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A STUDY OF THE ZYGOPINAE (COLEOPTERA:
CURCULIONIDAE) OF AMERICA NORTH OF MEXICO, I.¹

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While engaged in a study of the genus *Cylindrocopturus* Heller of the subfamily Zygopinae, it became increasingly obvious that there was a need for a study of the whole of the Zygopinae. This is the first of three papers on this group.

The author is indebted to numerous individuals for aid on the papers, especially: Drs. Fred Truxal, Charles Hogue, and Mr. Lloyd Martin of the Los Angeles County Museum for making material and library facilities available; Miss Rose E. Warner (now Mrs. T. J. Spilman) for aid in studying material at the United States National Museum (USNM); Dr. Barry D. Valentine for information on the type material at the Museum of Comparative Zoology (MCZ), Harvard; and Dr. William D. Stockton for aid with the manuscript. Acknowledgment is made to National Institute of Health, research grant AI-3407 (Richard B. Loomis, Principal Investigator), for aid in studying material first hand in northwestern Mexico. In addition to the above abbreviations the following have been used: ELS=E.L. Sleeper Collector, (ELS)=E.L. Sleeper Collection, FDPI=Entomological Collection Florida Department of Plant Industry, and OSU=Ohio State University.

KEY TO THE GENERA OF ZYGOPINAE IN THE UNITED STATES

1. Pygidium exposed; (Fig. 1) 5. *Peltophorus* Schoenherr
- 1a. Pygidium completely concealed; (Fig. 7) 2
2. Abdomen horizontal throughout (Fig. 4); eyes approximate on the front; humeri not obliquely truncate 3
- 2a. Abdomen ascending rapidly distally (Fig. 6); eyes and humeri variable. 4
3. Femora minutely toothed; antennae stout with well developed club; body densely scaly; elytral striae coarse 3. *Acoptus* LeConte
- 3a. Femora not toothed; antennae very slender, the club small; body subglabrous above; elytral striae fine 4. *Psomus* Casey

¹Contribution #23 to the knowledge of the Curculionoidea.

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4. Pectoral channel extending over the mesosternum, occasionally ending in the metasternum, channel clearly limited laterally by a raised ridge or carina (Fig. 10) 5
- 4a. Mesosternum not excavated, apex of rostrum free (Fig. 3) 7
5. Femora minutely or moderately toothed 1. *Lechriops* Schoenherr
- 5a. Femora unarmed 6
6. Mesosternum and anterior margin of metasternum deeply impressed or excavated by pectoral channel (Fig. 10) 2. *Eulechriops* Faust
- 6a. Mesosternum with a pectoral channel indicated only by a feeble concavity and prominent lateral carinae, metasternum not impressed, the latter inclined in front 7. *Cylindricopturinus*, new genus
7. First two segments of funicle little different in length; second never more than one and one-half times as long as first 8
- 7a. Second segment of funicle very long, more than twice as long as the first 8. *Copturus* Schoenherr
8. Mesosternum flat, slanting, non-carinate laterally 6. *Cylindrocopturus* Heller
- 8a. Mesosternum very feebly concave, carinate laterally between meso- and metacoxal cavities 7. *Cylindrocopturinus*, new genus

1. *Lechriops* Schoenherr

Lechriops Schoenherr 1826, p. 306. Type species *Rhynchaenus sciurus* Fabricius.

Piazurus LeConte 1876, p. 259. (Not Schoenherr, 1826)

Gelus Casey 1897, p. 667. Type species *Cryptorhynchus oculatus* (Say)

This genus occurs in North and Central America and northern South America as well as on some of the islands of the West Indies.

KEY TO THE SPECIES OF *Lechriops* OF AMERICA NORTH OF MEXICO

1. Prothorax about twice as wide as long; common sutural spot of elytra not conspicuous; elytra much wider than prothorax; total length 1.7 mm. *subfasciata* (LeConte)
- 1a. Prothorax normally slightly wider than long (varying from 5:5 to 5:8) never more than one and one-half times wider than long; common sutural light spot of elytra very conspicuous 2
2. Elytra but little wider than prothorax; outline more elongate, slender (Fig. 5); elytra noticeably longer than wide (measurements of length down sutural line); total length 2.0-3.5 mm.; width 1.2-1.6 mm. *californica* (LeConte)
- 2a. Elytra much wider than prothorax; outline more robust ((Fig. 7); elytra but little longer than wide 3
3. Smaller, 3.0-3.2 mm.; elytral suture with a prominent light spot near middle; pronotum with a conspicuous pattern of pale brown scales; east of the continental divide south into Mexico and Central America *oculata* (Say)

