

**First record of *Alienoclypeus insolitus* Shenefelt, 1978
(Hymenoptera: Braconidae) from Guerrero and distributional
data from Jalisco and Oaxaca, Mexico**

Author(s): Pedro Figueroa-Castro, Victor López-Martínez, José Antonio Sánchez-García and Laura Martínez-Martínez

Source: Pan-Pacific Entomologist, 93(4):234-238.

Published By: Pacific Coast Entomological Society

<https://doi.org/10.3956/2017-93.4.234>

URL: <http://www.bioone.org/doi/full/10.3956/2017-93.4.234>

BioOne (www.bioone.org) is a nonprofit, online aggregation of core research in the biological, ecological, and environmental sciences. BioOne provides a sustainable online platform for over 170 journals and books published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Web site, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/page/terms_of_use.

Usage of BioOne content is strictly limited to personal, educational, and non-commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

Scientific Note

First record of *Alienoclypeus insolitus* Shenefelt, 1978 (Hymenoptera: Braconidae) from Guerrero and distributional data from Jalisco and Oaxaca, Mexico

Alienoclypeus insolitus Shenefelt, 1978 is a large braconid wasp described from the United States (Arizona, California and Texas) and Mexico (Nuevo Leon and Yucatan) (Mason 1978). Since its original description, scarce data on *A. insolitus* distribution has been published. One specimen from Yucatan was reared from the agave weevil, *Scyphophorus acupunctatus* Gyllenhal, 1838 (Coleoptera: Dryophthoridae) (Mason 1978), possibly on sisal plants (*Agave sisalana* Perrine, Asparagaceae). It has been recorded as a natural control agent of agave weevil in Jalisco (Barraza 2007) and Oaxaca (Figueroa 2009, Martínez-Martínez et al. 2003) and has been reported to occur in Hidalgo (Saavedra 2009), revealing an apparent disjunctive distribution.

Recently, one of us (PF-C) collected an *S. acupunctatus* larva from *A. vivipara* Linnaeus (= *A. angustifolia* Haw.) in Guerrero. Larvae of a parasitoid were visible subsequently (Fig. 1A). The parasitoid larvae spun their cocoons on the *S. acupunctatus* cocoon (Fig. 1B), and five wasps emerged. Moreover, another nine specimens from Jalisco were collected inside leaves of *A. tequilana* F.A.C. Weber, all of which are deposited in the Colección Nacional de Insectos, Universidad Nacional Autónoma de México (CNIN) and the Colección de Insectos de la Universidad Autónoma del Estado de Morelos (CIUM). Specimens were determined as *A. insolitus* using Shenefelt's original description (Mason 1978) and were compared with material deposited in the Colección Entomológica del Instituto de Fitosanidad (CEIFIT, Colegio de Postgraduados). At the same time, some specimens from Jalisco deposited in CEIFIT and Oaxaca deposited in Centro Interdisciplinario de Investigación para el Desarrollo Integral Regional Unidad Oaxaca (CIIDIR-IPN) were determined as *A. insolitus*. Images were taken with a photomicroscope III (Carl Zeiss) adapted to a PAXCam digital camera and were edited with the Software GIMP 2.0.

Shenefelt's original species description of *A. insolitus* includes line drawings of some distinctive morphological characteristics, but some experience is necessary to recognize the oral modification. Recent material of *A. insolitus* from Guerrero increases distributional knowledge and allows us to more fully illustrate this species, which will facilitate its identification for future ecological studies. *Alienoclypeus insolitus* is distinctive and characterized by its color pattern (Fig. 1D) and, principally, its oral cavity, defined as "broadly cordate" (Mason 1978) (Fig. 1E). Its clypeus is deeply impressed in profile (Fig. 1F). In field conditions, *A. insolitus* can be detected resting on the underside of agave leaves early or late in the day (Fig. 1C), mainly on weevil-infested plants.

Distribution. Mexico: Hidalgo (Saavedra 2009); Jalisco, Ameca (Barraza 2007); Nuevo León, Chipinque Mesa (Mason 1978); Oaxaca, Tlacolula (collected from *A. angustifolia* associated with *S. acupunctatus*) (Martínez et al. 2003); and Yucatán, Mérida (Mason 1978). United States: Arizona, California, and Texas (Mason 1978).

