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New records of Mexican Dobsonflies of the genus *Corydalus* Latreille (Megaloptera: Corydalidae)

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Abstract

Álvarez HA. 2012. New records of Mexican Dobsonflies of the genus *Corydalus* Latreille (Megaloptera: Corydalidae). Entomotropica 27(2): 77-81.

There are few studies about the distribution of Megaloptera fauna from Mexico. In the country are present thirteen species of the Corydalidae and Sialidae families; for the genus *Corydalus* (Corydalidae) five species are present in certain states. It was recorded for Puebla state, the presence of *Corydalus magnus*, *Corydalus peruvianus* and *Corydalus texanus*. Here presents first records of *Corydalus luteus* and *Corydalus bidenticulatus* for this state; thus, all the species of Dobsonfly genus *Corydalus* distributed in México are present in Puebla state.

Additional key words: Megaloptera, Mexico, Sierra Norte, Sierra Mixteca.

Resumen

Álvarez HA. 2012. Nuevos registros de Megaloptera de México del género *Corydalus* Latreille (Megaloptera: Corydalidae). Entomotropica 27(2): 77-81.

Existen pocos estudios concernientes a la distribución de la fauna de Megaloptera de México. En el país se encuentran presentes trece especies pertenecientes a las familias Corydalidae y Sialidae; para el género *Corydalus* (Corydalidae) cinco especies están presentes en algunos estados. Para el estado de Puebla, se ha registrado la presencia de *Corydalus magnus*, *Corydalus peruvianus* y *Corydalus texanus*. Aquí se presentan los primeros registros de *Corydalus luteus* y *Corydalus bidenticulatus* para éste estado; así, todas las especies de "Dobsonfly" del género *Corydalus* distribuidas en México se encuentran presentes en el estado de Puebla.

Palabras clave adicionales: Megaloptera, México, Sierra Norte, Sierra Mixteca.

Introduction

The Megaloptera order is a primitive group of holometabolous insects along with Neuroptera and Raphidioptera in the Neuropterida superorder (Kjer et al. 2006). The earliest Megaloptera are fossils from the Late Permian, assigned to the extinct family Parasialidae (Grimaldi & Engel 2003).

The Megaloptera are nocturnal, life cycles are of one to two years commonly, some Megalopteran can live up to five years (Evans 1972, Contreras-Ramos 1998, Cover & Resh 2008). Larvae are generalist predators of small invertebrates and live in permanent water bodies, last instar larvae crawl to the banks of the stream to build pupal chambers in the soil. Adult Megaloptera live

for approximately one week and do not feed; females oviposit on branches, logs, or stones overhanging the stream and hatched larvae fall into the water (Brown & Fitzpatrick 1978, Contreras-Ramos 1998, Cover & Resh 2008).

The Neotropical fauna of Megaloptera is represented by sixty three species. Mexico holds thirteen species of the Corydalidae and Sialidae families, of which five species are of *Corydalus* Latreille, 1802 (Corydalidae), a genus distributed all over the country. The three species known of *Platyneuromus* Weele, 1909 (Corydalidae) have a restricted geographic distribution mostly in Chiapas state. Three species of *Chloronia* Banks, 1908 (Corydalidae) are known from central and southeastern Mexico. The single species of *Neohermes* Banks, 1908 (Corydalidae) is distributed in the north of the country, while the sole species of *Protosialis* Weele, 1909 (Sialidae) is restricted to southeastern Mexico (Contreras-Ramos 1999).

This study focus on the genus *Corydalus*. Adults are typically reddish to grayish brown, sometimes pallid brown or almost entirely black, with white wing spots. Males have elongated mandibles with no dentition (Contreras-Ramos 1997, 1998)(Figure 1).

Here presents first records of *Corydalus luteus* Hagen, 1861 and *Corydalus bidenticulatus* Contreras-Ramos, 1998 for Puebla state and new records of *Corydalus peruvianus* Davis, 1903, *Corydalus magnus* Contreras-Ramos, 1998 and *Corydalus texanus* Banks, 1903 for Puebla state.