- 3a. Larger, 3.5-4.5 mm.; elytral suture with a prominent light spot and sutural line from declivity to apex; pronotum without pattern of lighter scales at middle; (Fig. 7); Arizona *grisea*, new species

Lechriops subfasciata (LeConte)

Piazurus subfasciatus LeConte 1876, p. 260. Type locality: "New York, Mr. Guex," type in MCZ.

Gelus subfasciatus (LeConte), Casey 1897, p. 668.

Lechriops subfasciata (LeConte), Blackwelder 1948, p. 47.

This species is still known only from the unique type, which may represent an introduced species from an undetermined Latin American Country.

Lechriops californica (LeConte)

Figure 5

Piazurus californicus LeConte 1876, p. 260. Type locality: "Calveras, California," type in MCZ.

Gelus californicus (LeConte), Casey 1897, p. 668.

Lechriops californica (LeConte), Blackwelder 1948, p. 47.

Distribution. Rather abundant in western United States and northern Mexico. Specimens are at hand or have been seen from southern Oregon, Utah, Nevada, California, Arizona, New Mexico, Baja California Norte, Sonora, and Chihuahua. It is limited to areas of pine growth, being, however, infrequently encountered on pinyon pine (*Pinus cembroides* var.). It is very abundant on *P. ponderosa* and *P. jeffreyi* throughout all of the range of this weevil. The larvae and pupae have been encountered beneath or in the bark of *P. jeffreyi* in southern California and Baja California Norte.

Lechriops oculata (Say)

Cryptorhynchus Say 1824, p. 308. Type locality: "Inhabits Missouri," here restricted to St. Louis, Missouri, type lost.

Lechriops oculatus (Say), Heller 1895, p. 14.

Gelus oculatus (Say), Casey 1897, p. 668.

Lechriops oculata (Say), Blackwelder, 1947, p. 879.

Distribution. Generally distributed throughout North America east of the Rocky Mountains and the Sierra Madre Oriental. Its range in Canada is undetermined, but examples are at hand from Quebec, On-

tario and Manitoba. Numerous examples have been seen from Mexico and Guatemala.

This species has been taken on *Quercus* spp., *Hicoria* sp., *Sassafras sassafras* L., *Fraxinus* spp., *Fagus grandifolia* Ehrh., *Viburnum* spp., and *Crataegus* spp.

***Lechriops grisea*, new species**

Figures 6 and 7

Holotype. USA., Arizona, Cochise Co., Chiricahua Mtns., Rucker Cyn., VIII-10-59, 7000', type no. 74, (ELS).

Male. Length 3.3 mm., width 2.0 mm.; elongate-oval; black with antennae and tarsi reddish brown; head and basal third of rostrum sparsely clothed with oval, black and white scales, vertex of head with scattered seta-like scales in punctures, prothorax with overlapping oval, yellowish-white scales on sides, a few black and brownish seta-like scales on disc, elytra moderately clothed with black, brown, white and yellowish white scales, the latter in patches at base of elytra and on apical half of sutural intervals.

Rostrum nearly three times as long as wide at base (11.5:4), nearly six times as long as width at antennal insertion (11.5:2), as long as the prothorax (11.5:11), sides convergent from base to antennal insertion, parallel sided thence to apex, in lateral outline strongly arcuate; coarsely, rugosely punctured and with a prominent median carina in basal third, apical two-thirds smooth, sparsely, very finely punctured; mandibles feebly bidentate. Antennal insertion at basal third of rostrum, scape shorter than the first two segments combined, not attaining base of rostrum; funicle with first two segments longer than remainder combined (ratio 1.3:2.2:.8:.6:.5:.5:.6), sparsely clothed with fine setae. Club oval-acuminate, basal segment constituting nearly half club length (1:.5:.2:.4), sparsely clothed with fine setae. Head continuous with rostrum, depressed but not foveate between the eyes, dorsum closely punctured with only the vertex without punctures, vertex strongly alutaceous, front narrow, the eyes separated by only one-third width of rostrum at antennal insertion, eyes finely granulate.