Specimens examined. **New state record. GUERRERO.** 3 ♀, 2 ♂, Huitzuco de los Figueroa, Quetzalapa, El Llano (18.3799, -99.1546, 1155 m), 11/I/2017, col. Pedro Figueroa Castro, reared from *S. acupunctatus* larvae attacking *A. vivipara*

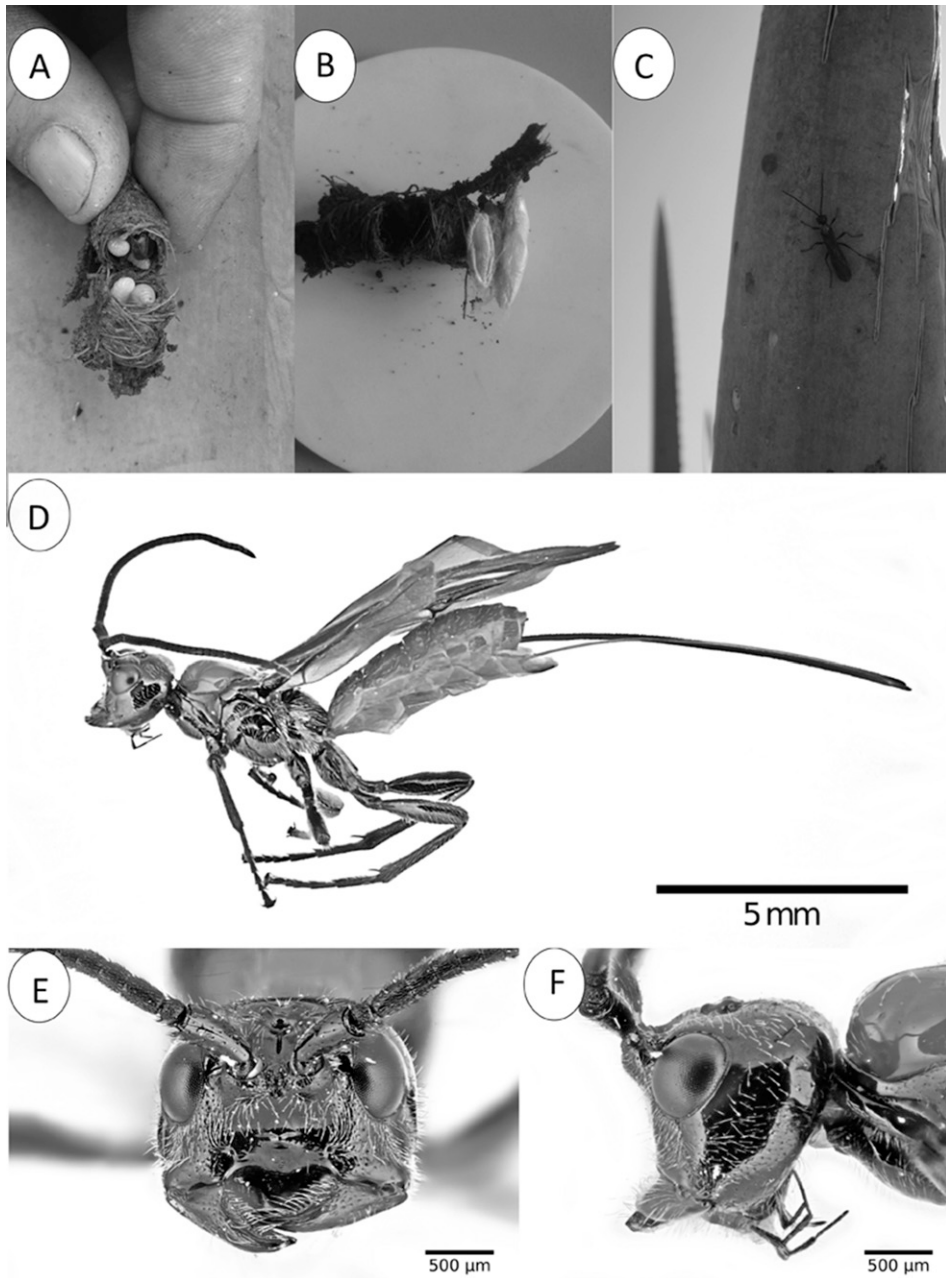


Figure 1. *Alienoclypeus insolitus*. A) *Scyphophorus acupunctatus* cocoon including *A. insolitus* larvae, B) *A. insolitus* cocoons, C) *A. insolitus* adult wasp resting on agave, D) *A. insolitus* lateral habitus, E) *A. insolitus* head in frontal view, showing oral cavity, F) *A. insolitus* head in lateral view, showing deeply impressed clypeus.

