them to be bifid and the other morphological characteristics are similar enough to place '*cirrosa*' in the genus.

Mecas humeralis Chemsak and Linsley, new species.

MALE. Form moderate sized, parallel; color black; pubescence dense, grayish and brownish. Head with front convex, rather finely, separately punctate; interantennal area impressed; vertex rather finely, separately punctate; pubescence dense, appressed, long, dark, erect hairs numerous; antennae about as long as body, outer segments slightly flattened, all segments gray pubescent beneath, dark brown above, long erect hairs sparse on basal segments, third segment much longer than first, fourth a little shorter than third, fifth equal to first, remaining segments gradually decreasing in length. Pronotum slightly broader than long, sides broadly rounded; disk convex, each side with a large glabrous callus before middle, median callus long, rather broad; punctures moderately coarse, subconfluent; pubescence dense, appressed, long erect hairs numerous; prosternum densely pubescent; meso- and metasternum densely pubescent, finely densely punctate at sides. Elytra about 3 times as long as broad; basal punctures coarse, contiguous, becoming finer and sparser toward apex; pubescence dense, recumbent, gray on disk, humeri glabrous, epipleurae and sides with a broad band of brown pubescence extending from under humeri almost to apex, long erect hairs abundant at base, becoming shorter and recurved toward apex; apices rounded. Legs densely pubescent; tarsal claws with inner tooth short, blunt, lobe-like. Abdomen densely pubescent, first three sternites with a narrow glabrous band at base; last sternite deeply impressed. Length, 13 mm.

FEMALE. Form similar. Antennae about as long as body. Legs with tarsal claws having the short inner tooth slightly acute. Abdomen lacking glabrous lines on sternites, last sternite linearly impressed. Length, 10.5 mm.

TYPE MATERIAL. Holotype male (California Academy of Sciences) from El Molino, Jalisco, Mexico, VII-10-56 (R. & K. Dreisbach); allotype from Guadalajara, Jalisco, VII-24-51 (P. D. Hurd).

REMARKS. This species has tarsal claws similar to those of *M. cirrosa*. The different antennae and antennal pubescence will readily separate the two species. The glabrous humeri also make *M. humeralis* distinctive.

Mecas bicallosa Martin.

Mecas bicallosa MARTIN, 1924, Ent. News, vol. 35, p. 244; HATCH, 1971, Univ. Washington Publs. Biol., vol. 16, p. 155.

Saperda bicallosa, BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, pp. 139, 140.

MALE. Form moderate sized, parallel, rather robust; color black, body densely clothed with short, appressed, grayish pubescence. Head with front

convex, pubescence obscuring surface, long erect hairs very numerous; interantennal area plane, vertex deeply punctate; antennae extending to about third abdominal segment, segments through fourth gray pubescent, dark at apices, basal segments with numerous long, suberect hairs, segments from third with long hairs beneath, these decreasing in number toward apex, third segment longer than first, fourth subequal to first, remaining segments short, subequal in length. Pronotum broader than long, sides rounded; disk convex, with two glabrous calluses at middle and a smaller median one behind middle; punctures rather fine, deep, separated; pubescence obscuring surface, very long erect hairs numerous; prosternum densely pubescent, front coxal cavities narrowly open behind; meso- and metasternum densely clothed with recumbent and subdepressed pubescence. Elytra more than twice as long as broad; punctures at base coarse, dense, becoming finer toward apex; pubescence obscuring surface, long, suberect hairs abundant over basal half; apices rounded, often vaguely, obtusely toothed. Legs very densely pubescent; tarsal claws with inner tooth very small, short. Abdomen densely pubescent; last sternite shallowly, rather broadly impressed. Length, 10–13 mm.

FEMALE. Form similar. Antennae slightly shorter. Abdomen with last sternite narrowly linearly impressed, apex shallowly concave. Length, 10–15 mm.

TYPE LOCALITY. Martins Springs, Lassen Co., California.

RANGE. Washington to northern Baja California, to Colorado.

FLIGHT PERIOD. April to August.

