Huastecacris alexandri, a New Species of Melanoplinae from Tamaulipas, Northeastern Mexico

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Huastecacris alexandri, a new species of Melanoplinae from Tamaulipas, northeastern Mexico

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Abstract

Huastecacris alexandri n. sp., is described from the El Cielo Biosphere Reserve in southern Tamaulipas, northeastern México. Geographic distribution is limited to the highlands of the reserve where it occurs from 1300 to 1700 m in open areas on natural, low vegetation. This species is most related to *Huastecacris zenoni* Fontana & Buzzetti 2007, which is found in the lowlands of the reserve, extending the distribution of the genus along the Eastern Sierra Madre up to Cd. Victoria's mountain range. The species are distinguished by details of the male cerci, supra-anal plate, genitalia and color pattern.

Key words

El Cielo Biosphere Reserve, *Huastecacris*, Melanoplinae, Tamaulipas, Mexico

Introduction

The genus *Huastecacris* is endemic to northeastern Mexico and was described by Fontana & Buzzetti (2007). It is characterized by its robust body, pronotum gradually widening posteriorly, prosternal process subconical and laterally flattened. The tegmina are subovate laterally, with the posterior margin marginate, and dark with whitish veins. The furcula is represented by short, subtriangular, rounded lobes and the male supra-anal plate is subtriangular. Male cerci are apically subconical, flattened or spatulate. The subgenital plate is subconical and apically pointed. Females are very stout and possess a markedly widened and subconical pronotum. The genus is made up of three species; two of them, *H. zenoni* and *H. truncatipennis*, are described by Fontana and Buzzetti (2007); the third, *H. fariensis*, is described by Barrientos-Lozano *et al*. (2009). The species we describe here could not be assigned to any of the known species, but is related to *H. zenoni*, from which it can be separated by the male cerci, supra-anal plate, furcula, genitalia and color pattern.

Materials and Methods

Specimens were collected using a sweep net or by hand. Morphological characters, original descriptions (Cohn & Cantrall 1974, Fontana & Buzzetti 2007, Barrientos-Lozano *et. a*l. 2009) and online resources (Orthoptera Species File Online) were used to identify specimens. Field photographs were taken with a Sony DSC-F707 Digital Camera. Measurements and laboratory images were taken with a Motic Stereomicroscope, Model 43-FBGG-C, 3.0 mp. Dorsal view measurements were: body length (measured from the vertex to the apex of the hind femora) and pronotum length; lateral view measurements were: hind femora and tegmina length. All measurements were taken at 10×.

Internal genitalia dissection was performed by relaxing specimens in hot water for 1 h. After relaxation, the male is positioned on a sheet of pinning material, and using insect pins with the tip bent at a right angle, the pallium is slipped back. The pallium is placed, for *ca* 10 min., in a 10% KOH solution to clear and remove the membranes and muscles. Then the membranes and muscles are completely removed with insect pins with the tip bent, and the epiphallus separated from the phallic complex. The mass is then washed with cold water. Phallic structures are mounted on cardboard and photographs taken. This procedure varies according to different authors (Cohn & Cantrall 1974, Hubbell 1932).

