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Cover photo: *Salvadora mexicana* trying to feed on an *Aspidoscelis lineattissimus* in River Cuixmala, municipality of La Huerta, Jalisco, Mexico (photograph © Barry W. Sullender).

Predation on the lizard species *Aspidozelis lineattissimus* by two snake species, *Trimorphodon paucimaculatus* and *Salvadora mexicana* in western Mexico

Jesús A. Loc-Barrgán^{1*} , Barry W. Sullender² A. Delia Padilla-Ruvalcaba³ and Adrián Maldonado-Gasca³

Resumen

Documentamos dos casos de depredación de una lagartija de cola de látigo (*Aspidozelis lineattissimus*) por dos especies de serpientes diferentes en el oeste de México: una culebra lira de Sinaloa (*Trimorphodon paucimaculatus*) y una culebra de nariz de parche mexicana (*Salvadora mexicana*). Estas interacciones específicas no se habían reportado previamente, por lo que su documentación contribuye a nuestra comprensión de las interacciones tróficas de los herpetozoos en el oeste de México.

Palabras claves: Depredación, herpetozoos, lagartija, México, serpientes.

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Abstract

We document two instances of predation on a Many-lined Whiptail lizard (*Aspidozelis lineattissimus*) by two different snake species in western Mexico: a Sinaloan Lyresnake (*Trimorphodon paucimaculatus*) and a Mexican Patch-nosed Snake (*Salvadora mexicana*). These specific interactions have not been previously reported and thus their documentation here adds to our evolving understanding of herpetozoan trophic interactions in western Mexico.

Keywords: Predation, herpetozoan, lizard, Mexico, snake.

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Introduction

Knowledge of herpetozoan trophic interactions in western Mexico, has increased continuously over the past decade, (Loc-Barragán *et al.*, 2016a; Loc-Barragán *et al.*, 2016b; Loc-Barragán *et al.*, 2016c; Loc-Barragán & Carbajal Márquez, 2016; Loc-Barragán & Woolrich-Piña, 2016; Loc-Barragán, 2017; Loc-Barragán & Carbajal Márquez, 2017; Loc-Barragán *et al.*, 2017; Loc-Barragán *et al.*, 2020; Loc-Barragán *et al.*, 2022a; Loc-Barragán *et al.*, 2022b). Here we review this literature and report on two novel instances of predation where Many-lined Whiptails (*A. lineattissimus*) were the prey of a Sinaloan lyresnake (*T. paucimaculatus*) and a Mexican Patch-nosed Snake (*S. mexicana*), respectively.

Species Background Information

All three of the focus species in this note are Mexican endemics (Smith & Lemos-Espinal, 2025). The Many-lined Whiptail (*A. lineattissimus*) occurs from Nayarit to Colima (Loc-Barragán *et al.*, 2024; Reyes-Velazco, 2024). The species is listed in Mexico as Pr - “subject to special protection” according to SEMARNAT (2019), and listed as LC - “Least Concern” by IUCN (2022). Its Environmental Vulnerability Score (EVS) has been gauged as 14, placing it in the lower portion of the high vulnerability category (Wilson *et al.*, 2013). With the Mexican Patch-nosed Snake (*S. mexicana*) is found along the Pacific coast from Nayarit to western Oaxaca. The distribution also includes the Santiago River Basin in Jalisco, Balsas Basin in Michoacán, México, and Morelos, and the Tehuacán Valley in Puebla (Loc-Barragán *et al.*, 2024; Reyes-Velazco, 2024). The species is listed in Mexico as Pr - “subject to special protection” by conservation status in Mexico according to SEMARNAT (2019), and listed as LC - “Least Concern” by IUCN (2022). Its Environmental Vulnerability Score (EVS) has been gauged as 15, placing it in the lower portion of the high vulnerability category (Wilson *et al.*, 2013). With Sinaloan lyresnake (*T. paucimaculatus*) occurs from Sinaloa to Colima (Loc-Barragán *et al.*, 2024; Reyes-Velazco, 2024). The species is listed in Mexico as NL - “not listed” by conservation status in Mexico according to SEMARNAT (2019), and listed as NE - “not evaluated” by IUCN (2022). Its Environmental Vulnerability Score (EVS) has been gauged as 15, placing it in the lower portion of the high vulnerability category (Wilson *et al.*, 2013).