HOST PLANTS. *Artemisia tridentata*.

REMARKS. The bicallused pronotum and abbreviated distal antennal segments characterize this species. Breuning (1955) incorrectly synonymized *M. bicallosa* with *M. cineracea* Casey and transferred both to *Saperda*.

MATERIAL EXAMINED. A total of 127 specimens were examined from Washington, Oregon, California, Nevada, Idaho, Utah, Colorado and Baja California.

Mecas ambigena Bates.

Mecas ambigenus BATES, 1881–1885, Biologia Centrali-Americana, Coleoptera, vol. 5, pp. 203, 426; BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, pp. 142, 147.

Mecas pseudambigena BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, pp. 142, 147. New synonymy.

MALE. Form rather small, short, parallel; color black; pubescence dense, rather coarse, brownish, appressed, long dark erect hairs numerous. Head with front convex, finely densely punctate; interantennal area concave; vertex distinctly, separately punctate; pubescence short, appressed, front with numerous very long erect black hairs; antennae extending to about apical $\frac{1}{2}$ of elytra,

segments to tenth gray pubescent beneath, segments from fourth narrowly annulate at base, basal segments with a moderate number of suberect hairs beneath, scape robust, a little shorter than third segment, fourth subequal to first, remaining segments decreasing in length. Pronotum broader than long, sides broadly rounded; disk convex with a glabrous callus on each side before middle, elongate median basal callus often vague or absent; punctures coarse, confluent; pubescence short, appressed with numerous long erect hairs interspersed; prosternum densely pubescent; meso- and metasternum densely pubescent, finely densely punctate. Elytra less than $2\frac{1}{2}$ times as long as broad; punctures coarse, contiguous, becoming finer toward apex; pubescence moderately densely appressed, suture narrowly lined with dense yellow-brown pubescence, long erect hairs numerous over basal $\frac{1}{2}$, shorter and suberect toward apex; apices rounded. Legs densely pubescent; tarsal claws with inner tooth smaller than outer. Abdomen densely pubescent, finely punctate; last sternite deeply impressed for about $\frac{3}{4}$ its length. Length, 9 mm.

FEMALE. Similar in form and size. Antennae extending to about apical $\frac{1}{4}$ of elytra. Abdomen with last sternite lightly linearly impressed. Length, 10 mm.

TYPE LOCALITY. Of '*ambigena*,' Mexico; '*pseudambigena*,' Mexico.

RANGE. Durango to Mexico.

FLIGHT PERIOD. June and July.

REMARKS. The shorter form and short antennae will distinguish *M. ambigena* from other species of *Mecas*.

MATERIAL EXAMINED. MEXICO. Durango: 1 ♂, 25 miles W. of Durango, 7,500 ft., VI-23-64 (J. E. Martin); Zacatecas: 2 ♂♂, 4 miles W. of Monte Escobido, 7,800 ft., VII-19-20-54 (R. H. Brewer); Mexico: 1 ♀, Toluca (Wickham).

***Mecas menthae* Chemsak and Linsley, new species.**

(Figures 10, 11.)

Mecas marginella, LINSLEY, KNULL, and STATHAM (not LeConte), 1961, Amer. Mus. Nov., no. 2050, p. 32.

MALE. Form moderate sized, subparallel; color black; pubescence dense, short, appressed, grayish to gray-brown, long erect dark hairs numerous. Head with front convex, rather finely, separately punctate; vertex deeply, separately punctate; pubescence dense, short, appressed, antennal tubercles dark pubescent above, long erect hairs numerous on front and vertex; antennae slightly longer than elytra, segments to tenth gray pubescent beneath, segments from fifth narrowly pale annulate at base, long erect hairs fairly numerous beneath on basal segments, third segment longer than first, fourth shorter than third but longer than first, fifth equal to first, remaining segments gradually decreasing in length. Pronotum broader than long, sides broadly rounded; disk convex, each side of middle with a rather large, glabrous callus, middle with an elongate

