

ACCIDENTAL DEATH OF AMAZON TURTLE *PODOCNEMIS EXPANSA* (TESTUDINATA: PELOMEDUSIDAE) DURING SPAWNING ON THE CRIXÁS-AÇÚ RIVER IN GOIÁS, BRAZIL

MUERTE ACCIDENTAL DE TORTUGA AMAZÓNICA *PODOCNEMIS EXPANSA* (TESTUDINATA: PELOMEDUSIDAE) DURANTE EL DESOVE EN EL RÍO CRIXÁS-AÇÚ EN GOIÁS, BRASIL

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Resumen.— Presentamos un evento importante aún no reportado de muerte accidental de *Podocnemis expansa* por enterramiento causado por otras hembras anidantes durante el desove, que parece estar relacionado con la competencia por los sitios de anidación. Este evento posiblemente ocurrió durante la noche anterior, durante el pico de desove en esta playa, con aproximadamente 1.500 posturas, muchas de ellas superpuestas. Se descartó cualquier evento depredador, ya que, las tortugas estaban intactas, sin marcaje y enterradas, lo cual es inusual. En general, estas tortugas eligen los lugares más altos en las playas, aumentando las posibilidades de supervivencia de las crías debido a la estacionalidad (crecidas y estiajes) de los ríos, con la anidación en el río Crixás-Açu durante la estación seca. Sin embargo, este es el primer reporte de muerte accidental de tortugas por otros cambios durante el período reproductivo que puede ayudar a comprender mejor los procesos detrás de la competencia por los nidos en las playas de desove.

Palabras clave.— Anidamiento, cuenca Tocantins-Araguaia, enterramiento, monitoreo.

Abstract.— We present an important event not yet reported of accidental death by burying *Podocnemis expansa* by grounding caused by other breeding females. This event possibly occurred during the previous night, during the spawning peak activity on this beach with approximately 1,500 spawns, many of them overlapping. Any predatory event was not considered, as the turtles were intact, unmarked and buried, which is unusual. In general, they choose higher places on the beaches, increasing the chances of survival of the young due to the seasonality (high and low flows) of the rivers, with the nesting on the Crixás-Açu River during the dry season. However, this is the first report of accidental death of turtles by other changes during the reproductive period and can help to better understand the processes behind the competition for nests on spawning beaches.

Keywords.— Ground, monitoring, nesting, Tocantins-Araguaia basin.

The Amazon turtle *Podocnemis expansa* is the largest species of the genus and inhabits large rivers, flooded forests, and lakes in the largest tributaries of the Orinoco, Essequibo, and Amazon River drainages in Colombia, Venezuela, Guyana, French Guiana, Suriname, northeastern Peru, eastern Ecuador,

northern Bolivia, and northern and central-western Brazil (Vogt, 2008; Ferrara et al., 2017; Uetz, 2021). It is considered one of the most endangered species in the Amazon due to excessive egg collection and predatory hunting (Peres, 2000; Forero-Medina et al., 2019) and categorized as, “Near Threatened” (NT) in the

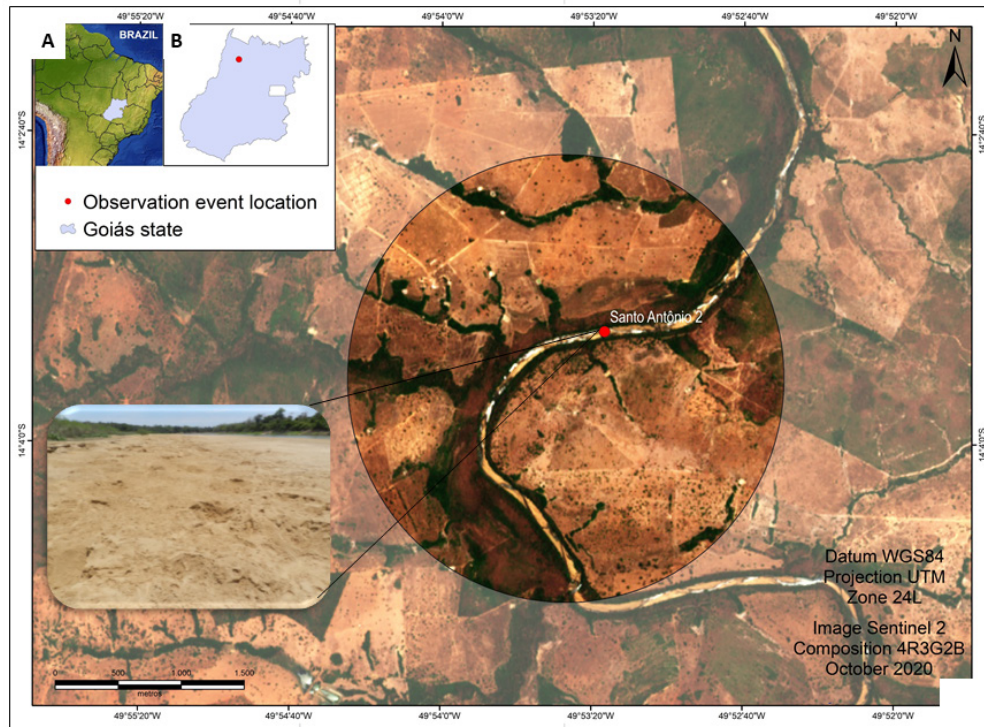


Figura 1. Ubicación geográfica del área de estudio en (A) Brasil; (B) Estado de Goiás y sitio de observación (C). Destacado en la parte inferior izquierda, el lugar con múltiples nidos de *P. expansa* donde ocurrió el evento. Elaboración: Maurivan Vaz Ribeiro.

