the National Geographic Society. The Florida State Department of Agriculture and Consumer Services expedited work in Florida and furnished supplies vital to the whole project. Collecting in Bentsen Río Grande Valley State Park was done under permits from the Texas Parks and Wildlife Department (current permit number 1-82). Dr. Luís O. Tejada and Lic. Enrique Ruiz C. of the Instituto Tecnológico de Monterrey helped arrange my Mexican itineray. Dr. Lionel A. Stange of the Florida Department of Agriculture, Dr. James E. Gillaspy of Texas A & I University, and Mr. Bruce Miller of project City, California joined me for trips into México and contributed numerous *Athyreodon*. Mr. Donald Azuma of the Academy of Natural Sciences of Philadelphia and Mr. Terry Nuhn of the United States National Museum of Natural History processed loans of holotypes from their respective institutions.

Contribution No. 693, Bureau of Entomology, Division of Plant Industry, Florida Dep. of Agriculture and Consumer Services, Gainesville, FL 32602.

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BIOSYSTEMATICS OF *ZACREMNOPS CRESSONI* (CAMERON), A NEOTROPIC BRACONID NEWLY RECORDED FROM FLORIDA (HYMENOPTERA)

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Abstract

Zacremnops cressoni Cameron (Braconidae: Agathidinae), known previously from Central America, México, and Texas, is cited for the 1st time from Florida. *Zacremnops* closely resembles *Cremnops* Foerster but differs by its black gaster, white hind tarsus, ecarinate frontal impressions, nearly parallel-sided 1st gastric tergite, and more elongate hind femur. *Z. cressoni* is adult mostly during summer. It inhabits woodlands but

often occurs in more sunny and exposed situations than those preferred by most parasitic Hymenoptera.

Resumen

Zacremnops cressoni Cameron (Braconiidae: Agathidinae), especie conocida previamente de América Central, México, y Texas, es citada por primera vez para la Florida. *Zacremnops* se asemeja íntimamente a *Cremnops* Foerster, pero puede reconocerse por el gáster negro, el tarso posterior blanco, impresiones frontales escarinadas, por los bordes casi paralelos del primer terguite gástrico, y por el fémur posterior más alargado. *Z. cressoni* es principalmente adulto durante el verano. Vive en ambientes boscosos, pero prefiere micro-ambientes más soleados y abiertos que los frecuentados por muchos himenópteros parasíticos.

Introduction

Zacremnops Sharkey and Wharton (1985), previously assigned to *Megagathis* Kriechbaumer (1894), is a Neotropic genus. Only *Z. cressoni* (Cameron) is known from the United States, where it abounds in the Lower Río Grande Valley of Texas and recently has been collected in Dade County, Florida. Outside the United States, *Z. cressoni* ranges over "México, Central America, and the West Indies" (Marsh 1979: 198). Sharkey and Wharton (1985) have stressed that mainland and West Indian populations currently assigned to *Z. cressoni* may represent at least 2 species. This question can be resolved only when more specimens become available from Cuba and other poorly collected or poorly accessible Caribbean islands.

As represented by *Z. cressoni*, *Zacremnops* belongs to Bhat and Gupta's (1977:41-2) *Cremnops* group of the Agathidinae. It especially resembles *Cremnops* in having the face anthophilously prolonged and beak-like, the 2nd submarginal cell quadrate, the 2nd abscissa of the radius longer than the 1st, the 1st submarginal and 1st discoidal cells confluent, the trochantellus externo-ventrally ecarinate, the fore and mid tarsal claws cleft, the propodeal spiracle elongate, the propodeum areolated, the 1st and 2nd gastric tergites polished, and the ovipositor prominently exserted. *Z. cressoni* differs most saliently from the Nearctic *Cremnops* by its uniformly shining black gaster, white or cream hind tarsus, dorsally immargined frontal or supra-antennal impressions, very long and almost parallel-sided 1st gastric tergite, and more elongate, slender femur (5-7X as long as deep).

In this contribution, I offer a revised taxonomic diagnosis of *Z. cressoni*, document this species' occurrence in Florida, and discuss the ecology of its south Texas populations.