Methods

From 2008 to 2010 in rain period, were collected specimens of Megaloptera fauna in Xicotepec de Juárez, Pantepec, Apulco Zacapoaxtla, in Sierra Norte in the north of Puebla state and in Rancho el Salado Jolalpan, in Sierra Mixteca in the southwest of Puebla state.

The Sierra Norte is a mountain range that forms the southern edge of the Sierra Madre Oriental in Mexico. It is approximately 100 km, occupies the northern territory of Puebla and limited to the east with the Gulph of Mexico coastal plain and the west and south by the Neovolcanic belt. The Sierra Mixteca is a mountainous area located between the states of Puebla and Oaxaca in southern Mexico. It brings together the Sierra Madre Oriental, the Neovolcanic belt and Sierra Madre del Sur (INEGI 2000).

Megaloptera were captured with nocturnal black-light traps and white-light traps (following the methodology of Contreras-Ramos 1999b), we set the traps near riverside, between 9:00 pm and 11:00 pm. There were also collected Megaloptera in street luminaries of towns, using entomological nets.

The specimens were identified with the key of Mexican Megaloptera (Contreras-Ramos 1997) and placed in the entomological collection of, the Escuela de Biología, Benemérita Universidad Autónoma de Puebla, México (BUAP) and Hugo A. Álvarez (H.A.A.) personal collection.

Results and Discussion

One *Corydalus peruvianus* male was collected in Xicotepec de Juárez, Sierra Norte; two *Corydalus luteus* females where collected in Pantepec, Sierra Norte; one male and two females of *Corydalus bidenticulatus* were collected in Rancho el Salado, Jolalpan, Sierra Mixteca; one *Corydalus magnus* female was collected in Apulco Zacapoaxtla, Sierra Norte and two females and two males of *Corydalus texanus* were collected in Rancho el Salado, Jolalpan, Sierra Mixteca (Figure 2).

It was recorded for Puebla, the presence of *C. magnus*, *C. peruvianus* and *C. texanus*, as well as *Platyneuromus soror* (Hagen), 1861 (Contreras-Ramos 1997, 1999); this study shows the first records of *C. luteus* and *C. bidenticulatus* for Puebla state. *C. luteus* and *C. bidenticulatus* are two sister species (Contreras-Ramos 2011); the two species present in the antennae of males, a series of denticles, differentiating both species