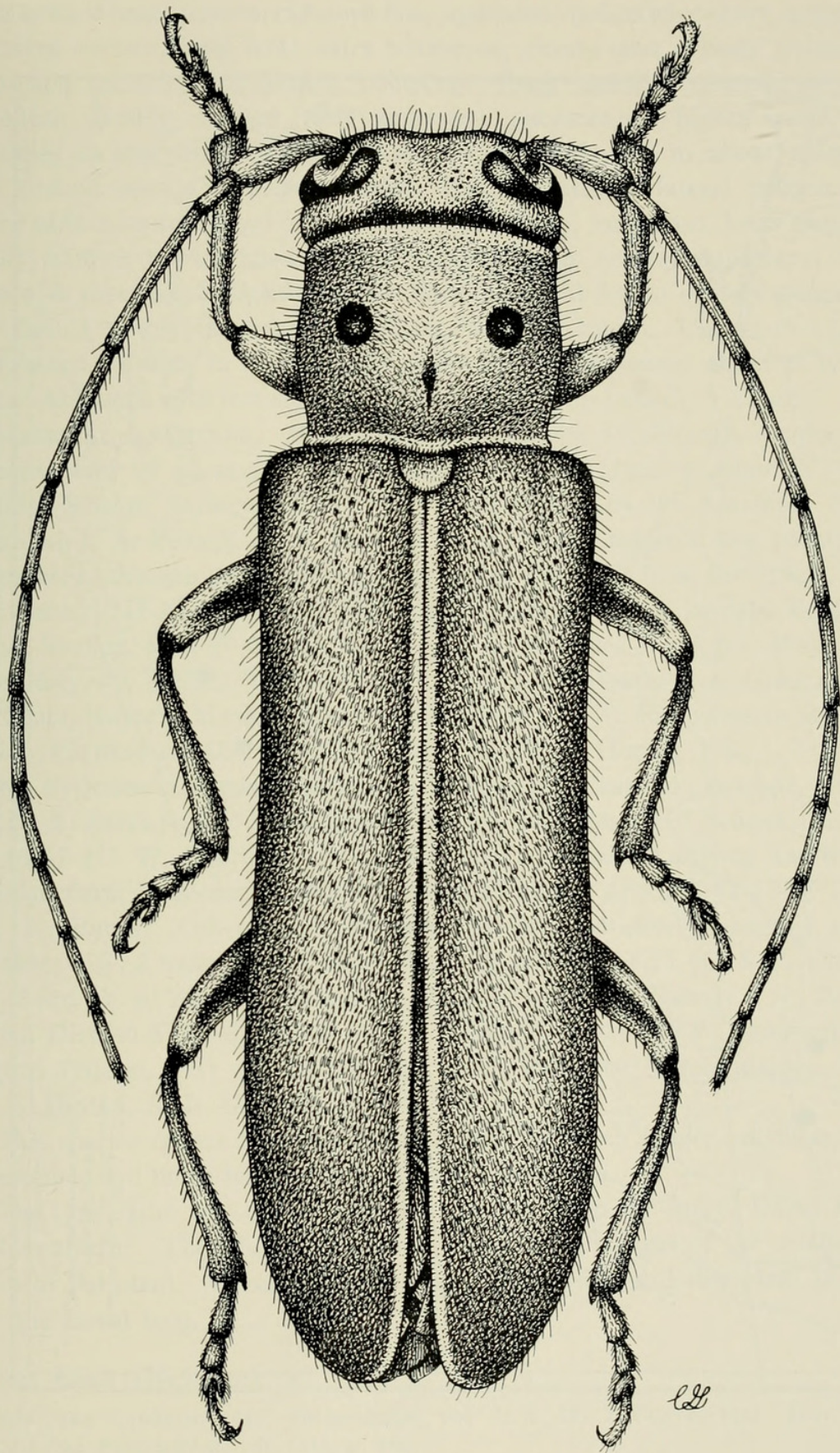
