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# NOTES ON DIET AND A CASE OF KERATOPHAGY IN THE LIZARD *LEPIDOPHYMA GAIGEAE* (XANTUSIIDAE) FROM QUERÉTARO, MEXICO

## NOTAS SOBRE DIETA Y UN CASO DE QUERATOFAGIA EN LA LAGARTIJA *LEPIDOPHYMA GAIGEAE* (XANTUSIIDAE) DE QUERÉTARO, MÉXICO

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**Abstract**.— Currently, the feeding ecology of the xantusid lizard *Lepidophyma gaigeae* is virtually unknown. In this study, we identified the prey of the species from specimens deposited in collections. Our data shows that the diet of this species consists exclusively of insects comprising five orders. Additionally, we report the first case of keratophagy for both the genus and this particular species. The data presented here increase our knowledge of the natural history of this species. Importantly, this information can be used as a reference for future studies pertaining to the ecology and conservation of the species.

**Key words**.— Feeding ecology, lizards, natural history, Sierra Gorda.

**Resumen**.— Actualmente, la ecología alimentaria de la lagartija xantusida *Lepidophyma gaigeae* es prácticamente desconocida. En este estudio identificamos las presas de la especie a partir de ejemplares depositados en colecciones. Nuestros datos mostraron que la dieta de esta especie consiste exclusivamente en insectos que comprenden cinco órdenes. Adicionalmente, reportamos el primer caso de queratofagia tanto para el género como para esta especie en particular. Los datos aquí presentados aumentan nuestro conocimiento sobre la historia natural de esta especie. Es importante destacar que esta información se puede utilizar como referencia para futuros estudios relacionados con la ecología y la conservación de la especie.

**Palabras clave**.— Ecología alimentaria, lagartijas, historia natural, Sierra Gorda.

The lizard *Lepidophyma gaigeae* Mosauer, 1936 is a species endemic to Mexico, specifically in the states of Querétaro, San Luis Potosí, Hidalgo, and Guanajuato, in temperate forests such as pine-oak and scrub, where they use specific microhabitats such as cracks and holes in rocks (Dixon & Lemos-Espinal, 2010; Bezy, 2019). The species has a restricted geographic distribution and assessment of its distribution unfortunately determined that these populations are in decline (Mendoza-Quijano, 2007). Currently, studies on this species specifically addressing its natural history are scarce. With respect to reproduction, this species is viviparous, producing at least two litters per year, with births usually taking place at the end of May and beginning of June; the litter size varies between two and four embryos with a mean on 2.5 (Goldberg & Camarillo-Rangel, 2003). However, with regards to its diet, although this lizard has been categorized as insectivorous (Dixon & Lemos-Espinal, 2010), there is no detailed information on its diet composition. In this note we provide important information on the types of prey that were consumed by specimens of *L. gaigeae* in the northern region of Querétaro, México.

We analyzed five specimens of *L. gaigeae* deposited in the Amphibian and Reptile Collection of the Autonomous University of Querétaro (CAR-UAQ-29 to 33). The specimens were collected in the locality of El Madroño, Landa de Matamoros, Querétaro (21.28306° N, 99.15306° W; 1,800 m). The stomach contents were removed from all individuals and a stereomicroscope was used to identify prey at the taxonomic order level, and the number of prey was counted. Plant material was also identified.

From the five individuals, we recorded a total of five prey categories belonging to the class Arachnida and the orders Blattodea, Isoptera, Orthoptera, and Phasmida, in addition to the consumption of its own molt in one specimen (identified according to Bezy, 2019) and plant material (Table 1). This type of insectivorous diet for this species has been previously mentioned by Dixon & Lemos-Espinal (2010) and also attributed to other species in the genus *Lepidophyma* (Bezy, 2019); however, no information on specific insect categories is available. In this study, we also report a mainly insectivorous diet, similar to that other species in the genus such as L. sylvaticum and L. occulor (Ramírez-Bautista et al., 2014). Additionally, the presence of