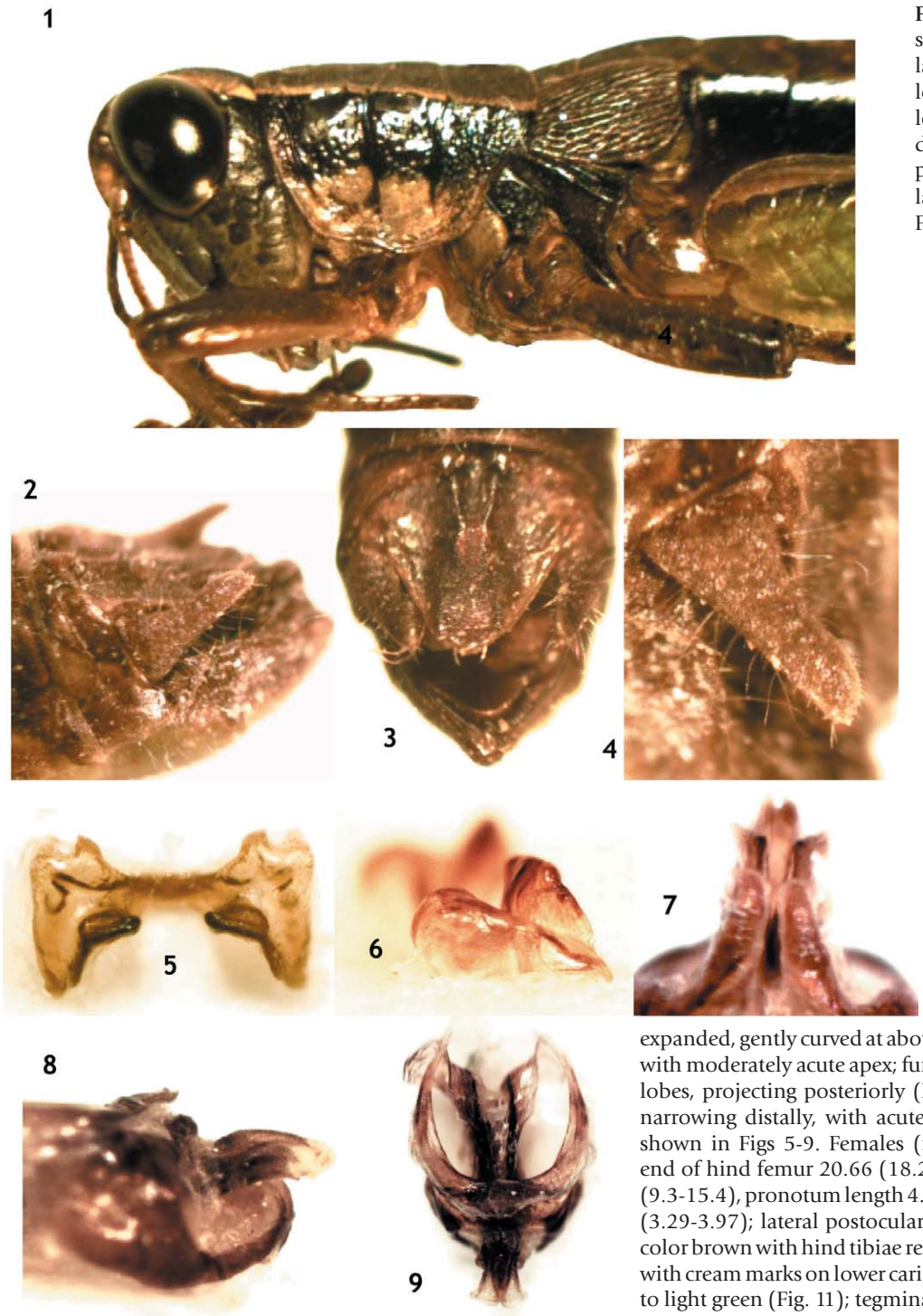
Depositories.—University of Michigan Museum of Zoology (UMMZ): ♂ holotype and ♀ allotype; 2 ♂♂, 2 ♀♀ paratypes.
Instituto Tecnológico de Cd. Victoria (ITCV), Tamaulipas, México, collection: 9 ♂♂, 10 ♀♀ paratypes.
Instituto de Biología-Universidad Nacional Autónoma de México (IB-UNAM): 2 ♂♂, 2 ♀♀ paratypes.
F. M. Buzzetti (FMB) Collection: 5 ♂♂, 3 ♀♀ paratypes.

Results

Huastecacris alexandri n. sp.
(Figs 10-11)

Type material (material examined).— Holotype ♂ and allotype ♀, Mexico, Tamaulipas, Gómez Farías, El Cielo Biosphere Reserve, Ejido La Gloria, 1629 m, lat 23°2'51.7"N, long 99°25'3.9"W, 23.08.2009, L. Barrientos-Lozano. Paratypes: 2 ♂♂ and 3♀♀, same data as holotype; 11♂♂ and 11♀♀, same locality as holotype but collected 07.11.2009, L. Barrientos-Lozano, B.R. Méndez-Gómez & A.Y. Rocha-Sánchez. F. M. Buzzetti Collection paratypes: 1 ♂, El Cielo BR, San José, 1318 m, lat 23°2'46.7"N, long 99°13'46.6"W, 22.08.2009, L. Barrientos-Lozano & F. M. Buzzetti; 4 ♂♂ and 3 ♀♀, same data as holotype.

