



Range extension of *Anisospira (Trachycion) velascorum* (Gastropoda: Urocoptidae) in Oaxaca, southeastern Mexico

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Abstract: *Anisospira (Trachycion) velascorum* Breure was described in 1977 from a locality near the highroad between the towns of Pochutla and Puerto Escondido on the coast of Oaxaca, southern Mexico. After its discovery, the species was never reported again elsewhere. Herein we report a new record of several specimens of *A. velascorum* near Pochutla town, in the Chepilme Botanical Garden, 58.3 km west of the type locality. This find represents an opportunity to study several unknown aspects of this species.

Key words: new records, Gastropoda, Costa del Pacifico Province, Chepilme Botanical Garden

The great biodiversity of Mexico is largely known. However, our knowledge of several taxa in many areas is scarce. One of the least studied groups is terrestrial Gastropoda in spite of its ecological importance.

Urocoptidae is one of the most conchologically and taxonomically diverse land snail families. It significantly contributes to the land-snail diversity in southwestern North American and circum-Caribbean regions (Uit de Weerd 2008). However, diversity of Urocoptidae in Mexico has been poorly studied. Most studies where the family is mentioned deal with total species richness of snails in the reported localities (e.g., Correa-Sandoval 1999; Correa-Sandoval 2000; Correa-Sandoval and Salazar-Rodríguez 2005; Avendaño-Gil et al. 2010). There are few articles dealing exclusively with Urocoptidae (e.g., Thompson 1968; Thompson and Correa-Sandoval 1994; Thompson and Mihalcik 2005).

Anisospira is a genus restricted to lowland regions of Colima, Michoacán, and Oaxaca, Mexico (Thompson 2011). It comprises seven species and two subspecies, according to Thompson (2011). Geographic distribution of these taxa is practically unknown; four species are recorded from only their type locality, and the rest are recorded in ambiguous geographic localities without

additional data (e.g., “Cerro Las Plumas, near Puerto Angel”, Pfeffer 1887). Additional information on the life history of *Anisospira* spp. is still lacking.

The last species of the genus formally described is *Anisospira (Trachycion) velascorum* Breure, 1977. Since its discovery, the species has never been reported from other areas besides the type locality. The first specimens from *A. velascorum* were collected at km 151 of the Pochutla-Puerto Escondido Road, in leaf litter on the forest floor of medium evergreen *selva* (Breure 1977). Nowadays, the type locality has been affected by the construction of a highway between Oaxaca City and Puerto Escondido and all the original vegetation has since been destroyed.

During 2014 and 2015, 35 empty shells of *A. velascorum* were sampled at Chepilme Botanical Garden. Given that

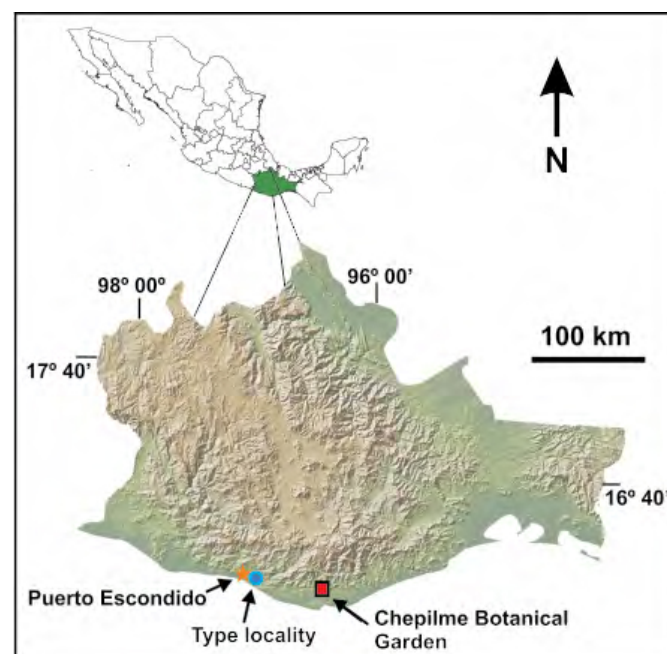


Figure 1. Index map of Oaxaca in southern Mexico, showing the town of Puerto Escondido, the type locality of *Anisospira (Trachycion) velascorum* and the location of the Chepilme Botanical Garden.



Figure 2. A general view of where the specimens were sampled in the Chepilme Botanical Garden.

the shells were empty and the species is not endangered or vulnerable status in the list of threatened species, a permit was not required; this was verified with X. Isidro, Inspector General de Vida Silvestre in Federal Attorney for Environmental Protection (PROFEPA).

The garden is located at 3.5 km of San Pedro Pochutla, Oaxaca, at $15^{\circ}46'17.68''$ N, $096^{\circ}26'50.02''$ W (Figure 1), and belongs to Universidad del Mar. The garden is dedicated to scientific research, environmental education, and collection and display of a wide range of plants and comprises an area of 8.5 ha, a third of which is used to display native and non-native plants, as well as different environmental education activities. The remaining area

is used to conserve different species.

