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SPECIES OF OEDEMERIDAE
OF THE BIG BEND REGION OF TEXAS¹

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During May 1959, Drs. Henry F. Howden and Edward Becker made very extensive and interesting collections of insects in and near Big Bend National Park, Tex. This particular collecting trip has resulted in the detection of many rare and several undescribed species in this poorly sampled area. The truth of this statement becomes more apparent as their material is made available to the specialists. Although there were "several good general rains totaling two to three inches . . . during the month of May" (Howden, 1960), this alone does not account for the wealth of material collected by these two entomologists. After having been in the field with Dr. Howden, I am convinced there is more than luck involved in the collection of these rare species. His thorough and persistent methods, during which time personal comfort is not his concern, has contributed greatly to the progress of beetle taxonomy and biology. It is for this reason that I wish to dedicate the new species described in this paper to Dr. Howden. I also wish to acknowledge with thanks the loan of this material by the Canadian National Collection of Insects.

¹ Contribution toward a monograph of the Oedermeridae, no. 21.

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Family characteristics: These polyphagous beetles range in size from 5 to 20 mm. in length, but most specimens are between 8 and 12 mm. Their body surface has a soft appearance, and the moderate vestiture of recumbent setae covers the somewhat shining body surface. The color is fuscus to testaceous, or bicolorous with head and/or pronotum reddish orange, more rarely, dark or piceus or metallic colored. The head is not strongly constricted behind the eyes. The antenna are filiform. The pronotum is broadest anteriorly or at middle, without lateral margins. The procoxal cavities are open behind and the tarsal formula is 5-5-4, with at least the penultimate segment dilated and tomentose ventrally; claws simple, or with a basal tooth.

Key to the Species of Big Bend Oedemeridae³

1. Antennal base situated within deep emargination of eyes; mandibles entire (Calopodinae) *Sparedrus depressus* (Champion)
- Antennal base situated in front of eyes which are emarginate (Oedemerinae) 2
2. Both mandibles entire 5
- Both mandibles bifid at apices 3
3. Second antennal segment short, one-third or less length of third segment; head and elytra piceus, pronotum reddish orange.
 - Eumecamera obscura* (LeConte)
 - Second antennal segment long, one-half or more length of third segment . . . 4
4. Second antennal segment nearly as long as third; body slender; eyes nearly entire; pronotum with nearly parallel sides; uniformly dark, metallic in color.
 - Vasaces elongatus* Arnett
 - Second antennal segment approximately one-half length of third; eyes reniform; pronotum much broader anteriorly than at base; color fuscus.
 - Oxycopsis howdeni* Arnett
5. Vestiture very coarse and dense, obscuring punctation.
 - Oxaxis pallida* LeConte
 - Vestiture coarse to fine, but not obscuring punctation 6
6. Head, thorax, and elytra fuscus or reddish brown 7
- Thorax orange red with or without darker markings 9
7. Each elytron marked with two orange striae (to distinguish from *O. bernadettea*, not yet reported from Big Bend Region, pronotum without anterior lateral mirror spots) *Oxaxis barbara* Arnett
- Elytra without orange striae 8
8. Head and pronotum piceus brown with testaceous markings; elytra with sutural area pale; elongate narrow species; pubescence fine.
 - Oxaxis angustata* Champion
 - Color uniformly reddish brown; elytra rarely stained with piceus.
 - Oxaxis subfusca* Horn

³ For full descriptions and illustrations of these species and others that might occur in the area, see bibliography. This key includes only the known species in the Big Bend Region and is so designed that, should additional species be found in the region, they will not be mistaken for the included species.

9. General color reddish orange, elytra stained at base with piceus to entirely piceus; mandibles usually large; pronotum distinctly marked with central piceus stripe, and a piceus patch on each side.

