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A remarkable new species of *Zethus* Fabricius (Hymenoptera, Vespidae, Eumeninae) from Costa Rica

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Abstract. *Zethus stangei* Porter, **new species,** is described from Costa Rica. It forms a species group of its own, unique in its grotesquely enlarged male mandibles and reduced clypeus, single mid tibial spur, and in having a medio-apical bulge on the second sternite. It was previously identified as *Z. magretti* Zavattari but reexamination of the type of this species shows that it actually belongs to the coeruleopennis species group.

Resumen. Se describe a *Zethus stangei* Porter, **especie nueva,** de Costa Rica, cuyas características más notables la colocan en su propio grupo, siendo ellas las grandes y abultadas mandíbulas y el clípeo achicado del macho, la tibia intermedia con un solo espolón apical, y el segundo esternito con un lóbulo medio-apical. Al principio se le consideraba como perteneciente a *Zethus magretti* Zavattari pero estudios más recientes del tipo de esta especie demuestran que es un miembro del grupo coeruleopennis.

Introduction

Zethus Fabricius is a large genus of solitary or subsocial caterpillar-hunting eumenid wasps. It has more than 200 species in the New World of which most are in the mainland tropics from Mexico to Argentina with 5 overlapping into the southwestern United States (Texas to Arizona), 9 that are restricted to the West Indies, 1 in southern Florida, and 1 which is endemic to the eastern United States from New England south to Florida and west to Texas. Bohart and Stange (1965) produced a monumental treatise on the New World *Zethus* which greatly encouraged further studies of these beautiful wasps. The author's interest in *Zethus* resulted from collecting done in the Lower Río Grande Valley of south Texas between 1974-1985 which yielded 3 neotropical species previously unknown from the United States (Porter 1975, 1978), as well as from study of material which continues to accumulate from yearly field trips to Argentina, Chile, Peru, Bolivia, Mexico and other parts of Latin America.

During study of material in the Florida State Collection of Arthropods (FSCA) I found a male and a female *Zethus* from Costa Rica which I tentatively identified as *Zethus* (*Z.*) *magretti* Zavatarri (1912). In 1964 when Lionel Stange first examined the female holotype of *Z. magretti* at Turin, he had with him no material for comparison, but his notes indicated that it corresponded to a male and a female which Bohart and Stange had at hand from Costa Rica and Panamá. In 1999 Stange had a second opportunity to study the type of *Z. magretti* and found that it does not agree with Bohart and Stange's (1965) concept of this species. Most importantly, *Z. magretti* has 2 mid tibial spurs, whereas Bohart and Stange's specimens have only 1 spur. This is difficult to see because one of the spurs on *each* mid tibia of the type of *Z. magretti* is broken so that only the basal stump of the second spur is visible. Moreover, *Z. magretti* does not have a strong, flattened, medio-apical bulge on the second sternite. These facts show that *Z. magretti* belongs to the rather primitive, widely distributed neotropical coeruleopennis group and that the specimens originally assigned by us to *Z. magretti* constitute an undescribed species with several characters, especially the grotesquely enlarged male mandibles, single mid tibial spur, and second sternal bulge, that justify its inclusion in a species group of its own.

It is a pleasure to describe this species in honor of my friend, Dr. Lionel A. Stange, who has contributed so vastly to our understanding of such Hymenoptera as *Zethus* and the anthidiine bees, in addition to his monographs and catalog of the myrmeleontid Neuroptera.

Figure 1. *Zethus stangei*, male holotype, lateral view of entire insect showing habitus. Note that the stem is very short.

Zethus Stangei Group

Zethus (*Zethus*) *stangei* Porter, new species
(Fig. 1-4)

Diagnosis. Middle tibia with 1 apical spur. Sternite II with a strong, flattened medio-apical bulge (Fig. 2). Stem of tergite II much shorter than stem of tergite I, very broad, 3.5 as wide as long. Male clypeus very short (Fig. 3). Male mandibles grossly enlarged (Fig. 3). Tergite II sharply raised above its distal lamella, the lamella itself more than 2 mid ocellus diameters in length. Tegula strongly narrowed and prolonged posteriorly. The medio-apical bulge on sternite II and the peculiarly modified male clypeus and mandibles are unique in the genus *Zethus*. Other characters are summarized in the following description.

Description: Male Holotype. Length to apex of tergite II from 17.5-20 mm. Black with yellowish orange as follows: mandible, antenna, ocular spot, anterior and mesal margin of pronotum, tegula, parategula, wings slightly, and legs in part. Notum and mesopleuron with dense pale setae. Interantennal area low and mostly smooth. Notauli complete, somewhat weakened anteriorly toward base of scutum. Scutum coarsely and densely punctate. Apical lamella of propodeum much abbreviated, not differentiated from rest of submarginal carina. Hind face of propodeum mat, minutely striato-granulate, with a well defined median channel, its lateral carina weakly and irregularly defined, not percurrent. Petiole dorsally with scattered small and large punctures and obscure shagreening. Mandible, clypeus and antenna as in Fig.3. Pronotum rounded between humerus and tegula; subhumeral area broad; pronotal lamella higher than one mid ocellus diameter. Tegula with outer margin evenly curved, except narrowed and produced apicad into a large, elongately triangular process which extends well beyond apex of parategula. Tergite II with numerous strong, mostly sparse punctures, and fine shagreening but becoming smooth and polished toward apex.

Female Paratype. Differs from male as follows. Scutum partly striato-punctate. Clypeus polished, sparsely punctate, with weak but rather broad well spaced striae which radiate from base a variable distance toward apex, its apical margin nearly truncate. Tergite II similar to male but more extensively smooth and polished, finely shagreened only on basal third. Front basitarsus with dense and short but very strong reddish peglike spines.

Type material. Holotype male, COSTA RICA, Alaju. Prov., Est. San Ramón Oeste, 620 m, 3-19-IV-1999, F. Quesada [FSCA]. Paratype female, COSTA RICA, Guanacaste Prov., Estac. Cacao, SW side Volcán Cacao, 1000-1400 m, XI-XII-1989, R. Blanco and C. Chávez [FSCA].

Other material. Bohart and Stange (1965) record two additional specimens of this species, mistakenly ascribed to *Z. magretti* Zavattari (1912), a female from **Costa Rica** (Juan Viñas, UCD) and a male from **Panama** (Volcán de Chiriquí, BMNH). These specimens have not been reexamined but Bohart and Stange's description leaves no doubt that they belong here.

Relationships. This monobasic group is unique in having a medio-apical bulge on sternite II and the male mandible greatly enlarged with a corresponding reduction in the size of the clypeus. Otherwise, as observed by Bohart and Stange (1965), the "female is similar to species in the *coeruleopennis* group." Indeed, when Stange reexamined the holotype female of *Zethus magretti* Zavattari at Turin he was able to assign that species to the coeruleopennis group.

Collections

BMNH. Department of Entomology, British Museum of Natural History, Cromwell Rd., London SW7 5BD, England.
FSCA. Florida State Collection of Arthropods, Florida Department of Agriculture and Consumer Services, P.O. Box 147100, Gainesville, Florida 32614-7100.
UCD. Bohart Museum of Museum, University of California, 1124 Academic Surge, Davis, California 95616.

Figure 2-3. *Zethus stangei*. **2)** Male holotye, ventral view of abdomen showing medio-apical bulge on sternite II. **3)** Male holotype, front view of head showing the grossly enlarged mandibles and abbreviated clypeus. **4)** Female paratype, front view of head showing large, sparsely punctate clypeus and median sized mandibles.

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