Prothorax wider than long (11:15.3), widest just before base, sides convergent from base to apex, apex tubular but not constricted, ocular lobes absent, base bisinuate, apex emarginate; disc closely, coarsely punctured, each with a subclavate scale, punctures of sides coarse, but obscured by vestiture, each with a large oval overlapping scale, disc

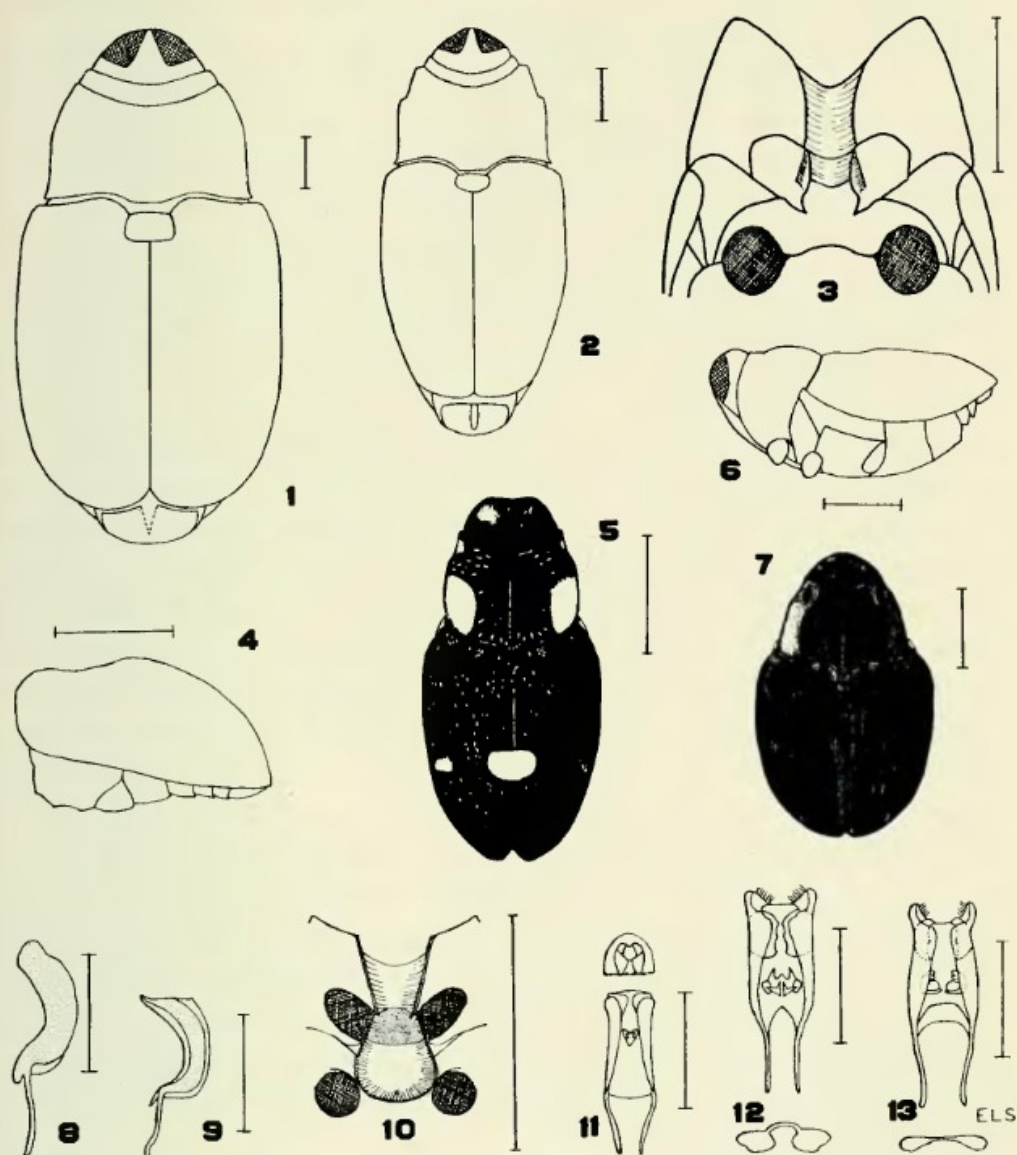


Figure 1. Outline of *Peltophorus polymitus seminiveus* (LeConte). Figure 2. Outline of *Peltophorus adustus* (Fall), male. Figure 3. Outline of pro- and mesosternum of *Copturus floridanus* (Fall). Figure 4. Lateral outline of elytra and sternites of *Acoptus suturalis* LeConte. Figure 5. *Lechriops californica* (LeConte). Figure 6. Lateral outline of *Lechriops grisea*, new species. Figure 7. *Lechriops grisea*, new species, holotype. Figure 8. Lateral outline of aedeagus of *Peltophorus polymitus suffusus* (Casey). Figure 9. Lateral outline of aedeagus of *Peltophorus adustus* (Fall). Figure 10. Outline of pro- and mesosternum of *Eulechriops minutus* (J. E. LeConte). Figure 11. Dorsal outline of aedeagus of *Peltophorus adustus* (Fall). Figure 12. Dorsal outline of aedeagus of *Peltophorus polymitus seminiveus* (LeConte) with outline of dorsal part of tegmen. Figure 13. Dorsal outline of aedeagus of *Peltophorus polymitus suffusus* (Casey) with outline of dorsal part of tegmen. Line = 1 mm.

carinate from base to apical fourth. Scutellum prominent, small, rounded, punctured and alutaceous.

Elytra only slightly longer than wide (12.5:11.1); humeri rounded off not prominent, but slightly wider than base of prothorax; sides strongly arcuate from base to apex, apices feebly emarginate; disc feebly convex, feebly depressed behind the scutellum; striae narrow, deep, with rectangular punctures, each separated by a narrow transverse carina, each puncture with a recurved subclavate seta, striae seven and eight not attaining base; intervals flat with close, deep, confusedly placed punctures each with a broad clavate scale.

Sternal side densely clothed with oval, white, rarely overlapping scales, which are for the most part appressed, each originating in a coarse puncture, area between punctures strongly alutaceous on abdominal sternites 3-5, on remainder of venter feebly alutaceous. Prosternum and mesosternum as in other species, metasternum concave between mesocoxae; intercoxal