Results: Interaction trophic event

On 23 December 2022, at 11:18, in the Cuixmala river valley above Highway 200 in the municipality of La Huerta, Jalisco, Mexico (19.45520°N, -104.93902°W; WGS 84; elev. 502 m), one of us, BWS, observed a juvenile *A. lineattissimus* being preyed upon by an adult *S. mexicana* (fig. 1) alongside of a dirt road that was at the interface of a second-growth tropical dry forest and a pasture. Likely a result of approaching the snake closely for photographs, the *S. mexicana* released the *A. lineattissimus* and moved off into the surrounding vegetation, leaving the lifeless lizard behind. With this observation, we report for the first time a predator-prey interaction between two common reptile species in the tropical dry forests of Jalisco



Figure 1. *Salvadora Mexicana* trying to feed on an *Aspidoscelis lineattissimus* in River Cuixmala, municipality of La Huerta, Jalisco, Mexico. (photograph © Barry W. Sullender).

A second predation event was recorded at 10:25 on 26 September 2024, inside of the Hotel Naviva-Four Seasons, within the municipality of Punta de Mita, Nayarit, Mexico (20.78470°N, - 105.52594°W; WGS 84; elev. 9 m). LDF observed a juvenile *T. paucimaculatus* ingesting a sub-adult *A. lineattissimus* (fig. 2). To our knowledge this is the first report of *T. paucimaculatus* preying on *A. lineattissimus*.



Figure 2. *Trimorphodon paucimaculatus* found consuming an *Aspidoscelis lineattissimus* in Hotel Naviva-Four Seasons, Punta de Mita, Nayarit, Mexico (photograph © Luis Daniel Flores).

Discussion

General natural history accounts report that *Trimorphodon paucimaculatus* consumes lizards, frogs, rodents, and snakes (Reyes-Velasco, 2024). Davis & Smith (1953), documents an *S. mexicana* in Morelos conatining a juvenile *Ctenosaura pectinata*. Duellman (1961), as part of field work in Michoacán, reported captured individuals, which regurgitated *Cnemidophorus costatus* (= *Aspidoscelis costatus*), *Cnemidophorus deppei* (= *A. deppei*), *Sceloporus horridus*, *S. pyrocephalus* and *Urosaurus gadowi*.

Ramírez-Bautista (1994) and Benítez-Gálvez (1997), report that they generally consume other snakes, reptile eggs, rodents, and frog species as *Agalychnis dacnicolor*, *Smilisca baudinii* and *Trachycephalus typhonius*, [= *T. vermiculatus*]. In Zacatecas, Bañuelos-Alamillo *et al.* (2019), found an adult male Eastern Spotted Whiptail (*A. gularis*) among the stomach contents of an *S. mexicana*. Nieto-Toscano & Cedeño-Vázquez (2021), observed a Mexican *Salvadora* devouring an *A. guttatus* among rocks in the state of Oaxaca. While our observation cannot definitively confirm that *S. mexicana* consumes *A. lineattissimus*, it strongly suggests that *S. mexicana* recognizes *A. lineattissimus* as a prey species. In addition, general natural history accounts suggest that *T. paucimaculatus* consumes lizards, rodents, birds, geckos and bats (García & Ceballos, 1994; Reyes-Velasco, 2024). There is, however, little information specifically documenting their diet. These include Carbajal-Márquez *et al.* (2014) who report a female *T. paucimaculatus* in Nayarit feeding on a Black-vented Oriole (*Icterus wagleri*). Also, Loc-Barragán *et al.* (2016), documents a female *T. paucimaculatus* in Nayarit with stomach contents containing a *Sceloporus albiventris* and an *Aspidoscelis costatus*. In this note, we added an additional prey species to this list in furthering our understanding of *T. paucimaculatus* in situ food preferences.

Conclusion

This note documents predation of *A. lineattissimus* by *T. paucimaculatus* and attempted predation by *S. mexicana*. These observations expand on known trophic interactions and provide additional evidence on predator-prey relationships in three endemic Mexican species.

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Literature cited

Bañuelos-Alamillo J.A., Ahumada-Carrillo I.T., Quintero-Díaz G.E. & Carbajal-Márquez R.A. (2019). The Mexican Patch-nosed Snake, *Salvadora mexicana* (Duméril, Bibron & Duméril, 1854; Squamata: Colubridae): a new state record for Zacatecas, Mexico, and a new prey species. Cuadernos de Herpetología. 33 (1): 45-47.

Benítez-Gálvez J.E. (1997). Los ofidios de Puebla. *Ecologistas*. Puebla, México.

Carbajal-Márquez R.A. Quintero-Díaz G.E. & González-Saucedo Z.Y. (2014). Natural History Notes. *Trimorphodon paucimaculatus* (Sinaloan Lyresnake): Diet. *Herpetological Review*. 45: 521.

Davis W.B. & Smith H.M. (1953). Snakes of the Mexican state of Morelos. *Herpetologica*. 8: 133-149.