(=*A. angusfitolia* Haw.) (CNIN and CIUM). **New locality records. JALISCO.** 2 ♀, 2 ♂, Aqualulco de Mercado, El Molino (20.7323 -103.9305, 1343 m), 10/II/2009, col. Pedro Figueroa Castro, specimens collected inside *A. tequilana* F. A. C. Weber (CNIN and

CIUM); 2 ♀, 1 ♂, Ahualulco de Mercado, El Casco (20.7812, -103.9648, 1444 m), 8/III/2011, col. Pedro Figueroa Castro, specimens collected on *A. tequilana* F. A. C. Weber leaves (CNIN and CIUM); 1 ♀, 1 ♂, Amatitlán, Loma Norte (20.8479, -103.7037, 1251 m), 3/VII/2009, Col. Pedro Figueroa Castro, specimens collected inside *A. tequilana* F. A. C. Weber (CNIN and CIUM); 4 ♀, 1 ♂, Atotonilco, Rancho La Palma, 15-16/III/2000, H. Herrera C., reared from *S. acupunctatus* on *A. tequilana* Weber var. Azul (CEIFIT); 11 ♀, 6 ♂, Tequila, El Chilar, 3/II/2000, C. Ruíz M., reared from *S. acupunctatus* on *A. tequilana* Weber var. Azul (CEIFIT); 1 ♀, Tototlán, Predio Yerbabuena, 23/II/2003 y 21/III/2003 (CEIFIT); 1 ♀, Zapotlanejo, Predio Buenavista, 18/III/2003 (CEIFIT); 1 ♀, Zapotlanejo, Predio Buenavista, 5/V/2003 (CEIFIT). **OAXACA**: 1 ♂, San Juan Guelavía, 28/VIII/2014, Juan Reyes, collected from *A. angustifolia* infested with *S. acupunctatus* larvae (CIIDIR-IPN); 8 ♀, 7 ♂, same data, but, 16/X/2014, same plant and host, but emerged on 30/X/2014 (CIIDIR-IPN); 3 ♀, same locality, but, 17/X/2012, same plant and host, but emerged on 28/XI/2012 (CIIDIR-IPN); 3 ♀, [Santiago] Matatlán, 13/XII/2002, Laura Martínez, same plant and host (CIIDIR-IPN).

For the first time, *A. insolitus* is formally reported from Guerrero and new locality data are given for Jalisco, and Oaxaca, expanding its distribution to western-southern Mexico and filling intervening gaps in the previously known distribution (Fig. 2). At this point, no distributional pattern is clearly defined for *A. insolitus*. Prior to this contribution, it could have seemed to have a pattern related to the Sierra Madre