process very broad and truncate; abdominal sternites 10.5:4:1.5:2:3, first very long and with an oval concavity longitudinally at middle, second abruptly bent upward along posterior margin, apex of fifth truncate. Legs clothed with white appressed oval scales. Front coxae with a backward projecting tooth. Femora linear, compressed, all prominently unguiculate externally, the posterior pair mucronate internally. Tarsi elongate, as long as the tibiae, first two segments slender, clothed with prominent white seta-like scales, third broadly bilobed, naked, glabrous above, densely pilose beneath, fourth slender with inconspicuous reddish brown setae, ratio lengths of segments of hind tarsi 4.5:1.6:1.6:2.5. Claws slender.

Allotype. Female, 4.25 mm., width 2.4 mm., differing from the male only in the less concave first abdominal sternite and having the fifth sternite rounded apically.

Other localities. USA, Arizona, Cochise Co., Huachuca Mtns., Parker Cyn., 6500', VIII-12-59, ELS, (ELS).

Type material. Holotype, allotype, 1 ♀ paratype all with the same data, 2 ♂ ♂ paratypes, from Parker Cyn. The ♀ paratype from the type locality deposited in the Entomological Collections, Los Angeles County Museum, remaining type material in (ELS).

Biology. All of the examples from Parker Cyn. were taken while beating oak, where they were observed feeding on leaf petioles. One example from the type locality was also observed on oak.

This species may be separated readily from the other species known from the United States by its larger size and the prominent sutural spot and line, the latter being very conspicuous. It does not compare favor-

ably with any of the material described in the *Biologia Centrali-Americana* nor any known species from northern Mexico.

2. *Eulechriops* Faust

Figure 10

Eulechriops Faust 1896, p. 91. Type species *Eulechriops erythroleucus* Faust.

Zygomicrus Casey 1897, p. 667. Type species *Eccroptus minutus* J. E. LeConte.

This genus is distributed from northeastern United States to northern South America. Three species were previously listed in the literature from America north of Mexico. One of these species is here referred to a new genus, leaving *E. minutus* (J. E. LeConte), from the United States and *E. sobrinus* (Horn) from the Cape Region of Baja California Sur. The undescribed forms will be the subject of a future paper now in preparation.

