

STAUROTYPUS TRIPORCATUS (MEXICAN GIANT MUSK TURTLE) PISCIVORY ON PTERYGOPLICHTHYS PARDALIS (SAILFIN CATFISH), AN INVASIVE FISH IN SOUTHERN QUINTANA ROO, MEXICO/NORTHERN ORANGE WALK, BELIZE

PISCIVORÍA DE STAUROTYPUS TRIPORCATUS (TORTUGA TRES LOMOS) SOBRE PTERYGOPLICHTHYS PARDALIS (PEZ DIABLO), UN PEZ INVASOR EN EL SUR DE QUINTANA ROO, MEXICO/NORTE DE ORANGE WALK, BELIZE

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Abstract.— The Mexican Giant Musk Turtle (*Staurotypus triporcatus*) inhabits in freshwater slow stream systems in various regions of southeastern Mexico, Guatemala, and Belize (Orange Walk). While primarily a durophagus species, preying on shelled or hard organisms, its diet typically consists of aquatic invertebrates, especially mollusks. However, it occasionally exhibits piscivorous habits. In this note, we document an event of piscivory by the Mexican Giant Musk Turtle, specifically targeting the invasive Sailfin Catfish (*Pterygoplichthys pardalis*) and discuss the potential ecological implications of this behavior.

Key words.— Devil fish, invasive species, Rio Hondo.

Resumen.— La tortuga de tres lomos (*Staurotypus triporcatus*) es un habitante frecuente de los sistemas de corrientes lentas de agua dulce en varias regiones de Centroamérica, incluido México, Guatemala y Belice (Orange Walk). Es principalmente una especie durofaga, es decir, que se alimenta de organismos duros o con caparazón, por lo que su dieta generalmente consiste en invertebrados acuáticos, especialmente moluscos y ocasionalmente presenta hábitos piscívoros. En este texto, documentamos un caso de piscivoría de la tortuga tres lomos sobre ejemplares de pez diablo (*Pterygoplichthys pardalis*) y discutimos las posibles implicaciones ecológicas de esta conducta.

Palabras clave.— Pez diablo, especie invasora, Río Hondo.

The Mexican giant musk turtle (*Staurotypus triporcatus*) is a well-known inhabitant of freshwater slow stream systems, such as rivers, lakes, and ponds, found from central Veracruz, Mexico, through Tabasco, to the base of the Mexican Yucatán Peninsula, the Chimalapas region in Oaxaca, and northeast of Chiapas, including the Peten region in Guatemala, Belize, and eastern Honduras (Köhler, 2008; González-Sánchez et al., 2017).

By its morphological characteristics, such as strong and sharp jaws and a powerful bite, this species is considered to have a durophagus diet, adapted to feed on shelled or hard prey, but

also slow-moving organisms (Herrel et al., 2002). The diet of the species in the Yucatan Peninsula is primarily composed of a diverse variety of aquatic invertebrates, especially mollusks, but sometimes includes vertebrates, such mud turtles, (genus *Kinosternon*, Díaz-Gamboa et al., 2020). In a previous study on the diet of the Mexican giant musk turtle in Belize, this turtle can be considered a “specialist,” feeding almost exclusively on snails and other turtles, with occasional consumption of other organisms and rarely fish (Moll, 1990). Voght & Guzmán-Guzmán (1988) documented that *S. triporcatus* feed primarily on fruits, seeds, and mollusks, but also fishes (but they do not

state the species) in Los Tuxtlas, México. This indicates that *S. triporcatus*, while specialized on feeding on hard food items, it also preys opportunistically on what is available.

The Sailfin catfish (*Pterygoplichthys pardalis*) belongs to the family of armored catfishes (Siluriformes: Loricariidae), also known in Mexico as “peces diablo” (Devil fish). It is an invasive species native to the Amazon basin. Its presence in the Rio Hondo Basin, on the Mexican/Belizean border was detected in 2013. It

likely arrived due to anomalous strong pluvial precipitations that might have provided this fish an escape from Petén Itzá Lake, Guatemala, where this fish has been present since 2004, or from the San Pedro River in the North of Guatemala, where it arrived in 2005 (Hernández-Gómez & Schmitter-Soto, 2020).

In January of 2019, during a survey near the locality of Rancho la Flor Amarilla (17 17.9733° N, 89 89.0011° W; WGS84), near La Unión, southern Quintana Roo, we observed local



Figura 1. Un bagre vela (*Pterygoplichthys pardalis*) que muestra evidencia de depredación, indicativa de una mordedura infligida por *Staurotypus triporcatus*.

Figure 1. A Sailfin Catfish (*Pterygoplichthys pardalis*) displaying evidence of predation, indicative of a bite inflicted by *Staurotypus triporcatus*.



Figura 2. La porción superior de un bagre vela (*Pterygoplichthys pardalis*) que todavía estaba atrapado en las mandíbulas de *Staurotypus triporcatus* en el momento de la captura.

Figure 2. The upper portion of a Sailfin Catfish (*Pterygoplichthys pardalis*) that was still ensnared in the *Staurotypus triporcatus* jaws at the time of capture.

fishermen withdrawing their fishing nets. Several armored catfishes were trapped in the net, and some of them showed clear signs of having been eaten. Additionally, a Mexican giant musk turtle was found in the net while still gripping half of the armored catfish in its jaws. This direct observation confirms several informal reports of the “tortuga de tres lomos” preying on “pez diablo” by local inhabitants in the Rio Hondo Basin. Nevertheless, confirmation of predation on armored catfishes occurs actively or are mainly opportunistic events is still needed. This is an important finding, as it is well-known that one of the primary advantages for invasive species when arriving in novel habitats is a lack of natural predators (González-Sánchez et al., 2021). Prior to this observation, it was unknown whether any of the local species in the Rio Hondo area could or would prey on these introduced armored catfish. Although it is possible that other species, such as Morelet’s crocodile (*Crocodylus moreletii*), the Neotropical river otter (*Lontra longicaudis*), southern blue catfish (*Ictalurus meridionalis*), and the olivaceous cormorant (*Phalacrocorax brasilianus*) could also do so.

While we are concerned that in the following years, the expansion and population growth of the armored catfish population in the Rio Hondo basin will lead to severe ecological deterioration, our finding suggest that the Mexican Giant musk turtle may be able to survive the colonization of an invasive fish species, since armored catfish fish could serve as an alternative food source for *S. triporcatus*.

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