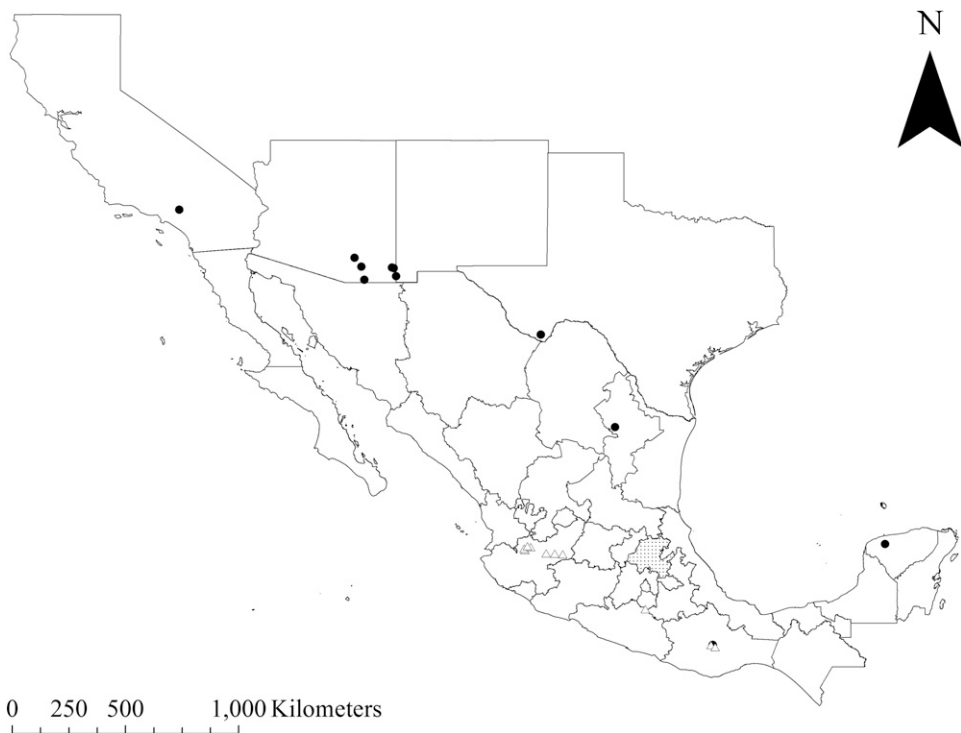


Figure 2. Distribution of *Alienoclypeus insolitus* in Mexico and United States. Black circles indicate previous records, gray triangles indicate new data (Mason, 1978, Martínez-Martínez et al., 2003). The species is known from Hidalgo (stippled in the figure), but within-state locality data are not available (Saavedra 2009). Distances between sites in Oaxaca are minimal at 7.43 km.

Occidental, Sierra Madre del Sur, and Yucatan biogeographic provinces. Given the new data presented here, *A. insolitus* clearly has a wider distribution. Possibly this braconid wasp is following its host's (agave weevil) natural distribution, which includes Baja California Sur, Chiapas, Chihuahua, Distrito Federal, Durango, Estado de México, Guanajuato, Guerrero, Hidalgo, Jalisco, Michoacán, Nayarit, Morelos, Oaxaca, Puebla, Querétaro, San Luis Potosí, Sonora, Tamaulipas, Tlaxcala, Veracruz, and Yucatán (Champion 1909-1910, García-Ramírez et al. 2014, Figueroa-Castro et al. 2016, GBIF 2016, González-Castillo et al. 2011, López-Martínez et al. 2011, Maya et al. 2011, Romero et al. 1996, Romo & Morrone 2012, Salas-Araiza et al. 2001, Valenzuela-Zapata et al. 2011). In this case, future records for this braconid are expected in cropped and wild agaves in additional states in Mexico.

Acknowledgments. We thank Juana Maria Coronado Blanco and one anonymous referee for their comments that improved the manuscript.

Pedro Figueroa-Castro, Víctor López-Martínez (*corresponding author, e-mail: victor.lopez@uaem.mx*), Facultad de Ciencias Agropecuarias, Universidad Autónoma del Estado de Morelos, Av. Universidad 1001, Col. Chamilpa, CP 62209, Cuernavaca, Morelos, México; José Antonio Sánchez-García and Laura Martínez-Martínez, Instituto Politécnico Nacional, CIIDIR Unidad Oaxaca, Calle Hornos 1003, Santa Cruz, Xoxocotlán, C.P. 71230, Oaxaca, México.