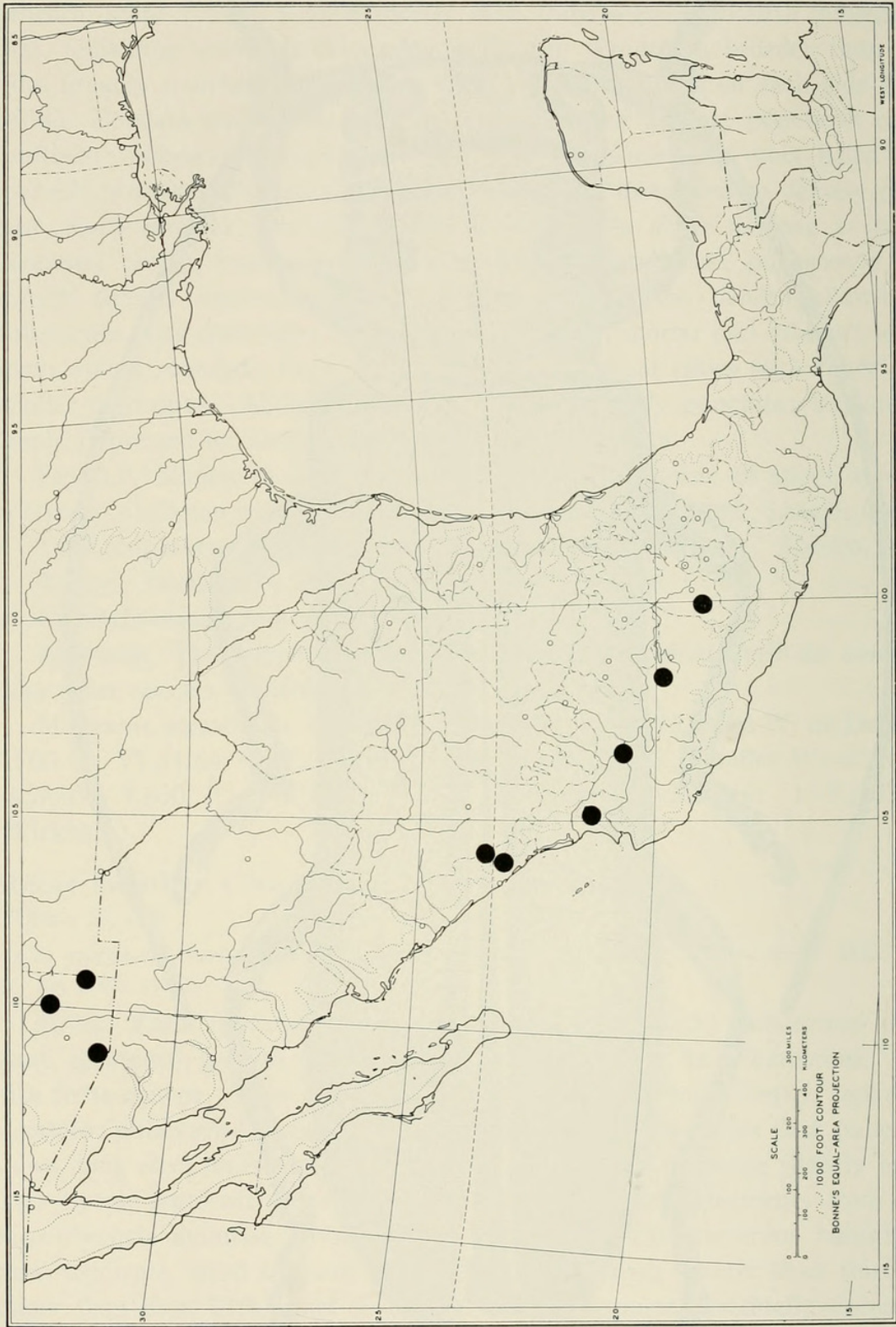