Oxaxis trimaculata Champion

Elytra purple piceus, often with very narrow pale sutural and marginal stripe, rarely with vague submarginal pale stripe; pronotum orange, usually with piceus markings *Oxaxis cana* (LeConte)

The following list of Big Bend National Park species is complete as of this writing. Although other collections have been made in the Park previously and since, including collections made by the author, only one additional species has been taken which was not collected by Howden and Becker. Only this additional record is included. No doubt additional collecting at other times during the season will reveal still more species.

No extensive ecological characterization of the area has been made. Webb (1950) and others (e.g., Peterson, 1960) refer to the area as the Trans-Pecos community which corresponds to Dice's (1943) Chihuahuan Biotic province. Plant succession in the area has been described to some extent by Muller (1940). Some of the more striking plants are described in McDougall and Sperry (1951). The geology of the region is reported by Udden (1907). Howden (1960) has published a map of the area, which is reproduced here, and a list of the Scarabaeidae. All of the Big Bend National Park localities mentioned in the following discussion are located on this map (fig. 1).

Sparedrus depressus (Champion)

This species was taken at Chisos Basin May 1-8 by beating gray oak and at light. At Tornillo Flat specimens were taken on May 12 by beating *Acacia* species. This is the first record of the species in the United States.

The species was described from a single male specimen taken at Mexico City. It has not been again reported until this collection of 13 specimens. As in other species of this genus, the fifth visible sternum of the male is deeply emarginate in contrast to the slightly emarginate condition in the female.

Vasaces elongatus Arnett

The type locality of *V. elongatus* is Chisos Basin (pl. 1, top). Until this collection of six specimens, the species was known only from the female holotype. The specimens reported here were collected at light between May 23 and 29. The description of the male follows:

Male: Chisos Basin, Big Bend National Park, Tex., May 29, 1959 (collected by Howden and Becker). The male agrees with the female holotype except as follows: front of head coarsely punctate, depressed somewhat behind antennae. Pronotum longer than broad

(4:3), but shorter than that of the female; widest anterior to middle, lateral arcuation more pronounced than in the female. Length 9 mm.

Male genitalia: Fifth visible abdominal sternum emarginate apically. The genitalia agree with the generic description (Arnett,

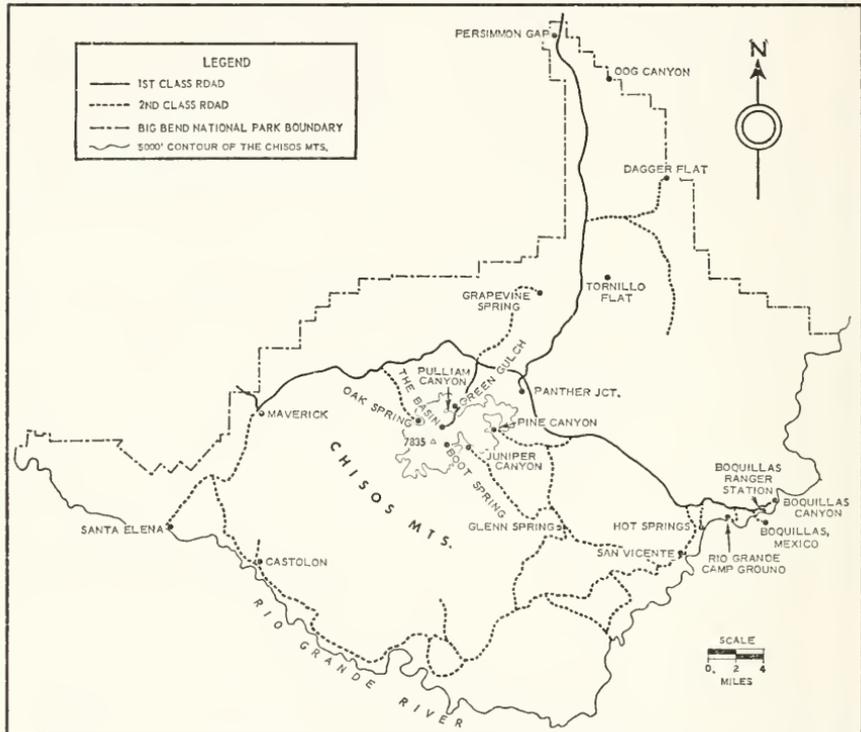


FIGURE 1.—Big Bend National Park, Brewster Co., Tex., collecting localities (the 5000 ft. contour of the Chisos Mts. is included for reference; by permission of *The Canadian Entomologist*).