Diagnosis.— Similar to *H. zenoni* Fontana & Buzzetti, 2007. It differs as follows: smaller than *H. zenoni*, males 15.57 mm (14.97-16.87), and females 20.66 mm (18.25-26.05). Live male femora (1, 2, 3) dorsally brown, ventrally green; tibiae (1, 2, 3) green (Fig. 10). Live female fore and middle femora and tibiae brown, hind femora outer face dark green, ventrally red, tibiae red (Fig. 11). Males and females with ventral side of abdomen light green. Male cerci subconical in side view, basally expanded, gently curved at about midlength, semispatulate distally with moderately acute apex, in general appearing narrower than *H. zenoni*'s cerci (Figs 2-4); furcula represented by small, rounded lobes projecting backwards (Fig. 3); male supra-anal plate triangular, narrowing distally, with acute apex



Figs 1-9. *Huastecacris alexandri* n. sp. Male head and pronotum in left lateral view (1); male abdomen apex, left lateral view (2), dorsal view (3); left cercus lateral view (4); epiphallus dorsal view (5) and lateral view (6); phallic complex in ventral view (7), lateral view (8) and dorsal view (9). For color version, see Plate VI.

(Fig. 3). Dorsal valvulae of phallus curved dorsally, basally narrow, expanding gradually, apex very expanded (Figs 8, 9); ventral valvulae of phallus shorter than dorsal valvulae, basally narrow, moderately expanded at apex (Fig. 7).

Description.— Males (measures in mm): body length to end of hind femur 15.57 (14.97-16.87), hind femur length 8.11 (7.69-8.49), pronotum length 3.13 (3.0-3.34), tegmina length 3.90 (3.76-4.06). Pronotum in dorsal view gradually widening backward, with hind margin marginate; lateral postocular band dark brown, very well defined, extending to epimeron 2 and 3; ventral half of male pronotal lobe white with a dark mark, the white color extends to epimeron 2 (Figs 1, 10). Male cerci subconical in side view, basally expanded, gently curved at about midlength, semispatulate distally with moderately acute apex; furcula represented by small, rounded lobes, projecting posteriorly (Fig. 3); supra-anal plate triangular, narrowing distally, with acute apex (Fig. 3); phallic complex as shown in Figs 5-9. Females (measures in mm): body length to end of hind femur 20.66 (18.25-26.05), hind femur length 11.25 (9.3-15.4), pronotum length 4.51 (3.93-5.48), tegmina length 3.64 (3.29-3.97); lateral postocular band not very prominent, general color brown with hind tibiae red, hind femora outer face dark green with cream marks on lower carina; abdomen ventrally yellow-green to light green (Fig. 11); tegmina dark, with whitish veins, subovate in lateral view.

Etymology.—This species is named after C. Alexandro Amaro-Barrientos.

Distribution.—México, Tamaulipas, Gómez Farías, El Cielo Biosphere Reserve.

Discussion

El Cielo Biosphere Reserve is located in southern Tamaulipas, Mexico. It covers an area of 144,530 ha and has an altitudinal gradient ranging from 100 to 2055 m. The most peculiar features

Figs 10-11. *Huastecacris alexandri* n. sp. Adult male (10) and female (11). For color version, see Plate VI.

of the Reserve are due to sharp changes in altitude. For example, along a straight transect of only 21 km, dominant vegetation types vary from tropical to temperate-xeric with increasing altitude. This makes it an area of major ecological transition between the tropical climates of the south and temperate climates of the north. The reserve is home to a unique diversity of flora and fauna.

According to Fontana & Buzzetti (2007) and Barrientos Lozano *et. al*. (2009), the three species of *Huastecacris* hitherto described inhabit mountainous areas along the Eastern Sierra Madre at altitudes ranging from 100 to 3700 m. *H. alexandri* n. sp. is endemic to the El Cielo Biosphere Reserve, where it has been collected only between 1300 and 1700 m. The species favors a predominantly humid temperate climate and is common on grass and natural vegetation. Two other species, *H. fariensis* and *H. zenoni*, reported to occur in the reserve have not been collected at this altitude and have a much broader distribution.

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