FIGURE 10. *Mecas menthae* Chemsak and Linsley, ♀.



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FIGURE 11. Known occurrence of *Mecas menthae* Chemsak and Linsley.

callus toward base; punctures rather fine, separated; pubescence short, appressed, obscuring surface, long erect hairs numerous; prosternum densely pubescent; meso- and metasternum densely pubescent, finely densely punctate at sides. Scutellum densely clothed with appressed pubescence. Elytra more than $2\frac{1}{2}$ times as long as broad; punctures coarse, contiguous to about apical $\frac{1}{3}$, very fine at apex; pubescence dense, short appressed, lateral margins and suture with a narrow band of appressed pubescence, long erect hairs numerous basally, shorter toward apex; apices rounded. Legs densely pubescent; tarsal claws with inner tooth slightly shorter than outer. Abdomen densely pubescent; last sternite deeply impressed for about $\frac{3}{4}$ of its length. Length, 8–12 mm.

FEMALE. Similar in form, slightly more robust. Antennae about as long as elytra. Abdomen with last sternite linearly impressed. Length, 9–13 mm.

MATERIAL EXAMINED. Holotype male, allotype (California Academy of Sciences) and 99 paratypes (60 males, 39 females) from 8 miles W. of El Palmito, Sinaloa, Mexico, VII-19, 24, 29-64, VIII-5-64 on *Agastache* (J. A. Chemsak, J. A. Powell, H. F. Howden). Additional material not paratypical assignable to this species includes: 9 ♂♂, 5 ♀♀, 6.5 miles E. of Potrerillos, Hwy. 30, Sinaloa, VIII-20-21-64 (E. I. Schlinger, P. Rauch); 2 ♂♂, 20 miles E. of Villa Union, Sinaloa, VIII-20-64 (P. Rauch); 1 ♀, 63 miles E. of Jct. Hwy. 15 & 40 on Hwy. 40, Mexico, VIII-28-64 (D. C. & K. A. Rentz, J. A. Grant); 1 ♂, El Pichon, Nayarit, Mexico, VI-25-63 (J. Doyen); 1 ♂, Southwestern Research Station, Chiricahua Mts., Arizona, VIII-24-58 (P. D. Hurd); 1 ♂, 1 ♀, Yank's Spring, Sycamore Canyon, Tumacacori Mts., Santa Cruz Co., Arizona, VII-28-65 (H. B. Leech); 1 ♂, Oak Creek Canyon, 12 miles S. of Sedona, Arizona, VII-18-57 (C. W. O'Brien); 1 ♀, Swift Trail, between Ladybug Saddle and Shannon Park, Pinaleno Mountains, Graham County, Arizona, VI-27-58 (J. M. & S. N. Burns). Other specimens from Mexico tentatively assigned to *M. menthae*; 1 ♀, 2 miles S. of Tlaquepaque, Jalisco, VII-11-53 (C. & P. Vaurie); 1 ♀, 5 km. W. of Zacapu, Michoacan, VII-13-51 (H. E. Evans); 1 ♀, Real de Arriba, Distrito Federal, VII-32 (H. E. Hinton); 1 ♂, 2 ♀♀, Temescaltepec, Distrito Federal, 1931 (G. B. Hinton); 1 ♀, Tejupilco, Temescaltepec, VI-33 (H. E. Hinton, R. L. Usinger).

This species differs from *M. ambigena* by the much longer antennae, finer pubescence, and much less coarsely punctate pronotum.

The type series was collected during the day from the apical leaves of the mint *Agastache*. The adults were found resting in the curve of the smaller top leaves of the plant. Numerous individuals were mating and this plant is probably the larval host.

Mecas cana (Newman).

Saperda cana NEWMAN, 1840, Entomologist, vol. 1, p. 12; LeCONTE, 1852, Jour. Acad. Nat. Sci. Philadelphia, vol. (2)2, p. 164.

Mecas cana, GAHAN, 1888, Trans. American Ent. Soc., vol. 15, p. 300; LENG and HAMILTON, 1896, Trans. American Ent. Soc., vol. 23, p. 152; CASEY, 1913, Memoirs on the Coleoptera, vol. 4, p. 360; BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 148.