1953, p. 89) except that the penis (fig. 2a) is slightly expanded at the apex; paramere (fig. 2b) with apical V-shaped emargination narrower and deeper than in *V. linearis*. Ninth tergum not as prominent as in *V. linearis*.

Eumecomera obscura (LeConte)

This species was not collected by Drs. Howden and Becker, but was taken later in the season (July 17, 1946) by D. J. and J. N. Knull in the Chisos Mountains.

Oxycopsis howdeni, new species

The fuscous color of this beetle makes it distinctive from other members of the genus except for *O. mariae* (Arnett) to which it is

closely similar, and *O. maculicollis* (Champion) which it closely resembles. It is separated from *O. mariae* by the distance between the eyes in dorsal view; the eyes are more widely set apart in *O. howdeni* and more placed in *O. mariae*. The antennal segments of *O. howdeni* are longer and narrower than those of *O. mariae*. The general color of *O. howdeni* is fuscus, while that of most specimens of *O. mariae* is a dark chestnut, almost piceus; but some specimens may be fuscus. *O. maculicollis* is confined to tropical Central America and has different genitalic characters.

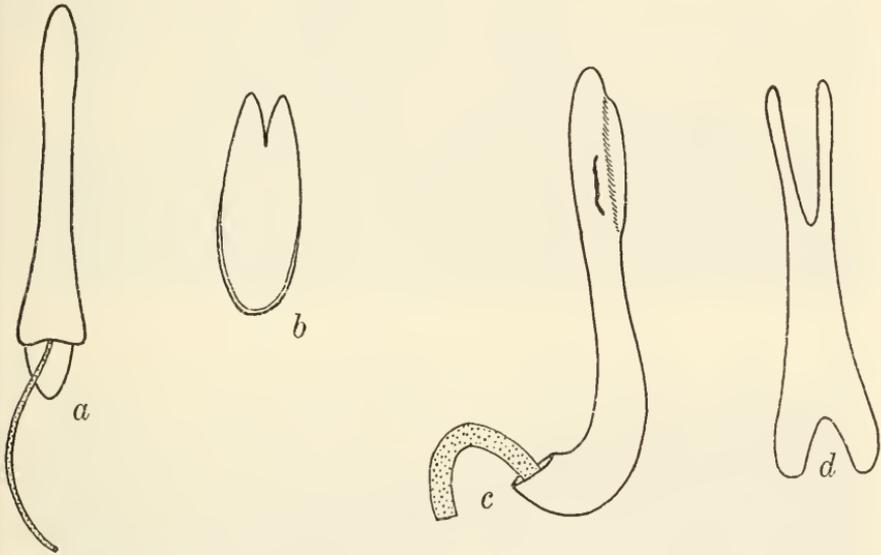


FIGURE 2.—*Vasaces elongatus* Arnett, male: *a*, ventral view of penis; *b*, paramere. *Oxycopis howdeni*, new species, male: *c*, lateral view of penis; *d*, ventral view of paramere.

Holotype: Male, Tornillo Flat, Big Bend National Park, Tex., 3200 ft., May 12, 1959 (collected by Edward Becker and Henry F Howden). Deposited in the U. S. National Museum (type no. 67447).