LITERATURE CITED

- Barraza C., M. 2007. *Evaluación del Daño por el Picudo del Agave (Scyphophorus acupunctatus Gyllenhal) en Agave Tequilero (Agave tequilana Weber var. azul) en el Valle de Tequila. Jalisco, México.* Bachelor thesis, Universidad Autónoma Chapingo, Chapingo, Estado de México, México, 49 pp.
- Champion, G. C. 1909–1910. *Insecta Coleoptera* Vol. 4, Part 7. *Rhynchophora. Curculionidae. Curculioninae (concluded) and Calandrinae.* Porter, London, 222 pp.
- Figueroa C., P. 2009. *Fluctuación Poblacional y Trampeo de Scyphophorus acupunctatus Gyllenhal (Coleoptera: Curculionidae) con Feromona de Agregación en Plantaciones de Agave tequilero en Jalisco.* Master thesis, Universidad Autónoma Chapingo Chapingo, Chapingo, Estado de México, México, 63 pp.
- Figueroa-Castro, P., V. López-Martínez, A. Hernández-Ruiz, F. Silva-García & M. Campos-Figueroa. 2016. Determining the best pheromone-baited traps for capturing *Scyphophorus acupunctatus* (Coleoptera: Dryophthoridae) in mezcal agave. *Florida Entomologist* 99(4):790–792.
- García-Ramírez, M. de J., V. López-Martínez, I. Alía-Tejagal, M. Andrade-Rodríguez & J. Rojas. 2014. Influence of trap color and food bait on the catches of *Scyphophorus acupunctatus* by pheromone-baited traps in tuberose crop. *Journal of the Kansas Entomological Society* 87(1):96–101.
- Global Biodiversity Information Facility (GBIF). 2016. GBIF Occurrence Download. Available from: <http://doi.org/10.15468/dl.mjyt4z> (accessed 15 July 2016).
- González-Castillo, M. P., M. Quintos E. & G. Castaño-Meneses. 2011. Arthropods in natural communities in mescal agave (*Agave durangensis* Gentry) in an arid zone. *American Journal of Applied Sciences* 8(10):933–944.
- López-Martínez, V., I. Alía-Tejagal, M. Andrade-Rodríguez, M. de J. García-Ramírez & J. Rojas. 2011. Daily activity of *Scyphophorus acupunctatus* (Coleoptera: Curculionidae) monitored with pheromone-baited traps in a field of Mexican tuberose. *Florida Entomologist* 94(4): 1091–1093.

- Martínez-Martínez, L., E. Bravo-Mosqueda, F. Arce-González & J. A. Sánchez-García. 2003. *Biología de Alienoclypeus insolitus Shenefelt (Hymenoptera: Braconidae) Parasitoide del Picudo del Maguey*, pp. 336–339. In: *Proceedings of the XXVI Congreso Nacional de Control Biológico*. Sociedad Mexicana de Control Biológico, Guadalajara.
- Mason, W. R. M. 1978. A synopsis of the Nearctic Braconinae, with revisions of Nearctic species of *Coeloides* and *Myosoma* (Hymenoptera: Braconidae). *The Canadian Entomologist* 110(7):721–768.
- Maya, Y., C. Palacios-Cardiel & M. L. Jiménez. 2011. El cardón *Pachycereus pringlei*, nuevo hospedero para *Scyphophorus acupunctatus* (Coleoptera: Curculionidae) en Baja California Sur, Mexico. *Revista Mexicana de Biodiversidad* 82(3):1041–1045.
- Romero N., J., S. Anaya R. & A. Equihua. 1996. *Catálogo de Insectos de la Colección del Instituto de Fitosanidad*. Colegio de Postgraduados, Montecillos, 786 pp.
- Romo, A. & J. J. Morrone. 2012. Especies mexicanas de Curculionidae (Insecta: Coleoptera) asociadas con agaves (Asparagaceae: Agavoideae). *Revista Mexicana de Biodiversidad* 83(4): 1025–1035.
- Saavedra A. M. 2009. *Géneros y Especies de Avispas de la Familia Braconidae (Hymenoptera: Ichneumonidea) del Estado de Hidalgo*. Doctoral thesis, Colegio de Postgraduados, Montecillo, Estado de México, México 70 pp.
- Salas-Araiza, M. D., C. W. O'Brien & J. Romero-Nápoles. 2001. Curculionoidea (Insecta: Coleoptera) from the state of Guanajuato, Mexico. *Insecta Mundi* 15(1):45–57.
- Valenzuela-Zapata, A. G., I. Lopez-Muraira & M. S. Gaytán. 2011. Traditional knowledge, *Agave inaequidens* (Koch) conservation, and the charro lariat artisans of San Miguel Cuyutlán, Mexico. *Ethnobiology Letters* 2:72–80.

Submitted 24 May 2017; Accepted 22 Oct 2017 by D. J. Bennett. Publication date 21 Dec 2017