All of the United States forms are associated with various species of *Quercus*.

3. *Acoptus* LeConte

Figure 7

Acoptus LeConte 1876, p. 264. Type species *Acoptus suturalis* LeConte, the type in MCZ.

Homogaster Provancher 1877, p. 530. Type species *Homogaster quebecensis* Provancher, location of type unknown, a synonym of *A. suturalis*, according to Blackwelder and Blackwelder, 1948: 47.

A monotypic genus with the single species, described from "New York," distributed in the United States and Canada east of the Rocky Mountains, and in extreme northeastern Mexico.

In eastern United States this has been taken from *Quercus* spp., *Cercis canadensis* L., *Hicoria* sp., and *Platanus occidentalis* L.

4. *Psomus* Casey

Psomus Casey 1892, p. 458. Type species *Orchestes armatus* Dietz, type in MCZ; *Psomus politus* Casey, type in USNM, a synonym of *O. armatus*; Fall 1913, p. 64.

A single species occurs in the United States and Canada east of the

Rocky Mountains, and three species are known from Central America.

P. armatus (Dietz) is frequently associated with green ash (*Fraxinus lanceolata* Borck. and *F. americanus* L.) It is uncommon in collections. It is most frequently collected in June.

5. *Peltophorus* Schoenherr

Peltophorus Schoenherr 1845, p. 451. Type species *Peltophorus polymitus* Boheman.

This genus is restricted to arid areas of the United States and Mexico. The type locality for *P. polymitus polymitus* Boheman is "Mexico, Villa Alto in Oaxaca." In the United States three kinds are known from western Texas, New Mexico and Arizona.

KEY TO THE KINDS OF *Peltophorus* OF AMERICA NORTH OF MEXICO

1. Prothorax with sides parallel in basal two-thirds to three-fourths (Fig. 2); abruptly subrectangular constricted in apical third; pronotum coarsely, cribrately punctured, their edges forming longitudinal ridges in some examples *adustus* (Fall)
- 1a. Prothorax with sides convergent from base to apex with a feeble apical constriction (Fig. 1); pronotum coarsely punctured, with a few punctures coalescent, their edges never forming prominent longitudinal ridges 2
2. Range, southwestern Texas; dorsum of body with black, white and brown scales; punctures of elytral striae large, encroaching upon intervals; fifth ventral abdominal sternite without a prominent spot of scales each side of middle; aedeagus as in Figs. 8 and 13 *polymitus suffusus* (Casey)
- 2a. Range, southern Arizona and southwestern New Mexico; dorsum of body with black and white scales; punctures of elytral striae no wider than striae; fifth abdominal sternite with a prominent spot of black scales each side of middle; aedeagus as in Fig. 12 *polymitus seminiveus* (LeConte)

Peltophorus adustus (Fall)

Figures 2, 9 and 11

Zygops adustus Fall 1906, p. 61. Type locality "Arizona," here restricted to Arizona, Pima Co., Santa Rita Mtns., Lower Madera Cyn., type in MCZ.

Distribution. Moderately abundant in the Santa Rita, Huachuca and Chiricahua Mtns., in southern Arizona, and at Rodeo, New Mexico. Nearly all examples examined were taken from *Agave palmeri* Englm.

Peltophorus polymitus suffusus (Casey)

Figures 8 and 13

Zygops suffusus Casey 1892, p. 459. Type locality "Texas (southwestern)" here restricted to Texas, Jeff Davis Co., Ft. Davis, type in the USNM.

Peltophorus polymitus suffusus (Casey), Blackwelder 1947, p. 881.

Distribution. Texas: Davis Mtns., VII-2-40, V-9-41, VII-17-46, VI-29-49, DJ & JN Knull, (OSU); Chisos Mtns., VII-17-46, DJ & JN Knull, (OSU); Val Verde Co., V-13-46, DJ & JN Knull, (OSU); Sanderson, VI-15-56, D. G. Genung, (ELS, FDPI).

Peltophorus polymitus seminiveus (LeConte)

Figures 1 and 12

Zygops seminiveus LeConte 1884, p. 31. Type locality "Arizona," here restricted to Arizona, Cochise Co., Ft. Huachuca, type in MCZ.

Peltophorus polymitus seminiveus (LeConte), Blackwelder, 1947, p. 881.

