



# Use of Artificial Habitat by the Imbricate Alligator Lizard, *Barisia imbricata* (Squamata: Anguinae), in Toluca, State of Mexico, Mexico

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The family Anguinae has a wide distribution in Mexico (Maciel-Mata 2013). These terrestrial or arboreal lizards are characterized primarily by a lateral fold that separates the dorsum and venter, and generally have short limbs, although some genera are legless (Vitt and Caldwell 2014).

The anguid genus *Barisia* contains seven species of alligator lizards (Uetz et al. 2023). The Imbricate Alligator Lizard (*Barisia imbricata*) is distributed in the Sierra Madre Oriental, Sierra Madre Occidental, and Trans-Mexican Volcanic Belt, with an isolated population in northern Oaxaca (Sunny et al. 2017). They inhabit mainly coniferous forests at elevations of

2,000–4,060 m asl; in natural habitat, *B. imbricata*, which is primarily diurnally active and terrestrial, can be found in tussock grass, in burrows, or on the ground (Ramírez-Bautista et al. 2009; Lemos-Espinal and Dixon 2016), although records document the use of arboreal habitats in Toluca (Arzate-Garay et al. 2022). This species is listed as “Special Protection” (Pr) under the NOM-059-SEMARNAT-2010 (SEMARNAT 2010), as being of “Least Concern” (LC) on the IUCN Red List (Canseco-Márquez et al. 2007), and has a medium Environmental Vulnerability Score (EVS) (Lemos-Espinal and Smith 2020).

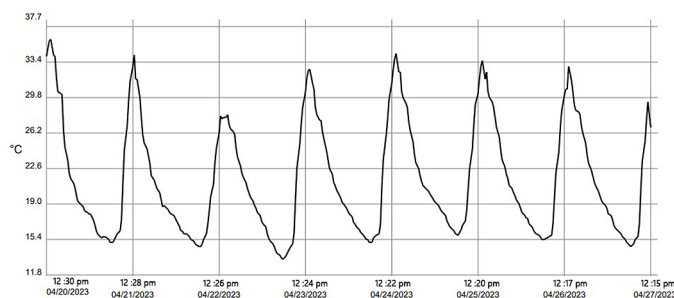


Figure 1. Plastic sheets used in agriculture in the sampling site. Photograph by Laura S. Arzate-Garay.



**Figure 2.** A male Imbricate Alligator Lizard (*Barisia imbricata*) found among the black plastic sheets. Photograph by Laura S. Arzate-Garay.

Habitat disturbance and land use changes, such as urbanization and agriculture, have caused many species to adapt to artificial environments (e.g., Krauss et al. 2010). For example, some colubrids have benefited from thermal shelters like plastic tarps, sheets, and drywall (Lelièvre et al. 2010), and some anurans have been documented using artificial hibernation sites, such as kitchenware (Shin et al. 2021). Herein we document the use of an artificial microhabitat by Imbricate Alligator Lizards in Toluca, State of Mexico (19.41250, -99.70162; elev. 2,607 m asl). During sampling sessions at the study site from February to April 2023, we found multiple *B. imbricata* beneath black plastic sheets used in agriculture (Figs. 1 & 2). We placed a TZ-TempU02 temperature sensor Digital Technology Tzone<sup>®</sup> under the plastic sheets, where temperatures were recorded for seven days on 20–27 April 2023. The maximum recorded temperature was 36.7 °C, the minimum was 13.5 °C, and the average was 21.6 °C (Fig. 3).



**Figure 3.** Temperature graph at the study site showing data from 20–27 April 2023.

These plastic sheets likely offer thermal benefits to *B. imbricata* due to the high temperatures recorded during the day. However, the temperatures recorded beneath the black plastic at the study site during the sampling period were higher than the preferred temperatures (25.0–30.9 °C) reported for the species by Fierro-Estrada et al. (2019). The plastic sheets also might serve as water refugia, as other species of amphibians and reptiles were found in the same microhabitat.

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