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## Distributional range extension of *Nyctibora tetrasticta* Hebard, 1922 (Blattodea: Ectobiidae: Nyctiborinae) in Mexico

### Extensión en la distribución de *Nyctibora tetrasticta* Hebard, 1922 (Blattodea: Ectobiidae: Nyctiborinae) en Mexico

Heidi Hopkins\*, Thomas R. Van Devender\*\*, John D. Palting\*\*\* y Jiří Hromádka\*\*\*\*

\*Species File Group, INHS, University of Illinois, Champaign/Urbana, Illinois 61820, USA, cockroachdoc@gmail.com; \*\*Greater Good Charities, 6262 N. Swan Road, Suite 165, Tucson, Arizona 85718, USA, yecora4@comcast.net; \*\*\*7339 N. Yucca Via, Tucson, AZ 8570, USA, john.palting@ventana.roche.com; \*\*\*\* Jiří Hromádka, Praha, Velká Chuchle, Czech Republic

Communicating author: T.R. Van Devender, yecora4@comcast.net

#### ABSTRACT

The Blattodea species *Nyctibora tetrasticta* Hebard, 1922 was previously known only from Sinaloa, Mexico at low elevations in tropical vegetation. It is here documented considerably further north in Sonora, Mexico, at much higher elevations and in a variety of habitats.

**Key words.** Blattodea, *Nyctibora*, cockroach, range extension, new records.

#### RESUMEN

La especie de Blattodea *Nyctibora tetrasticta* Hebard, 1922 se conocía previamente sólo de Sinaloa, México en localidades bajas con vegetación tropical. En este trabajo se amplía de forma considerable su distribución hacia el norte en el estado de Sonora, México, en localidades con altitudes mayores y en una variedad de ambientes.

**Palabras clave:** Blattodea, *Nyctibora*, cucaracha, distribución, nuevos registros.

The genus *Nyctibora* was described by Burmeister in 1838 and currently contains 34 species scattered across Mexico, Central and South America, and the Caribbean. *Nyctibora tetrasticta* Hebard, 1922 (Blattodea: Ectobiidae: Nyctiborinae) is a striking black cockroach described from Sinaloa, Mexico (Hebard 1922). Subsequent to the original description there are no further citations in the literature regarding this species other than that by Princis in his catalog (Princis 1967). Hebard provides no details regarding the manner of capture or habitat of the specimens he examined, but the sparse literature appears to indicate a non-domestic species. Hebard's specimens were listed from "Venvidio, Sinaloa" (here interpreted as El Venadillo, 24.836°N 107.581°W, 27 m elevation.) and "Rosario, Sinaloa" (here interpreted as El Rosario, Sinaloa; 22.984°N 105.862°W, 28 m elevation). Specimens of *N. tetrasticta* collected or photographed in Sonora, Mexico since 2010 are a major northward range extension of this impressive yet obscure species (Fig. 1).

#### RESULTS

*Nyctibora tetrasticta* Hebard, 1922  
Blattodea: Ectobiidae: Nyctiborinae

**Material examined.** On August 5, 2010, a female *N. tetrasticta* was captured at Rancho San Fernando in the Sierra de la Madera, Municipio de Moctezuma, Sonora (29.927°N 109.482°W, 1490 m elev.). This specimen will be deposited at the University of Arizona Insect Collection