Distribution. Arizona: Many records from the Santa Rita, Huachuca, Chiricahua, Pinal, Santa Catalina, Dragoon and Patagonia Mtns., May through September. Common in several species of *Agave* including *A. palmeri*.

Cylindrocopturus Heller

Cylindrocopturus Heller 1895, p. 56. Type species *Zygops quercus* Say 1831, p. 20.

Paratimorus Heller 1895, p. 58. Type species *P. ganglbaueri* Heller.

Copturodes Casey 1897, p. 667. Type species, none designated, *Zygops quercus* Say, by present designation.

Gyrotus Casey 1897, p. 668. Type species *Gyrotus minutus* Casey, by monotypy, *new synonymy*.

The genus occurring throughout the United States and Canada (except for northwestern United States and Western Canada), southward to Argentina. Thirty species occur in Baja California and America north of Mexico. Forty-three species are known from the New World. The species of this genus will be treated in subsequent papers.

The designation of *Zygops quercus* Say as type species of *Copturodes* Casey was necessary in order to establish its synonymy with *Cylindrocopturus*. *Z. quercus* seemed the logical choice inasmuch as it is also

type species of *Cylindrocopturus* and it was *Z. quercus* and forms related to it that were treated in the 1897 paper, for the most part.

After a study of many examples of *G. munitus* and comparing this species with numerous examples of *Cylindrocopturus* from Mexico I have come to the conclusion that there is no characteristic that will set *Gyrotus* apart from *Cylindrocopturus*. The pronounced modification of the prothorax in the region of the postocular lobes used by Casey for a major characteristic is repeated in varying degrees in many species of *Cylindrocopturus* from Mexico. The other characteristics grade into or are shared in varying degrees with members of that genus found in the United States. As a result of the synonymy *G. munitus* Casey must now be known as *Cylindrocopturus munitus* (Casey), *new combination*.

7. *Cylindrocopturinus*, new genus

Type species Eulechriops pictus Schaeffer, here designated.

Rostrum as in *Lechriops*; first two segments of funicle subequal; eyes large, separated by less than one-fourth the width of the rostrum at the point of antennal insertion; prothorax moderately bisinuate at base, without indication of ocular lobes or modification thereof; scutellum conspicuous, round; elytra deeply and conspicuously striate, completely concealing pygidium from above; mesosternum feebly concave, metasternum feebly convex, not excavated, mesosternum carinate laterally between pro- and mesocoxae, apex of rostrum resting free; abdominal sternites ascending rapidly distally in lateral outline.

This genus is differentiated from the other North American forms by the characteristics pointed out in the key, particularly in having the non-excavate metasternum and the lateral elevations on the mesosternum which form a pectoral channel. *Lechriops* has the femora armed with a very small to moderately large tooth and the pectoral channel extending into the metasternum. *Eulechriops* has unarmed femora as in this genus but differs in the deep excavation of the metasternum. *Cylindrocopturus* has no indication of a pectoral channel on meso- or metasternum.

Cylindrocopturinus pictus (Schaeffer), new combination

Eulechriops pictus Schaeffer 1908, p. 219. Type locality "Huachuca Mtns., Arizona," type in the USNM; Sleeper 1954, p. 182.

A rather rare and without doubt the prettiest of our Zygotinae from the United States, known only from the mountains of south central

Arizona. Specimens have been examined from the Santa Rita, Huachuca, and Patagonia Mountains.

A single example was beaten from *Quercus arizonica* in Madera Canyon of the Santa Rita Mtns. in July.

8. *Copturus* Schoenherr

Copturus Schoenherr 1826, p. 302. Type species *Rhynchaenus lamella* Fabricius.

Coptorus Schoenherr 1826, p. 302. (Error in spelling.)

This genus is represented in America north of Mexico by a single species found only in southeastern United States. The genus ranges generally southward to Argentina. More than 156 species have been described.

Copturus floridanus (Fall), new combination

Figure 3

Piazurus floridanus Fall 1906, p. 61. Type locality "Florida (Key Largo and Elliots Key)," here restricted to Key Largo, type in MCZ.

This species is frequently encountered in Florida in Dade and Monroe Counties particularly on the Keys, and in Cuba.

In Florida it was taken by beating miscellaneous vegetation on Key Largo, and in Matheson Hammock. It has also been taken on *Swietenia mahogoni*.

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