The altitude is 150 m above sea level. Climate is sub-humid and warm, with rainy season during summer, mainly between May and November. Annual precipitation is 900 mm. The predominant soil is regosol. The shells were found in leaf litter.

All the shells were found on a 30° slope near an outdoor garden tap, in leaf litter. The vegetation is composed of *Spondias mambin*, *Bursera* spp, *Coccoloba liebmanni*, *Comocladia engleriana*, *Luehea speciosa*, and *Cordia alliodora* (Figure 2). The geographic coordinates of the sampled site are $15^{\circ}46'17.41''$ N, $096^{\circ}26'50.07''$ W.

The 35 shells were deposited in the Colección Malacológica de Referencia from Laboratorio de Paleobiología, Universidad del Mar, campus Puerto Escondido under the acronym UCMR 0022 to 0056.

The cylindrical shells reported here compare well with the description of *A. velascorum* reported in Breure (1977): a reddish-brown shell, with length up to 30.5 mm, rimate, with rather convex sides, surface slightly shining, and numerous fine riblets, which are recurved and equally spaced over the surface. As pointed by Breure (1977), the shells show some variation in shape, but all the collected specimens bear the diagnostic features of the species (Figure 3). Abraham S.H. Breure, who erected the taxon, verified species identification.

This new record of *Anisospira (Trachycion) velascorum* extends its former known distribution 58.3 km west of the type locality and represents the second occurrence in Oaxaca, Mexico.

Given that the known geographic range of *A. velascorum* at present only comprises two localities, its



Figure 3. Some specimens of *Anisospira (Trachycion) velascorum*. From left to right: UCMR 0022, 0023, and 0024. Scale bar = 10 mm.

conservation status is uncertain. It is necessary either to verify if this species is restricted to the vicinity of the type locality and the new locality in Chepilme Botanical Garden, or if it is more widely distributed.

The natural and evolutionary histories of *A. velascorum* are practically unknown. Its record in UMAR Botanical Garden is essential to develop future research, such as taxonomical, ecological or morphometric studies. Long-term studies of *A. velascorum* are now feasible because anthropogenic activities are prohibited inside Chepilme Botanical Garden, which allows for its conservation.

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LITERATURE CITED

- Avendaño- Gil, M.J., G. Carbot-Chanona and E. Naranjo-García. 2010. Moluscos gasterópodos terrestres y dulceacuícolas del area focal Ixcán, Chiapas, México. *Lacandonia* 4(4): 29–36.
- Breure, A.S.H. 1977. *Anisospira velascorum*, a new land snail from Mexico, with notes on the anatomy and histology (Mollusca, Gastropoda, Urocoptidae). *Zoologische Mededelingen* 51(19): 299–305. <http://www.repository.naturalis.nl/document/149328>
- Correa-Sandoval, A. 1999. Zoogeografía de los gasterópodos terrestres de la region oriental de San Luis Potosí, México. *Revista de Biología Tropical* 47(3): 493–502.
- Correa-Sandoval, A. 2000. Gastrópodos terrestres del Norte de Veracruz, México. *Acta Zoológica Mexicana* 79: 1–9.
- Correa-Sandoval, A. and M.C. Salazar-Rodríguez. 2005. Gastrópodos terrestres del Sur de Nuevo León, México. *Acta Zoológica Mexicana* 21(2): 51–61.
- Pfeffer, G. 1887. XII. *Anisospira Strebelsii*, nov. spec. aus Mexico. *Verhandlungen des Vereins für Naturwissenschaftliche. Unterhaltung zu Hamburg* 3: 117–118.
- Thompson, F.G. 1968. Some Mexican land snails of the family Urocoptidae. *Bulletin of the Florida State Museum* 12 (3): 124–184. <http://ufdcweb1.uflib.ufl.edu/UF00001530/00001/1j>
- Thompson, F.G. and A. Correa-Sandoval. 1994. Land snails of the genus *Coelocentrum* from northeastern Mexico. *Bulletin of the Florida State Museum* 36: 141–173. <http://ufdcweb1.uflib.ufl.edu/ufdc/?b=UF00095790>
- Thompson, F.G. 2011. An annotated checklist and bibliography of the land and freshwater snails of México and Central America. *Bulletin of Florida Museum of Natural History* 50(1): 1–299. <https://www.flmnh.ufl.edu/files/1213/9447/0368/bulletin-vol50no1.pdf>
- Thompson, F.G. and E.L. Mihalcik. 2005. Urocoptid landsnails of the genus *Holospira* from southern Mexico. *Bulletin of the Florida State Museum* 45(3): 63–124. <http://ufdcweb1.uflib.ufl.edu/ufdc/?b=UF00087419>
- Uit de Weerd, D.R. 2008. Delimitation and phylogenetics of the diverse land-snail family Urocoptidae (Gastropoda: Pulmonata) based on 28S rRNA sequence data: a reunion with *Cerion*. *Journal of Molluscan Studies* 74(4): 317–329. doi: [10.1093/mollus/eyno23](https://doi.org/10.1093/mollus/eyno23)

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