Description: Head fuscus with mandibles, labrum, and posterior portion of vertex pale; pubescence fine, recumbent, sparse, yellow; punctation coarse, distance between punctures less than the diameter of the puncture, interspaces microreticulate. Antennae with apical segments approximately four times as long as broad, second segment one-half the length of the third. Eyes large, emarginate near insertion of antennae, well separated anteriorly, interocular distance to head length (measured from line across head behind eyes to apex of labrum) ratio 1.9473. Mandibles moderate in length, apices bifid. Maxillary palpi with apical segment cultriform.

Thorax pale fuscus; pronotum with somewhat darker lateral areas which occupy the space from the anterior margin nearly to the base;

pronotal surface with a shallow anterolateral depression on each side and a vague central-posterior depression; pubescence fine, sparse, recumbent, retrose posteriorly, yellow. Pronotal shape obovate with sides convergent posteriorly, somewhat constricted posterior to the center; punctuation moderate, space between punctures slightly less than the diameter of the puncture; interspaces microreticulate. Scutellum pale, concolorous with pronotum. Legs fuscus, femora pale except for "knee" area; claws simple.

Elytra fuscus; pubescence fine, recumbent, moderate in density, yellow; elytral costae evident, sutural and lateral area concolorous with elytral disk; surface rugose-punctate, interspaces microreticulate; elytra somewhat flattened, apices rounded, sutural angles obtuse.

Abdomen with sterna fuscus.

Male genitalia agree with those of the genus; penis broadly expanded apically with a subapical dorsal enlargement in the area of the ejaculatory duct (fig. 2c); internal sac with evident spicules. Paramere (fig. 2d) with apical bifurcation greater than $\frac{1}{3}$ the length. (The figures are not of the holotype, but from a specimen from Del Rio, Texas).

Body shape moderately elongate; length 9.2 mm.; head length/width ratio .8837; pronotum length/width ratio 1.0681; elytral length/width ratio 3.0476.

Allotype: Female, same data as holotype. There is no significant sexual dimorphism. Body measurements: length 10.8 mm.; head length/width ratio .8958; head length/interocular distance ratio 1.9090; pronotum length/width ratio 1.1041; elytra length/width ratio 3.000.

