



## Research note

# New record of sheep frog (*Hypopachus variolosus*) in the Tres Marías Islands archipelago, Nayarit, Mexico

## Nuevo registro de la rana ovejera (*Hypopachus variolosus*) en el archipiélago de las islas Marías, Nayarit, México

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**Abstract.** During a recent visit to María Madre Island, in the Tres Marías Island archipelago, 2 specimens of *Hypopachus variolosus* were found. This new record of the sheep frog from Tres Marías Island archipelago represents the first island record for this species. Due to the uncertainty about its conservation status in this locality, we consider necessary to improve the information about this species in the island.

Key words: *Hypopachus variolosus*, sheep frog, Microhylidae, Tres Marías Islands.

**Resumen.** Durante una reciente vista a la isla María Madre del archipiélago de las islas Marías se encontraron 2 ejemplares de *Hypopachus variolosus*. Este nuevo registro de la rana ovejera en las islas Marías representa el primero de esta especie para una isla. Consideramos que es necesario obtener más información de esta especie en el archipiélago ya que su estado de conservación en esta localidad es incierto.

Palabras clave: *Hypopachus variolosus*, rana ovejera, rana manglera, Microhylidae, islas Marías.

The Tres Marías Islands are a small chain of 4 islands (María Madre Island, María Magdalena Island, María Cleofas Island and San Juanito), located in the eastern Pacific Ocean towards northwesterly on a line extending from the coast of the Mexican states of Nayarit and Jalisco, lying 80 to 100 km west from the Mexican mainland, between 21 and 22°N and 106 and 107°W (Wilson, 1991). Given its high number of endemics, degree of isolation and extraordinary importance as biodiversity reservoir, this archipelago has been considered the “Mexican Galapagos”. The Tres Marías Islands archipelago was declared as Biosphere Reserve in 2000 (Diario Oficial de la Federación, 2000).

Faunal inventories have been realized previously for The Tres Marías Islands archipelago (Zweifel, 1960; Wilson, 1981; Casas-Andreu, 1992). The list of native terrestrial amphibian for Tres Marías Islands included only 3 non endemic species, following Frost’s (2008) taxonomic arrangement: *Incilius mazatlanensis*, *Eleutherodactylus pallidus* and *Smilisca baudini* (Zweifel, 1960; Casas-

Andreu, 1992). Zweifel (1960) suggested a list of 20 potential mainland amphibian species that could occur in these islands, which included the sheep frog (*Hypopachus variolosus*). However, other amphibian species have not been so far recorded for this archipelago.

We visited María Madre Island, the largest island of the chain, during September 2008 at the peak of the rainy season. On September 7<sup>th</sup>, approximately at 8:00 pm, an adult male of *H. variolosus* was found crossing a trail along an intermittent creek known as Arroyo Hondo [21.6728°N, 106.6118°W, 92 masl]. This individual was photographed (Fig. 1). A second individual was found in the same trail on September 9<sup>th</sup>, approximately at 8:30 pm [21.6744°N, 106.6084°W, 89 masl]. The second individual was collected, prepared as collection specimen and deposited in a registered collection (Rodrigo A. Medellín Legorreta, Museo de Zoología “Alfonso L. Herrera” Universidad Nacional Autónoma de México, [MZFC 22638], SVL 37.3 mm, 7 g). The site where both specimens were found was covered with disturbed riparian vegetation, sandy ground and scattered pasture. Both individuals were identified as *H. variolosus* (verified by G. Santos). The closest known



**Figure 1.** Photo of the first sheep frog (*Hypopachus variolosus*) found at María Madre Island on September 2008 (Photo by H. Bárcenas).

locality was recorded as a synonymous by Shannon and Humphrey (1958), at “3 mi. E. San Blas, Nayarit” (Frost, 2009) in mainland, which is *ca.* 142 km E of the archipelago.

Sheep frogs occur at low and moderate elevations from southern Texas and Sonora to Costa Rica (Lee, 1996). This new record of *H. variolosus* from Tres Mariás Islands archipelago is relevant because it is the first island record for this species. Amphibians are unlikely to disperse over ocean barriers because they do not tolerate the osmotic stress of salt water. Therefore, amphibian biogeography is explained mostly by vicariance (Vences et al., 2003), and the occurrence of *H. variolosus* and the other amphibian species recorded on Tres Mariás Islands archipelago suggest a former mainland connection (Zweifel, 1960). However, there is a remote possibility that *H. variolosus* could be introduced to the island, as many other species, due to the intense movements of materials, foods, plants and people to these islands; but currently there is not any evidence that support this hypothesis. This issue can probably be solved in future using molecular methods to compare genetic diversity of the island population with the mainland populations.

Finally, we consider important to improve the information about this and other species in the archipelago as its current conservation status in the site is unknown. This situation is crucial, due to the fact that since 1905 a penal colony and personal of the Mexican Navy inhabit María Madre Island (Santos del Prado et al. 2006). Main threats for biodiversity at these islands are the timber, flora and fauna extraction for disorganized commercial subsistence

purposes and the large populations of exotic species. This new information will enhance the management program for the conservation of the archipelago and the sustainable use of the resources of the Islas Mariás Biosphere Reserve.

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