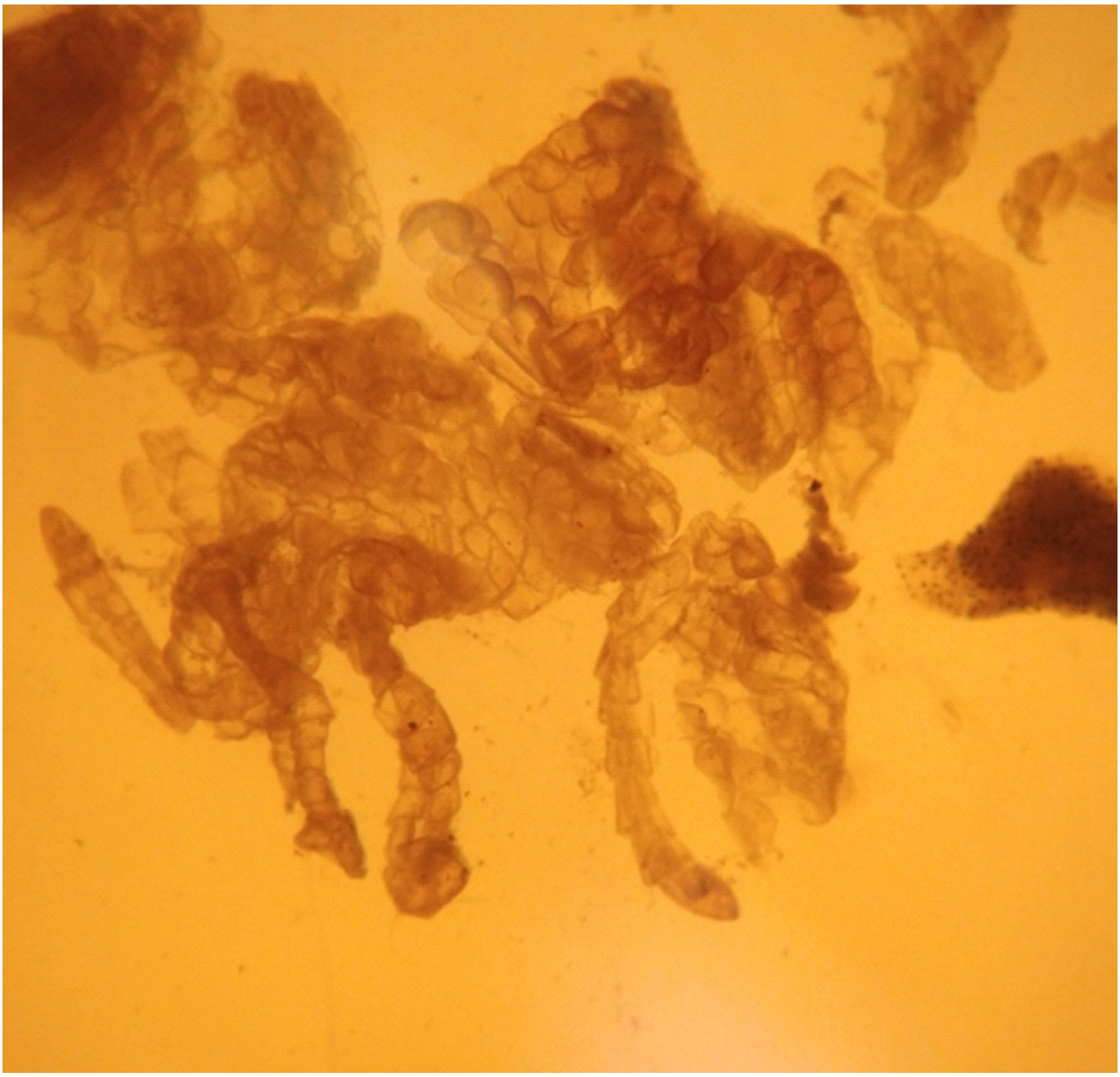

**Figura 1.** Muda consumida por *Lepidophyma gaigeae*. Foto: Axel Arturo Sandoval-Ponce.
**Figura 1.** Molt consumed by *Lepidophyma gaigeae*. Photo: Axel Arturo Sandoval-Ponce.

**Tabla 1.** Resumen de categorías de presas y abundancia por lagartija.
**Table 1.** Summary of prey categories and abundance by lizard.

| Prey category | CAR-UAQ-29 | CAR-UAQ-30 | CAR-UAQ-31 | CAR-UAQ-32 | CAR-UAQ-33 |
|---|---|---|---|---|---|
| Arachnida | | 1 | | | |
| Blattodea | | 1 | | | |
| Isoptera | 1 | | 1 | | 1 |
| Orthoptera | | | 1 | | |
| Phasmida | 1 | | | | |
| Molt | | | | 1 | |
| Plant material | | 1 | | | |

nematodes was recorded in four of the five stomach contents. The presence of nematodes in Xantusiidae has been previously recorded by Goldberg et al (2015). One important aspect to highlight is the presence of lizard molt in the stomach contents of one individual (Fig. 1). The behavior called dermatophagy or keratophagy is common in lizards; however, in the family Xantusiidae, it had only been reported for *Xantusia henshawi* and *X. riversiana* (Mitchell et al., 2006). Consequently, this observation represents the first report for the genus *Lepidophyma* and also for this species in particular. This behavior may be associated with various causes, with the nutritional contribution being the most relevant (Mitchell et al., 2006), since a high proportion of skin consumed was recorded, as opposed to be regarded as just accidental. Finally, the consumption of vegetable matter is presumed to be accidental, since it only occurred in a single organism, in addition to the fact that the habits of the species suggest a diet associated with prey in crevices.

The information provided in this publication increases our knowledge on the diet of *L. gaigeae*. Additionally, the observation of keratophagy indicates that this species also uses other uncommon food resources. The data obtained from specimens deposited in collections also highlight the importance of collecting. Even though we examined a small sample of lizards, these individuals revealed important clues on the prey items the species consumes in its natural habitats; however, it is necessary to carry out long-term studies with much larger samples that ultimately will benefit the conservation plans for this species.

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