Zacremnops cressoni (Cameron)
(Fig. 1, 2)

Specimens Examined. 17 ♀ and 23 ♂: United States, Florida, Dade County, Matheson Hammock Park west of Old Cutler Road, ♀, 12-X-1981, C. Porter, L. Stange; Texas, Hidalgo County, Bentsen Río Grande Valley State Park, 1 ♀, 1-VI-1979, 1 ♂, 15-VI-1981, 1 ♂, 16-VI-1981, 1 ♂, 9-VII-1981, 1 ♀, 15-VII-1981, 1 ♀, 17-VII-1981, 1 ♀, 27-VII-1979, 1 ♀, 3-VIII-1979, 2 ♀, 2 ♂, 3-VIII-1981, 1 ♀, 4-VIII-1981, 2 ♂, 7-VIII-1981, 2 ♀, 1 ♂, 8-VIII-1981, 1 ♀, 9-VIII-1981, 1 ♂, 11-VIII-1981, 1 ♀, 2 ♂, 13-VIII-1981, 1 ♂, 23-VIII-1981, C. Porter; McAllen Botanical Gardens at McAllen, 4 ♂, 16-30-V-1974, 1 ♂, 21-V-1977, 1 ♂, 1-VI-1976, 1 ♂, 2-VI-1976, 1 ♂, 3-VI-1973, 1 ♀, 3-VII-

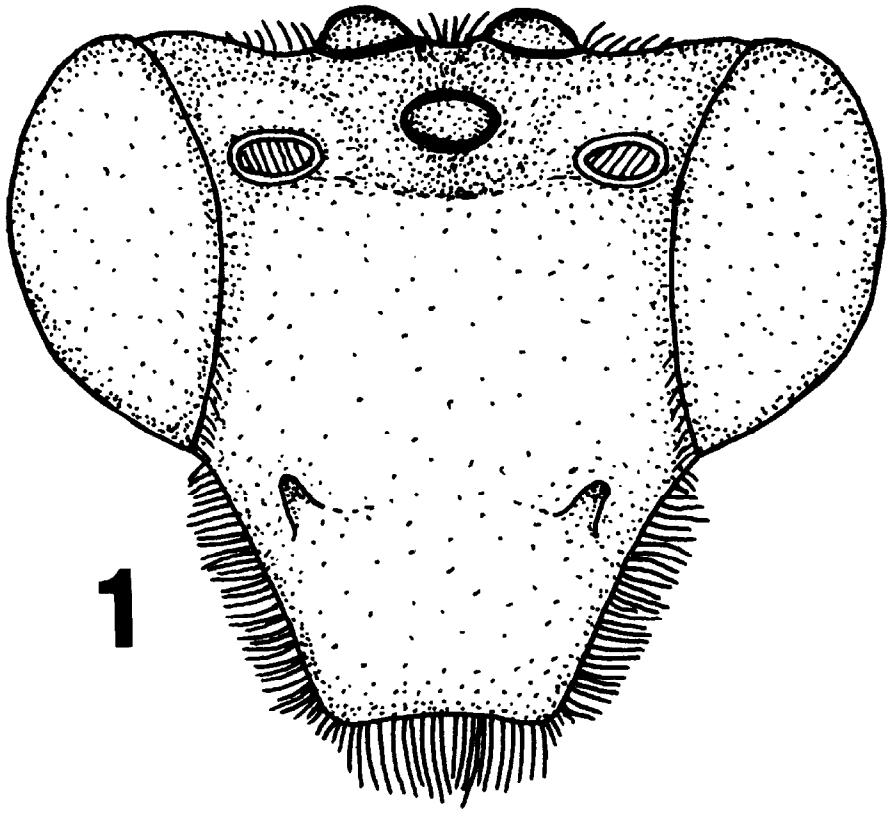

Fig. 1. *Zacremnops cressoni*, ♀. Head in front view.

1980, 1 ♀, 2-IX-1975, 1 ♂, 12-IX-1976, 1 ♀, 1 ♂, XI-1973, insect flight trap, 1 ♀, 29-XI-1981, C. Porter; MÉXICO, Tamaulipas, 80 km S. Ciudad Victoria, Ruta 85, near La Gloria, 1 ♂, 25-VI-1981, B. Miller, C. Porter, L. Stange.