MALE. Form moderate sized, subparallel; color black, body densely clothed with gray recumbent pubescence. Head with front convex, pubescence obscuring punctures, longer, dark, suberect hairs numerous; interantennal area almost plane; vertex finely, separately punctate; antennae slightly shorter than body, segments to sixth rather sparsely grey pubescent beneath, long erect hairs decreasing in number toward apex; third segment longer than scape, fourth shorter than third but longer than first, remaining segments gradually decreasing in length. Pronotum broader than long, sides rounded to subparallel; basal and apical margins narrowly margined; disk convex, each side with a flat glabrous callus before middle, middle usually with a vague linear callus near base; punctures moderately coarse, rather sparse, partially obscured by pubescence; longer erect hairs pale with dark setae interspersed mostly at sides; prosternum densely pubescent; meso- and metasternum densely pubescent; metasternum deeply rather densely punctate at sides. Elytra over $2\frac{1}{2}$ times longer than broad; punctures moderately coarse, well separated, becoming finer and sparser toward apex; pubescence obscuring surface, longer suberect hairs numerous; apices obliquely subtruncate. Legs densely pubescent; tarsal claws with inner tooth small. Abdomen occasionally reddish, densely pubescent; last sternite moderately impressed for its entire length. Length, 9–15 mm.

FEMALE. Form similar. Antennae shorter than body. Abdomen with last sternite linearly impressed. Length, 10–16 mm.

TYPE LOCALITY. St. John's Bluff, Florida.

RANGE. Southeastern United States to Texas, northeastern Mexico, and South Dakota.

REMARKS. This species may be separated from *M. confusa* by the short inner tooth of the tarsal claws. The pronotal calluses readily distinguish it from *M. cineracea* and the elongate antennal segments from *M. bicallosa*.

Two subspecies can be recognized.

***Mecas cana cana* (Newman).**

Saperda cana NEWMAN, 1840, Entomologist, vol. 1, p. 12; LeCONTE, 1852, Jour. Acad. Nat. Sci. Philadelphia, vol. (2)2, p. 164.

Mecas cana, GAHAN, 1888, Trans. American Ent. Soc., vol. 15, p. 300; CASEY, 1913, Memoirs on the Coleoptera, vol. 4, p. 360; BREUNING, 1955, Mem. Soc. Roy. Nat. Belgique, vol. 27, p. 148.

Body densely grayish pubescent, elytra narrowly clothed at suture and lateral margins with bands of appressed pubescence. Length, 10–12.5 mm.

TYPE LOCALITY. St. John's Bluff, Florida.

RANGE. Florida.

FLIGHT PERIOD. April to October.

HOST PLANTS. *Ambrosia*, *Flaveria linearis*.

REMARKS. This subspecies appears to be restricted to Florida, primarily the southern portion. Although Breuning (1955) states that the type of *M. c. cana* appears to be lost, it is in the collection of the British Museum (Natural History).

***Mecas cana saturnina* (LeConte).**

Stenostola saturnina LECONTE, 1859, Smithsonian Contr. Knowledge, vol. 11, p. 21.

Mecas saturnina, GAHAN, 1888, Trans. American Ent. Soc. vol. 15, p. 300; HORN, 1888, Trans. American Ent. Soc., vol. 15, p. 301; BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 146; WILSON, 1960, Comm. Inst. Biol. Control Tech. Comm. vol. 1, p. 62; STRIDE and WARWICK, 1962, Anim. Behaviour, vol. 10, p. 112 (habits).

Mecas inornata (not Say), HORN, 1878, Trans. American Ent. Soc., vol. 7, p. 44; KNULL, 1946, Ohio Biol. Surv. Bull. vol. 39, p. 274; DILLON and DILLON, 1961, Man. Common Beetles of Eastern North America, p. 652, pl. 65, no. 17.

Mecas brevicollis CASEY, 1913, Memoirs on the Coleoptera, vol. 4, p. 362.

Similar in form and size to typical subspecies. Pubescence uniformly gray or yellowish, elytra without pubescent bands on margins and suture. Length, 9–16 mm.

TYPE LOCALITY. Of '*saturnina*,' Kansas; '*brevicollis*,' Kansas.