García A. & Ceballos G. (1994). Guía de campo de los anfibios y reptiles de la costa de Jalisco, México. Fundación Ecológica de Cuixmala/Instituto de Biología, UNAM, México, DF.

Heimes P. (2016). Snakes of Mexico. Chimaira, Frankfurt, 572 pp.

IUCN (2022) IUCN Red List of Threatened Species, Version 2022.2.[Accessed 9 July 2025].

Loc-Barragán J.A. & Carbajal-Márquez R.A. (2016). Natural Notes. *Agkistrodon bilineatus*. Diet. *Mesoamerican Herpetology*. 3(3): 733-735.

Loc-Barragán J.A., Ramírez-Silva J.P. & Woolrich-Piña G.A. (2016). Natural Notes. *Boa sigma*. Diet. *Mesoamerican Herpetology*. 3(4): 1015-1017.

Loc-Barragán J.A., Ramírez-Silva J.P. & Carbajal-Márquez R.A. (2016a). Nature Notes. *Trimorphodon paucimaculatus*. Diet and Reproduction. *Mesoamerican Herpetology*. 3 (1): 160-161.

Loc-Barragán J.A. & Woolrich-Piña G.A. (2016). Nature Notes. *Smilisca baudinii*. Diet. *Mesoamerican Herpetology*. 3(3): 710-711.

Loc-Barragán J.A., Miramontes-Medina E., Molina D. & Woolrich-Piña G.A. (2016b). Natural Notes. *Mastigodryas cliftoni*. Diet. *Mesoamerican Herpetology*. 3(3): 748- 749.

Loc-Barragán J.A. & Carbajal-Márquez R.A. (2017). Natural Notes. *Rhinocheilus lecontei*. Diet. *Mesoamerican Herpetology*. 4(3) 652-654.

Loc-Barragán J.A., Carbajal-Márquez R.A. & Domínguez-de la Riva M.A. (2017). Natural Note. *Lithobates forreri*. Diet. *Mesoamerican Herpetology*. 4 (3) 622-633.

Loc-Barragán J.A. (2017). Nature Note. Iguana. Predation. *Mesoamerican Herpetology*, 4(4): 929-930.

Loc-Barragán J.A., Robles-Martínez J.A. & Molidá D. (2020). Natural History Notes. *Lampropeltis polyzona*. Predation. *Herpetological Review*. 51 (4) 867.

Loc-Barragán J.A., Woolrich-Piña G.A. & Santana-Moreno L.D. (2022a). *Mastigodryas melanolomus* (Salmon-bellied Racer). Diet. Herpetological Review. 53:344.

Loc-Barragán J.A., Luja V.H. & Marín J. (2022b). Natural History Notes. *Drymarchon melanurus* (Central American Indigo Snake). Diet. Herpetological Review. 53:147-148.

Loc-Barragán, J.A., Smith G.R., Woolrich-Piña G.A. & Lemos-Espinal J.A. (2024). An updated checklist of the amphibians and reptiles of Nayarit, Mexico with conservation status and comparison with adjoining States. Herpetozoa. 37, 25-42 <https://doi.org/10.3897/herpetozoa.37.e112093>

Nieto-Toscano L.F. & Cedeño-Vázquez J.R. (2021). Natural History Notes. *Salvadora mexicana* (Mexican Patch-nosed Snake). Diet. Herpetological Review. 52(4): 881-882.

Ramírez-Bautista A. (1994). Manual y claves ilustradas de los anfibios y reptiles de la región de Chamela, Jalisco, México. Cuadernos del Instituto de Biología 23. Universidad Nacional Autónoma de México. DF, México.

Reyes-Velasco J. (2024). Photographic Field Guide to the Amphibian and Reptiles of Colima. Acento Editores, Guadalajara, México.

SEMARNAT. (2019). Modificación al anexo normativo III, lista de especies en riesgo de la Norma Oficial Mexicana NOM-059-SEMARNAT-2010. Protección ambiental-Especies nativas de México de flora y fauna silvestres-Categorías de riesgo y especificaciones para su inclusión, exclusión o cambio-Lista de especies en riesgo, publicada el 30 de diciembre del 2010 (9 Julio 2025). Secretaría de Medio Ambiente y Recursos Naturales, México.

Smith G.R. & Lemos-Espinal J.A. (2025). Diversity, Endemism, and Conservation Status of the Herpetofauna of the Sierra Madre Occidental in Mexico with Comparison to Neighboring Biogeographic Provinces. Animals. 15(9), 1278 <https://www.mdpi.com/2076-2615/15/9/1278>.

Wilson L.D., Mata-Silva V. & Johnson J.D. (2013). A conservation reassessment of the reptiles of Mexico based on the EVS measure. Amphibian & Reptile Conservation. 7(1): 1-47 (e61).

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