TAXONOMY. The following combination of characters separates *Zacremnops cressoni* from the described North American species of *Cremnops*: Gaster shining black; hind tarsus white to cream; length 10-12 mm; frontal ledge between antennae practically unarmed or, at most, with a pair of low tubercles; frontal or supra-antennal impressions not bordered dorsally by a carina; dorso-posterior part of pronotum with a pair of broad and deep excavations that are separated on mid line by a low and sometimes obsolescent longitudinal ridge; epomia strong, reclivous; front margin of pronotum with a conspicuous triangular projection opposite lower end of epomia; mesopleural furrow (sternaulus) broad, complete between base of hind coxa and lower end of prepectal carina, curved dorsad anteriorly to summit of prepectal carina, grossly and extensively foveolate; 1st gastric tergite very long and slender, parallel-sided, about 1.4 as wide at apex as at base; hind femur 5.0-5.8 as long as deep; hind tibia with 2-3 robust spines at its lower distal end.

In *Cremnops*, the gaster may be yellow, orange-red, or red (sometimes partly stained with black); the hind tarsus is blackish, reddish, or yellowish; the length varies from 5.5-12.0 mm; the front has a pair of conspicuous, dorsally projecting tubercles or plates on the interantennal ledge; the frontal impressions are carinate dorsally between the eye and the lateral ocellus; the dorso-posterior pronotal pits often are separated by a broad median ridge or elevation; the epomia may be incomplete and vertical or arcuate; many species have no triangular projection on the anterio-lateral margin of the pro-

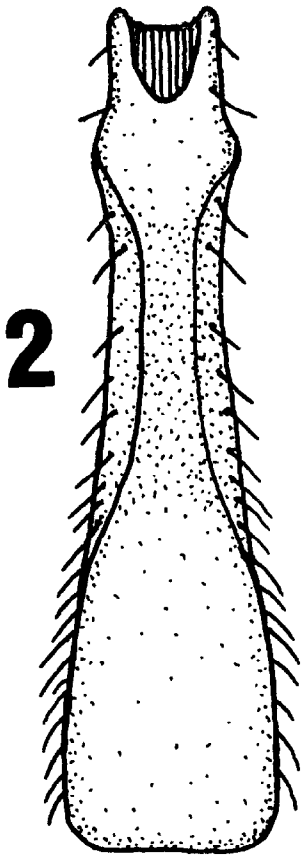

Fig. 2. *Zacremnops cressoni*, ♀. First gastric tergite in dorsal view.

notum; the mesopleural furrow rarely curves dorsad along the prepectal carina and often is less conspicuously foveolate than in *Zacremnops*; the 1st gastric tergite is comparatively stout and rather strongly expanded toward apex; the hind femur is comparatively robust (often 3.0-4.0) as long as deep); and the hind tibia often has 4 or more strong spines at its outer distal end.

HABITAT. My Florida specimen was netted at the edge of a subtropical hardwood hammock in weedy vegetation exposed to bright sun. In south Texas and México, *cressoni* occurs in diverse types of wet to semihumid subtropical woods and forests, often amid second growth vegetation.

Biogeographically, *Zacremnops cressoni* pertains to the Middle American Neotropic complex (Porter 1980:15-6). It thrives both in subtropical wet forests and thorn scrub associations. This euryhygric capability probably explains why the species has overspread most of northeast México and extends abundantly into Texas' Lower Río Grande Valley. *Z. cressoni* may have reached the West Indies from Florida by over-water dispersal or casual introduction by man. Its tolerance of relatively arid conditions suggests that it might also have moved east into Florida along the Gulf Arc during some Pleistocene interglacial xerothermic episode.

It darts in and out ot tall grass or circles around creeping and climbing vines. Texas plant records for *Z. cressoni* include 4 ♀ and 3 ♂ from *Ipomoea* (Convulvulaceae), 1 ♀ from *Cissus* (Vitaceae), 1 ♀ from *Clematis* (Ranunculaceae), and 1 ♀ from *Melothria* (Cucurbitaceae).