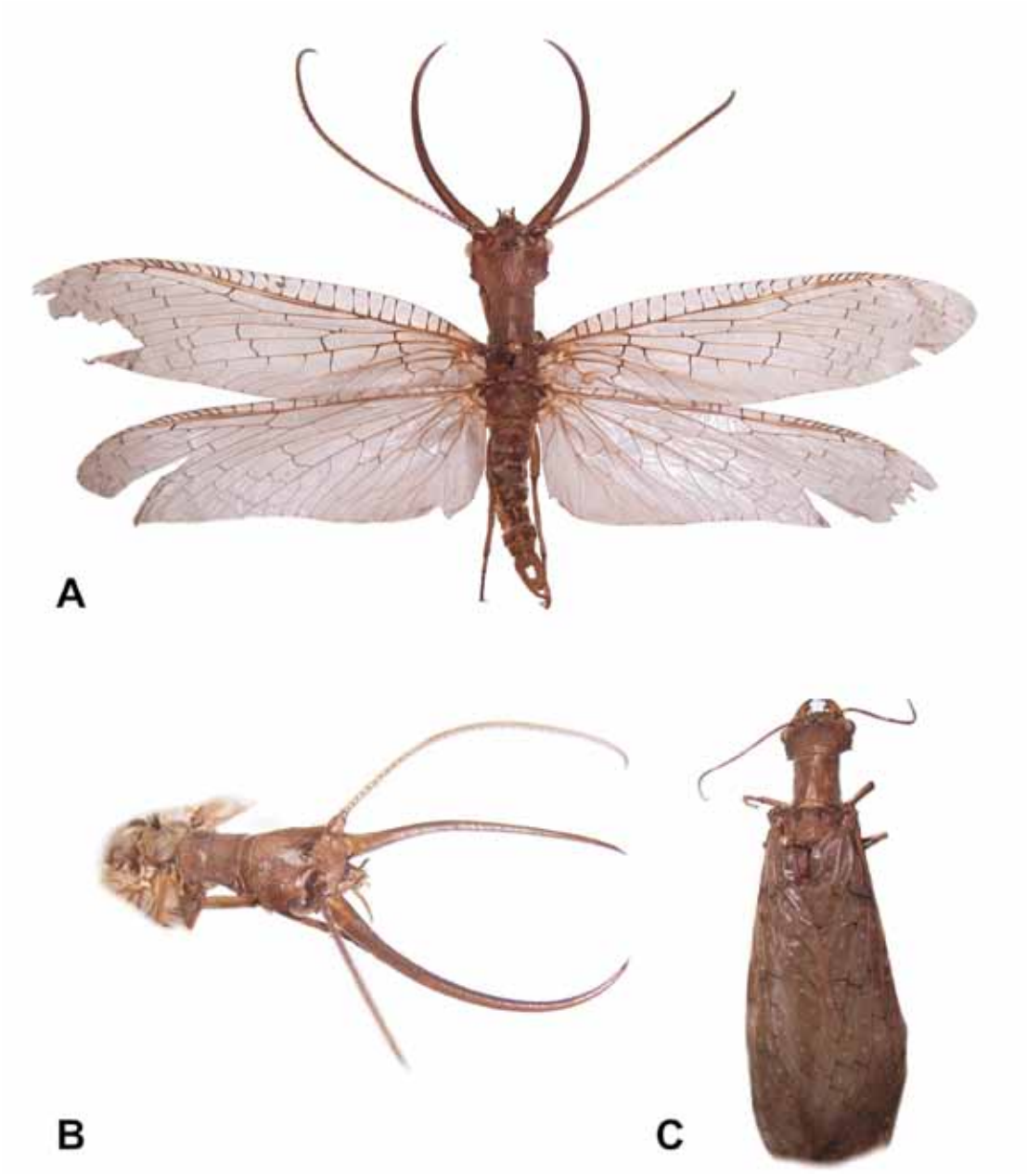

Figure 1. Specimen of *Corydalus bidenticulatus* with elongated mandibles and the typical morphology of a Dobsonfly: A) male habitus; B) male head; C) female habitus.

by the number of denticles in each segment of the antennae; *C. luteus* present one and *C. bidenticulatus* two (Contreras-Ramos 1998).

The geographic distribution of *C. bidenticulatus* is in the west of the country occupying the states of Colima, Guerrero, Jalisco, Michoacán, Morelos, Nayarit, Oaxaca, Sinaloa and Sonora (Contreras-Ramos 1997); the position of Puebla state and the union of Sierra Mixteca with the neovolcanic axis allows the presence of this species.

It is not surprising that *C. luteus* is present in Puebla state due to the large geographic distribution range of the specie occupying the

states of Chiapas, Coahuila, Hidalgo, Nuevo León, Oaxaca, Queretaro, San Luis Potosi, Tabasco, Tamaulipas and Veracruz (Contreras-Ramos 1997); the location of Puebla state in the center of Mexico, and the presence of the Sierra Norte, been part of the Sierra Madre Oriental, allows this specie to occupies Puebla state.

Material examined

Corydalus bidenticulatus: Male **(CEEBBUAP 01835)**, Mexico: Puebla: Jolalpan: Rancho el Salado, 07/2010, nocturnal direct collect, coll. H. Álvarez. Female **(CEEBBUAP 01836)**, Mexico: Puebla: Jolalpan: Rancho el Salado, 07/2010, nocturnal direct collect, coll. H. Álvarez. Female **(CEEBBUAP 01837)**, Mexico: Puebla: Jolalpan: Rancho el Salado, 07/2010, nocturnal direct collect, coll. H. Álvarez.

