



NOTE

New records of rare herpetofauna species in Sinaloa, Mexico

Nuevos registros de especies raras de herpetofauna en Sinaloa, México

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ABSTRACT

This study highlights the importance of identifying poorly documented species for biodiversity conservation in critical regions such as Mexico, where many amphibians and reptiles face an uncertain conservation status. In Sinaloa, three species of amphibians and 19 species of reptiles require verification; among them, *Anaxyrus kelloggi*, with no records in over 30 years, and *Lampropeltis nigrita*, undocumented for more than 50 years and now recorded for the first time in the surroundings of the town of El Fuerte. These findings are crucial for improving the understanding of the local herpetofauna and highlight the need for further research on their distribution, habitat, and population dynamics.

Keywords: *Anaxyrus kelloggi*, Conservation, Geographic distribution, *Lampropeltis nigrita*, Species verification.

RESUMEN

Este estudio destaca la importancia de identificar especies poco documentadas para la conservación de la biodiversidad en regiones críticas como México, donde muchos anfibios y reptiles enfrentan un estatus de conservación incierto. En Sinaloa, tres especies de anfibios y 19 de reptiles necesitan verificación; entre ellas, *Anaxyrus kelloggi*, sin registros en más de 30 años, y *Lampropeltis nigrita*, sin documentar durante más de 50 años y

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ahora registrada por primera vez en los alrededores del pueblo de El Fuerte. Estos hallazgos son clave para mejorar el conocimiento de la herpetofauna local y subrayan la necesidad de investigaciones más detalladas sobre su distribución, hábitat y dinámica poblacional.

Palabras clave: *Anaxyrus kelloggi*, Conservación, Distribución geográfica, *Lampropeltis nigrata*, Verificación de especies.

The identification of rare or “lost” species is crucial for biodiversity conservation, especially in regions underrepresented in scientific literature, such as Mexico (Mace, 2004; Rodrigues, Pilgrim, Lamoreux, Hoffmann, Brooks, 2006). These species, characterized by sporadic or absent records over decades, face documentation challenges that may be due to a lack of studies, habitat changes, or difficulties in sampling small populations (Cansco-Márquez, Aguilar-López, Luría-Manzano, Gutiérrez-Mayén, Hernández-Benítez, 2018; Martin, Bennett, Fairbairn, Mooers, 2022).

Amphibians and reptiles are the vertebrates with the highest proportion of species with uncertain conservation status (25% and 46%, respectively), and Mexico stands out as a critical hotspot for these groups, necessitating increased research efforts in the region (Martin, Bennett, Fairbairn, Mooers, 2022). In the case of Sinaloa, a state in northwestern Mexico, three species of amphibians and 19 of reptiles require verification due to the lack of scientific records in the last 50 years (Castro-Bastidas and Serrano, 2022; Aguirre-Zazueta, Jacobo-González, Castro-Bastidas, 2023).

This study presents two notable records of herpetofauna in Sinaloa: *Anaxyrus kelloggi*, undocumented for over 30 years, and *Lampropeltis nigrata*, with no records for more than 50 years and now reported for the first time in the municipality of El Fuerte. During July and August, individuals of both species were observed and measured in northern Sinaloa; all were released at their capture sites, and the photographs were deposited in the Photographic Collection of the Los Angeles County Museum of Natural History (PC LACM). In addition, the photographs of the individuals were verified by Jesús Alberto Loc Barragán.

During herpetological fieldwork conducted in the municipality of El Fuerte, Sinaloa, Mexico, on August 13, 2024, at 19:30 h, a female *L. nigrata* was found with a Snout-Vent Length of 850 mm (Fig. 1A; LACM PC 3125). The snake was discovered on a path surrounded by dry tropical forest (Fig. 1B; 26°0'50.08"N, 108°42'44.02"W; WGS84; elevation 95 m a.s.l.). The closest previous record of this species is located 26 km southwest in the city of Los Mochis (Hardy and McDiarmid, 1969). This species was recorded in Sinaloa 55 years ago, and represents the first record in the municipality of El Fuerte (Hardy and McDiarmid, 1969; Aguirre-Zazueta, Jacobo-González, Castro-Bastidas, 2023).