MONTHLY PHAENOLOGY. 5 ♂ in V, 1 ♀ and 5 ♂ in VI, 4 ♀ and 2 ♂ in VII, 8 ♀ and 9 ♂ in VIII, 1 ♀ and 1 ♂ in IX, 1 ♀ in X, and 2 ♀ and 1 ♂ in XI.

The monthly phaenology of *Z. cressoni* serves to emphasize it xerothermic proclivities. In south Texas, it appears during May, becomes most common in the hottest months of July and August (71% of all records), and disappears by the end of November. This phaenology agrees with that of many aculeate Hymenoptera, particularly Sphecidae (e.g., Porter 1978), but deviates strongly from the pattern fulfilled by most south Texas Parasitica. Local Ichneumonidae, for example, mainly peak during the coldest months of December to January (Porter 1977). These ichneumonids fly at temperatures of 16° to 30°C (versus 26° to 37°C for *Zacremnops*).

TEMPERATURE AND DIEL PERIODICITY. This braconid flies on hot, sunny days. It is most active at shade temperatures between 26° and 37°C.

I recorded hourly occurrence for 23 *Z. cressoni* taken in Hidalgo County, Texas during June 1981, July 1980 and 1981, August 1981, and the last week of November 1981. All were found between 0900 and 1400 CST, with 2 specimens collected from 0900 to 1000, 5 from 1000 to 1100, 10 from 1100 to 1200, 3 from 1200 to 1300, and 3 from 1300 to 1400.

The diel periodicity of this braconid perhaps constitutes an adaptation for avoiding extreme heat. It becomes active between 0900 and 1400 CST, with most records concentrated between 1000 and 1200 (65% of hourly observations). Other south Texas summer Hymenoptera (especially some Vespidae, Eumenidae, Sphecidae, and Apoidea) remain at least marginally active during the most torrid afternoon period (1400-1600), when shade temperatures often approach 40°C.

COLLECTIONS

This study is based on collections made by the author. Material covered in this study has been deposited in the Florida State Collection of Arthropods (Division of Plant Industry, P. O. Box 1269, Gainesville, FL 32602) and in the author's private collection (now housed at Gainesville with the Florida State Collection).

ACKNOWLEDGMENTS

Dr. Howard V. Weems, Jr., Dr. Lionel A. Stange, and Mr. Harold A. Denmark of the Florida Department of Agriculture made possible my south Florida fieldwork done in October 1981. Studies in south Texas were supported during 1973-75, in 1979, and in 1981 by grants from the Committee for Research and Exploration of the National Geographic Society, and from 1976-77 by United States National Science Foundation Grant DEB-75-22426. Collecting in the Bentsen Río Grande Valley State Park was done under permits issued by the Texas Parks and Wildlife Department (current permit number 1-82).

Contribution No. 694, Bureau of Entomology, Division of Plant Industry, Florida Dep. of Agriculture and Consumer Services, Gainesville, FL 32602.

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NEW RECORDS FOR *XIPHOSOMELLA* (HYMENOPTERA: ICHNEUMONIDAE) IN THE SOUTHERN UNITED STATES, WITH DESCRIPTION OF A NEW SPECIES FROM FLORIDA

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ABSTRACT

Xiphosomella florens n. sp., known only from Fleming Key in Florida, differs from other Nearctic congeners by the following combination of characters: occipital carina complete dorsally, mesoscutum polished, notauli strong, stigma broad, areolet present, ventral tooth of hind femur small, and costula inserted near middle of areola. *Xiphosomella dubia* (Brues) is recorded for the 1st time from south Texas.

RESUMEN

Xiphosomella florens n. sp. conocida unicamente de Cayo Fleming en la Florida, difiere de las otras especies neárticas congenéricas por la siguiente combinación de caracteres: parte dorsal de la carena occipital completa, mesoescudo reluciente, notauli fuerte, estigma ancha, segunda celda cubital presente, fémur posterior con un pequeño diente ventral, y cóstula insertada cerca de la mitad del aréola. *Xiphosomella dubia* (Brues) es citada por primera vez del sur de Texas.

Xiphosomella Szépligeti is a genus of cremastine Ichneumonidae that includes 4 species in the eastern United States and many more in the Neotropics. Cushman (1924:14) described *X. stenomae* from Panamá as a parasite of the gelechioid moth,

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