in Tucson, Arizona. On September 3, 2012, a female *N. tetrasticta* carrying an ootheca was photographed at Rancho Los Alisos in the Sierra Aconchi, Municipio de Aconchi, Sonora (29.798°N 110.320°W, 1301 m elev.; Fig. 2). On August 13, 2022, three adult female *N. tetrasticta* were captured by José Abel Salazar-M. and TRV after dark emerging from a weathered cross board on a wooden door inside a vacant ranch building on Barranco Basaitequi, Rancho Las Playitas (near Bacoachi), Municipio de Arizpe, Sonora (30.570°N 110.106°W, 1255 m elev.). On October 2, 2022, a subimago exuvium was found in the same building. Two of the female specimens will be deposited in the Arizona State University Hasbrouck Insect Collection in Phoenix, Arizona, and the third in the national collection at Universidad Nacional Autónoma de México in Mexico City, Mexico. On September 12, 2022, a female *N. tetrasticta* was photographed at night on a paved road on the outskirts of Bacanora, Municipio de Bacanora, Sonora (28.980°N 109.392°W, 463 m elev.; Fig. 3). On July 6, 2019, two immature *N. tetrasticta* were collected in foothills thornscrub-desert grassland transition 12.5 km WSW of Bacoachi, Sonora (30.595°N 110°W, 1225 m elev.; Fig. 4). On April 12, 2023, an immature *N. tetrasticta* was collected in foothills thornscrub 12.2 km NW of Huépari, Municipio de San Pedro de la Cueva, Sonora (29.468°N 109.616°W, 390 m elev.). The specimens will be deposited in the Ar-

izona State University Hasbrouck Insect Collection. An observation in iNaturalist on July 2021 by Miguel Francisco Enriquez-Galaz was from 20.5 km east of Moctezuma, Municipio de Moctezuma, Sonora (29.824°N 109.471°W, 877 m elev.). Localities and images of *N. tetrasticta* and other Sonoran insects are publicly available in the Madrean Discovery Expeditions database (madreandiscovery.org).

### DISCUSSION

*Nyctibora tetrasticta* is a flightless black cockroach, the adults of which are approximately 25 mm in length. The male is distinguished by four large sub-marginal rufous spots, two each on the dorsum of abdominal segments five and six, (thus the species name, “four-spotted”). The females and immatures are almost entirely deep brownish to black, though all ages and sexes have off-white pulvilli and arolia (Hebard 1922). This species is distinguished from other Mexican species of the genus as follows: from *N. truncata* by its glabrous dorsum, and in the case of the males, its four rufous spots, and from *N. azteca* and *N. mexicana* by its short tegmina and rudimentary wings.

For such a relatively large and striking insect, sightings are rare, and the ecology and life history of this species remain unknown. While the recent collections and observations of female specimens extend the range of *N. tetrasticta* north-northwest by 680 kilometers, they still appear to be restricted to the western, wetter side of the Sierra Madre Occidental, although at the far northern extent of the newly documented range of this species the climate is significantly drier than in the previously documented range in Sinaloa (Gochis *et al.* 2006).

The New World tropics reaches its northern limit in Sonora, not at the Tropic of Cancer (23.37°N) just north of Mazatlán, Sinaloa. The northernmost tropical deciduous forest (TDF) is in the Sierra San Javier (28.6°N), 680 km north-northwest of Mazatlán and 300 km south of the Arizona border (Van Devender and Reina-G. 2021). Foothills thornscrub (FTS) is a transitional tropical vegetation between TDF and Sonoran desertscrub (SDS) in southern Sonora, and between oak woodland (OW) and SDS in central Sonora (Van Devender and Reina-G. 2021). It extends northward in river valleys to ca. 30.4°N (104 km south of the Arizona border; Van Devender and Reina-G. 2021). In this area, FTS merges into desert grassland (DG) as winter temperatures decline.

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The original two localities of *N. tetrasticta* at El Rosario and Venadillo, Sinaloa, were in TDF at 27 and 28 m elevation. Recent unpublished observations in iNaturalist confirm its presence near Mazatlán, Sinaloa, and in Colima and Jalisco. The observations from north of Huépari, Bacanora, and east of Moctezuma, Sonora, were in FTS at 390, 463, and 877 m elevation. The other records from Sonora were from much higher elevations in more temperate habitats. Rancho Los Alisos in the Sierra Aconchi is in a transition between FTS and oak woodland at 1301 m elevation. Barranco Basaitequi near Bacoachi is in a transition between FTS and desert grassland at 1255 m elevation only 84 kilometers south of the United States border. *N. tetrasticta* very likely occurs in many other areas in tropical Sonora. Rancho San Fernando in the Sierra de la Madera is in oak woodland at 1485 m elevation. At both Ranchos Los Alisos and San Fernando, *N. tetrasticta* was living in the leaves of sotol (*Dasyllirion gentryi*, Asparagaceae), which is widespread in oak woodland and higher FTS habitats.