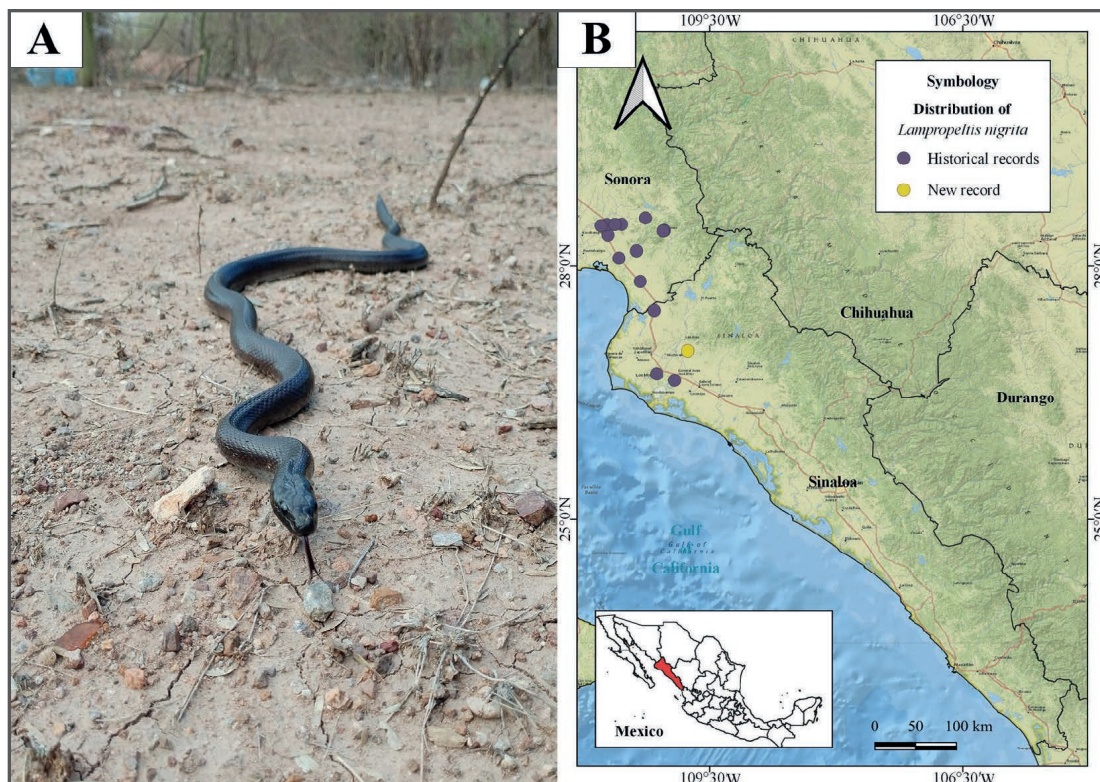


Fig. 1. A) Individual of *Lampropeltis nigrita*, and B) its range in northwestern Mexico.

Fig. 1. A) Individuo de *Lampropeltis nigrita*, y B) su distribución en el noroeste de México.

Later that same day, at 20:45 h, several individuals of *A. kelloggi* were found in the same area (25°59'31.17"N, 108°43'16.69"W; WGS84; elevation 70 m a.s.l.). The individuals were found near a body of water and among trails surrounded by dry tropical forest (Fig. 2; LACM PC 3129-32). Records of this species in the Sinaloa region have not been documented since 1991 (33 years) (University of Colorado Museum of Natural History: 62953).

The identity of the individuals of both species was confirmed following Hardy and McDiarmid (1969). Diagnostic characteristics of *L. nigrita* include 218 ventral scales, 44 subcaudal scales in two rows, a row of 23 dorsal scales, seven supralabials, nine infralabials, one preocular scale, two postocular scales, and 2+3 temporal scales. The coloration of the individual is almost entirely dark, except for the ventral scales, which are grayish, and the chin scales, which have white spots. On the other hand, *A. kelloggi* is characterized by a flattened body with numerous tubercles, a triangular-shaped anterior head, and mean SVL of 388 mm for females and 351 mm for males. The individuals of this species found in this study matched these characteristics, with individuals slightly exceeded 300 mm in length.

Lampropeltis nigrita is frequently been mistaken for species in the *getula* complex because of their morphological similarity. Recent genetic and morphological studies confirm that *L. nigrita* is a distinct species, separate



Fig. 2. Individuals of *Anaxyrus kelloggi* found after 33 years without records in Sinaloa.

Fig. 2. Individuos de *Anaxyrus kelloggi* encontrados después de 33 años sin registros en Sinaloa.

from the *getula* complex, which consists of several species found mainly in the southwestern United States and northwestern Mexico (Krysko, Nuñez, Newman, Bowen, 2017). Notably, there are no other morphologically similar species in the northern region of Sinaloa. The available information on *L. nigrata* indicates that its distribution ranges from the southeastern tip of Arizona in the United States, through the Sonoran Desert in Mexico, to an adjacent area in northern Sinaloa (Krysko, Nuñez, Newman, Bowen, 2017). For over five decades, records of this species were restricted to the municipality of Ahome, Sinaloa (Hardy and McDiarmid, 1969; Aguirre-Zazueta, Jacobo-González, Castro-Bastidas, 2023), although additional noteworthy observations of *L. nigrata* have been made in recent years through citizen science efforts in the same city of Los Mochis (iNaturalist: 159079457, 159079045, and 78802298).

In contrast, *A. kelloggi*, an amphibian species endemic to Mexico, is found from central Sonora to the coastal plain of Sinaloa and Nayarit (Peralta-García, Leavitt, Hollingsworth, Reeder, 2016). The most recent historical records of *A. kelloggi* in Sinaloa are mainly from the 1980s and 1990s in Ahome, Culiacán, El Fuerte, Elota, and Escuinapa (Global Biodiversity Information Facility [GBIF], 2024a; Vertnet, 2024). However, in recent years, new records have been obtained at specific sites such as El Rosario and Escuinapa, thanks to citizen science efforts (GBIF, 2024b).

This study presents the verification of *L. nigrita* and new records of *A. kelloggi* in the northern region of Sinaloa. These new records are particularly important after decades of absence in the scientific documentation of these species, filling a critical gap in the knowledge of their distribution and reaffirming their continued presence in the region. These findings are significant not only in expanding knowledge on the species' current distribution, but also for preventing uncertainty regarding their occurrence, similar to other documented cases (Lara-Resendiz and Jacobo-González, 2022; Castro-Bastidas, 2024).

Additionally, the role of citizen science has proven invaluable, contributing directly to the discovery of these records and emphasizing the significant role of community engagement in biodiversity conservation. For poorly documented species such as those reported in this study, fieldwork is recommended, focusing on the species' geographic range, historical records, habitat preferences, reproductive phenology, and potentially suitable but unexplored sites with similar habitats that may support populations of these species.

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