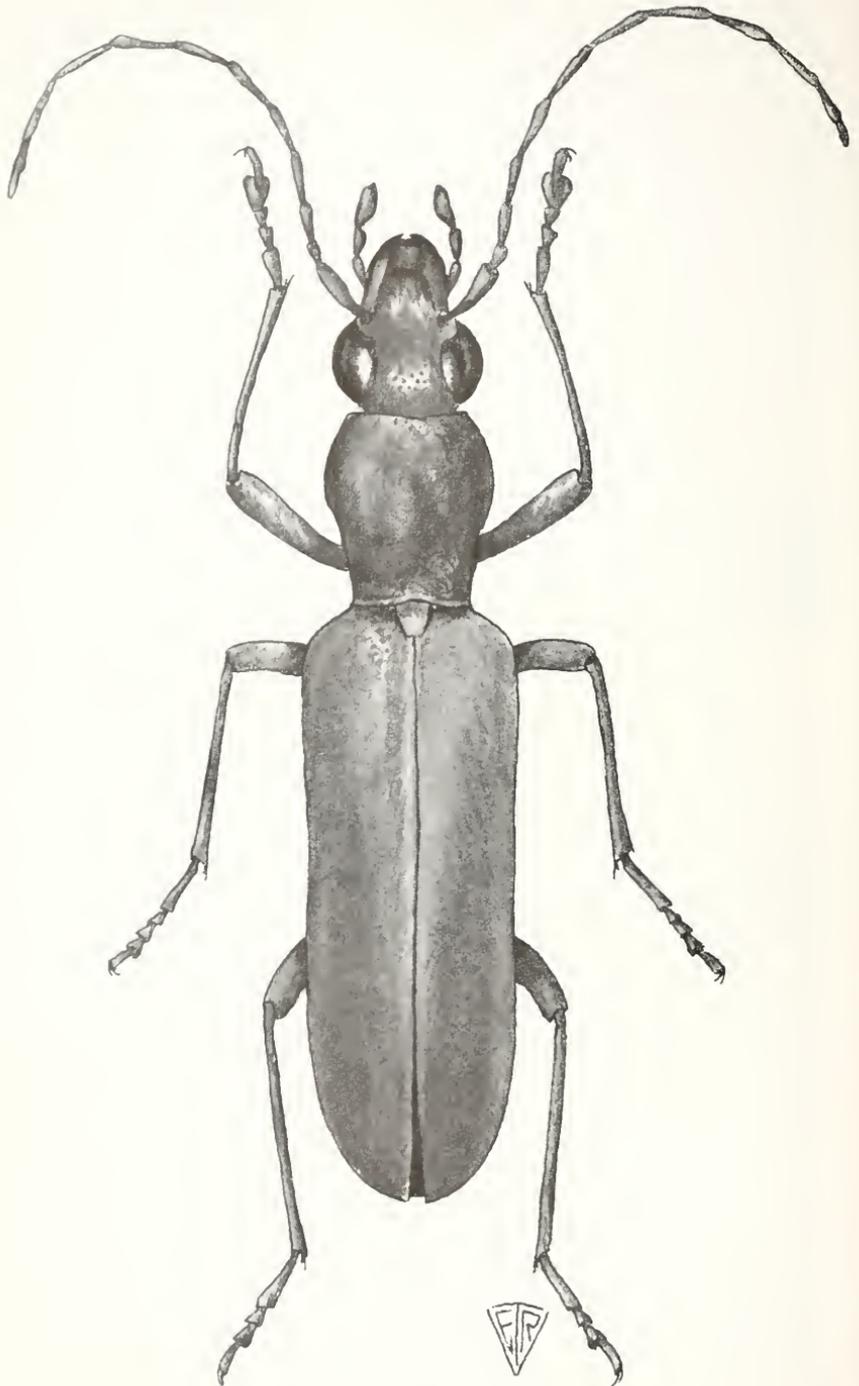
Paratypes: Texas: Del Rio, Apr. 25-26, 1959, 2; Big Bend National Park, Boquillas, May 17, 1959, 2; same data as holotype, 5; same data as holotype except May 20, 1959, 1; Oak Spring, 4000 ft. May 8, 1959, 2; May 22, 1959, 3; Santa Elena, 3200 ft., May 4, 1959, 2; Maverick, 2700 ft., May 4, 1959, 2; Chisos Basin (pl. 4 top), May 19, 1959, 1; May 22, 1959, 1; May 27, 1959, 1 (all collected by Edward Becker and Henry F. Howden.)

Additional specimens examined: In addition to the type series, the following specimens are not made a part of the type series because of the scarcity of specimens and the lack of data to show that they are a part of the type population: Mexico: Tlahualilo, Durango, July 28, 1935, 1 (Texas A. and M. Univ. collection). Texas: Brownsville, 2; Chisos Mts., May 10, 1949, 1 (U.S. Nat. Mus. collection); Starr Co., Mar. 20, 1952, 1; Chisos Mts., May 27, 1959, 1 (Ohio State Univ. collection).

Variation: The color pattern of these beetles is rather distinctive. They resemble somewhat certain populations of *Xanthochroina bicolor*



(Top) Chicos Mts., Casa Grande Peak, type locality of *Vasaces elongatus* Arnett; (bottom) *Euphorbia antisyphilita*, candelilla, on which occurs *Oxalis pallida* (LeConte).



Oxacis subfusca Horn, female.



Oxacis trimaculata Champion, male.



(Top) Desert land near Maverick, type locality of *Oxycopsis howdeni* Arnett; (bottom) Santa Elena Canyon, showing the Rio Grande River, with Mexico on the left and United States on the right. The dense vegetation along the river's edge provides the breeding area for *Oxycopsis trimaculata* Champion, a species usually found in more humid areas.