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### LITERATURE CITED

- Gochis, D.J., L. Brito-C. and W.J. Shuttleworth. 2006. Hydroclimatology of the North American Monsoon region in northwest Mexico. *Journal of Hydrology* 316 (1–4): 53–70.  
<https://doi.org/10.1016/j.jhydrol.2005.04.021>
- Hebard, M. 1922. Dermaptera and Orthoptera from the State of Sinaloa, Mexico: Part I. Dermaptera and non-saltatorial Orthoptera. *Transactions of the American Entomological Society* 48(3): 157–196.
- Princis, K.A. 1967. In M. Beier (ed.). *Blattariae: Suborbo [sic] Epilamproidea. Fam.: Nyctiboridae, Epilampriidae. Orthopterorum Catalogus*, W. Junk, s'Gravenhage (11): 617–710.
- Van Devender, T.R., and A.L. Reina-G. 2021. The vegetation of Sonora, Mexico. *Phytoneuron* 2021:67:1–22.



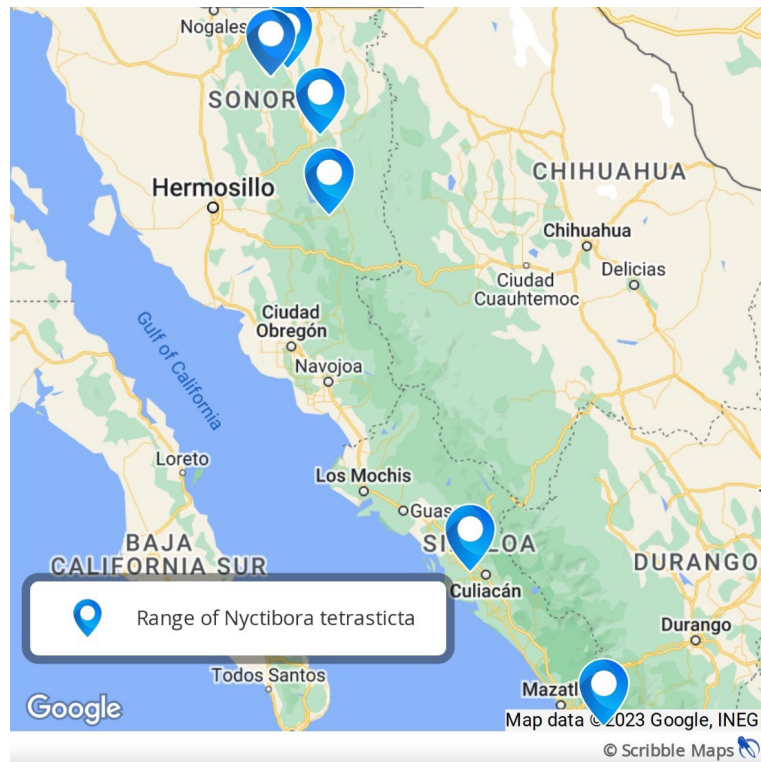


Figure 1. Current range of *N. tetrasticta*. The two southernmost points were the extent of the known range prior to 2010.



Figure 2: Adult female *N. tetrasticta* with ootheca photographed at Rancho los Alisos, Sonora, Mexico. Photo by Charles Hedgcock.





Figure 3: Adult female *N. tetrasticta* photographed near Bacanora, Sonora, Mexico. Photo by Diego Barrales-Alcalá.



Figure. 4: Immature *N. tetrasticta* photographed near Bacoachi, Sonora, Mexico. Photo by Susan D. Carnahan.