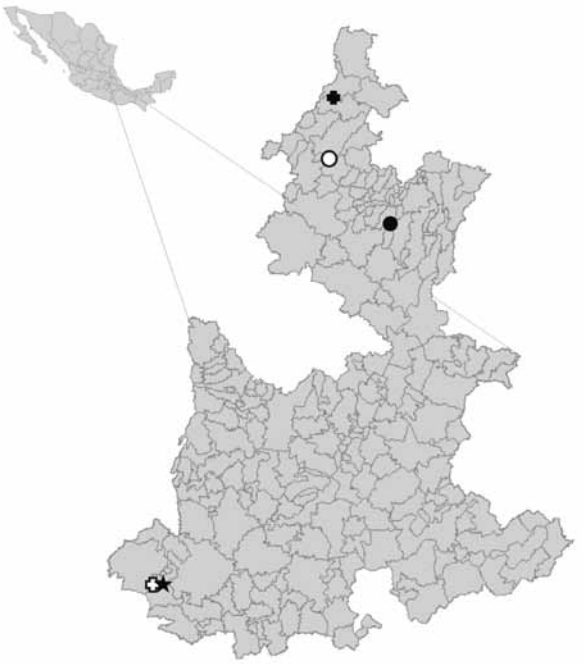

Figure 2. Distribution map of the Dobsonflies in Puebla state, Mexico (localities from this study): *Corydalus luteus,* Pantepec (black croos); *Corydalus peruvianus*, Xicotepec de Juarez (white circle); *Corydalus magnus,* Apulco Zacapoaxtla (black circle); *Corydalus bidenticulatus*, El Salado, Jolalpan (white croos); *Corydalus texanus*, El Salado, Jolalpan (black star).

Corydalus luteus: Female **(CEEBBUAP 01838)**, Mexico: Puebla: Pantepec, 08/2008, elevation 600 m, collected with nocturnal black-light trap, coll. H. Álvarez. Female **(CEEBBUAP 01839)**, Mexico: Puebla: Pantepec, 08/2008, elevation 600 m, collected with nocturnal black-light trap, coll. H. Álvarez.

Corydalus magnus: Female **(CEHAA 01050)**, Mexico: Puebla: Apulco Zacapoaxtla, 04/2008, 1000 m, collected with nocturnal black-light trap, coll. H. Álvarez.

Corydalus peruvianus: Male **(CEEBBUAP 01840)**, Mexico: Puebla: Xicotepec de Juárez, 01/05/2009, elevation 1800 m, collected with entomological net, coll. J. L. de Vega.

Corydalus texanus: Male **(CEHAA 01053)** Mexico: Puebla: Jolalpan: Rancho el Salado, 07/2010, nocturnal direct collect, coll. H. Álvarez. Male **(CEHAA 01054)** Mexico: Puebla: Jolalpan: Rancho el Salado, 07/2010, nocturnal direct collect, coll. H. Álvarez. Female **(CEHAA 01055)** Mexico: Puebla: Jolalpan: Rancho el Salado, 07/2010, nocturnal direct collect, coll. H. Álvarez. Female **(CEHAA 01056)** Mexico: Puebla: Jolalpan: Rancho el Salado, 07/2010, nocturnal direct collect, coll. H. Álvarez.

Conclusion

Here is shown the first records of *C. luteus* and *C. bidenticulatus* for Puebla state; thus, all the species of Dobsonfly of the genus *Corydalus* distributed in Mexico are present in this state. The recurrence of the Sierra Norte and Sierra Mixteca and the presence of genus *Corydalus* and other Megaloptera species makes Puebla state an interesting place for the study of Megaloptera fauna.

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