(LeConte). The darker central spot on the head is confined in most specimens to the interocular area, only rarely extending over a larger area. The paler prothorax varies considerably from specimen to specimen. In a few the prothorax is as dark as the elytra. One of the ways to distinguish this species from *Oxycopsis mariae* (Arnett)

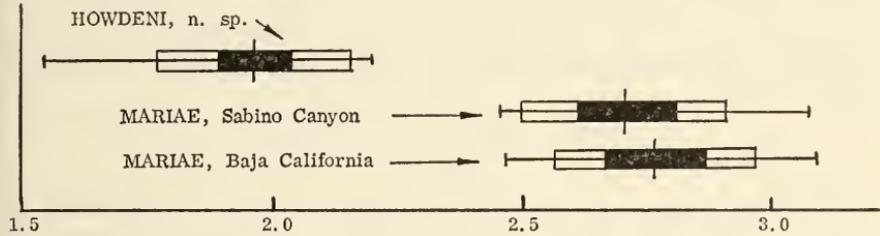


FIGURE 3.—Interocular distance ratio of *Oxycopsis howdeni*, new species, and two populations of *O. mariae* Arnett (horizontal line=range of variation; vertical line=mean; black part of bar=two standard errors of standard deviation on either side of mean; one-half of each black bar plus white bar at either end=one standard deviation on either side of mean).

is by the wider interocular distance. The variation of this distance was studied statistically and is found to be significant. The statistical differences between *O. howdeni* and *O. mariae*, so far as this character is concerned, are compared in figure 3.

***Oxaxis pallida* (LeConte)**

Some of the 26 specimens of this species were taken on candelilla (*Euphorbia antisiphilitica*) (pl. 1, bottom) and others at light at the Boquillas area, May 17–23. This species is very common throughout the arid regions of the United States. It also occurs in Sonora and probably in Chihuahua.

***Oxaxis subfusca* Horn**

PLATE 2

Only one specimen of this species was collected. It was taken at Boquillas, May 23. The species is usually abundant on prickly poppy blossoms in other areas during late July and August, so perhaps more may be found later in the season.

***Oxaxis angustata* Champion**

Although this species was described from four specimens taken at Tehuacan, Puebla, Mexico, I have seen it from Chihuahua and Tamaulipas. It agrees very well with the description and type of the species. Eighty-five specimens were taken as follows: Hot Springs, 1900 ft., May 1–29; Boquillas, 1850 ft., May 13; Oak Spring, 3000 ft., May 24; Panther Junction, 4000 ft., May 28; and Tornillo Flat, 3200 ft., May 12.

Oxaxis barbara Arnett

The eighteen specimens of this species collected at Tornillo Flat, 3200 ft., May 5-12, do not agree very well with the type specimens of the species. They do agree with this species better than with any other. I prefer to report this collection of specimens under this name pending further study of the species instead of describing this series as a new species. These specimens differ from the type series by the paler markings and their smaller size. The type locality is Lucedale, Miss.

Oxaxis trimaculata Champion

PLATE 3

This widespread and extremely variable species was collected at light and on lechuguilla (*Agave lechuguilla*) at Boquillas, May 13-28, and at light May 14 at Santa Elena Canyon (pl. 4 bottom).

Oxaxis cana (LeConte)

Twenty-five specimens of this species were collected as follows: Chisos Basin, May 3-24; Tornillo Flat, May 12; Panther Junction, May 24; Boquillas, May 23; and Santa Elena, May 14.

Summary: A new species is described, *Oxycopis howdeni*, and eight other species are reported from Big Bend National Park. Two of the species, *Sparedrus depressus* and *Oxaxis angustata* are recorded in the United States for the first time. These species may be identified by the descriptions and keys in Champion (1889, 1890) and Arnett (1951, 1953, 1961, 1963).

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