RANGE. Alabama to northeastern Mexico to South Dakota.

FLIGHT PERIOD. May to August.

HOST PLANTS. *Ambrosia*, *Xanthium*, *Helianthus*, *Gaillarda*. Adults have also been taken on *Prosopis* and *Salvia* in Texas.

INCERTAE SEDIS

***Mecas albovitticollis* Breuning.**

Mecas albovitticollis BREUNING, 1955, Mem. Soc. Roy. Ent. Belgique, vol. 27, p. 146.

Mecas (?)———(?) BATES, 1885, Biologia Centrali-Americana, Coleoptera, vol. 5, p. 427.

"Antennae a little longer than the body. Lower lobes of the eyes obviously longer than the cheeks. Head and pronotum densely and very finely punctate. Pronotum transverse. Elytra slightly truncate at the apices, densely and finely punctate.

"Black covered with light gray pubescence. Pronotum ornated with three straight, longitudinal, discal, whitish bands. Scutellum having whitish pubescence. Antennae faced with deep brown pubescence.

"Length: 10 mm; width: 2½ mm.

"Type: a male from Mexico in the British Museum."

We have been unable to place this species on the basis of the above original description and were unable to locate the type at the British Museum. However, we believe that this species was based on the single specimen cited by Bates in the Biologia Centrali-Americana. Since this reference stated: "One example

of a distinct species, in bad condition, doubtfully belonging to this genus.", we will follow Bates and exclude it from the genus *Mecas*.

***Mecas marmorata* Gahan.**

Mecas marmorata GAHAN, 1892, Trans. Ent. Soc. London. 1892, p. 268, pl. 12, fig. 7; BREUNING, 1955, Mem. Soc. Roy. Belgique, vol. 27, pp. 140, 152.

MALE. Form elongate, slender; color black, pronotum and elytra suffused with pale reddish brown, antennal segments 2 to 10 reddish; pubescence dense, yellowish, appressed, arranged in patches on elytra, forming a longitudinal band down middle of pronotum. Pronotum cylindrical, as long as broad; mesosternal process slightly broadened. Elytra more than 3 times longer than broad; punctures coarse, irregular; apices produced, dentate. Legs short; mesotibiae with sinus; tarsal claws with inner tooth smaller than outer. Abdomen with last sternite deeply impressed.

TYPE LOCALITY. Guerrero, Mexico (not restricted further).

The elongate body, apically produced elytra, and cylindrical pronotum appear sufficient to exclude this species from *Mecas*. Since we have examined only the type in the British Museum (Natural History) and one other male from 17 miles south of Puebla, Puebla, IX-6-57 (H. A. Scullen) we have not attempted to clarify the generic status of '*marmorata*' at this time.

ACKNOWLEDGMENTS

This study was made as part of a National Science Foundation sponsored monograph of North American Cerambycidae (Grant GB-31120-X). Although a large portion of the material we examined came from the California Academy of Sciences and the California Insect Survey, Berkeley, we wish to gratefully acknowledge the following institutions for the loan of specimens: American Museum of Natural History; Canadian National Collection, Ottawa; Cornell University; Field Museum of Natural History, Chicago; Los Angeles County Museum; Museum of Comparative Zoology, Harvard University; Instituto Tecnológico y de Estudios Superiores de Monterrey, Monterrey, Mexico; Ohio State University; Oregon State University; United States National Museum; University of California, Davis and Riverside, University of Kansas; collections of G. H. Nelson and R. L. Westcott.

We are deeply appreciative to Celeste Green for preparing the illustrations and to the authorities of the British Museum (Natural History) for permitting us to examine type specimens in their collection.

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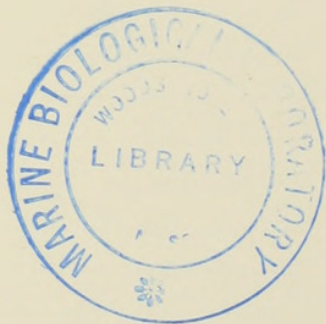
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