Figure 1. Geographic location of the study area in (A) Brazil; (B) Goiás state, and the observation site (C). Highlighted in the lower left, the place with multiple nests of *P. expansa* where the event occurred. Elaboration: Maurivan Vaz Ribeiro.

Brazilian Red List (Brasil, 2014; ICMBIO, 2018; IBAMA, 2019) and as Lower Risk: Conservation Dependent (LR/cd) on IUCN Red List (Group of Experts on Turtles and Freshwater, 1996). However, the recommendation of the Turtle Taxonomy Working Group (2017) to change the category to Critically Endangered and it appears in Appendix II of CITES (CITES, 2019).

The specie has a collective spawn (Vanzolini, 1967; Alho & Pádua, 1982; Pantoja-Lima et al., 2009; Segundo et al., 2015) during the dry season, when the river flow is lower (Vogt, 2008). This behavior can cause competition for nesting sites, since this species prefers higher places (Rueda-Almonacid et al., 2007), coarse and closer to vegetation sand (Vogt, 2008), which seems to have relationship with the growth rate of the offspring (Pantoja-Lima et al., 2009). An unclear fact is the impact of this density on the loss of nests by excavation by other specimens (Pantoja-Lima et al., 2009).

Here, we present an important event not yet reported of accidental death by burying of *Podocnemis expansa* by other females during spawning, which seems to be related to the

competition for nesting sites. Our observation event took place on October 5, 2018 at 10:28 h (videos available at <https://figshare.com/s/dd4b3aba0257b86a262d>) on the Crixás-Açu River, in Goiás, Brazil (Fig. 1). At the time, two females of *Podocnemis expansa* were buried and killed (Fig. 2A) at the spawning site (beach Santo Antônio 2, GPS coordinates 13°26.608' S 50°32.633' O). This event possibly occurred during the previous night, during the spawning peak activity on this beach with approximately 1,500 spawns, many of them overlapping. Any predatory event was discarded, as the turtles were intact, unmarked and buried, which is unusual. The aggregate pattern known for a species (Pantoja-Lima et al., 2009) and high nest density (Segundo et al., 2015) may have caused individuals to accidentally turn around, since in many cases, one individual literally stands on top of the other during the spawning event, when they compete for the same nesting site and the burial occurs during the stage of closing the nest by another female (Fig. 2B).

Choosing a nesting site can guarantee a suitable incubation environment, improve the young's chances of success, maximize their safety and modify the offspring phenotype (Refsnider

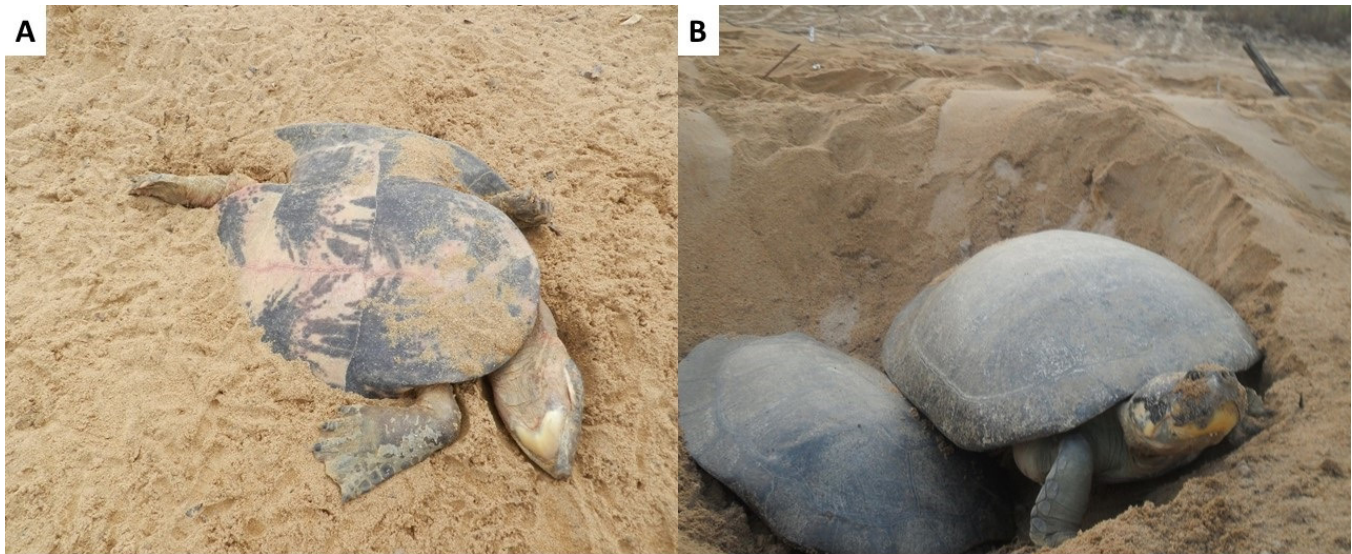


Figura 2. (A) Hembra encontrada accidentalmente rechazada y asesinada por otra hembra, (B) Competencia por el mismo sitio de anidación. Fotos: (A) Maurivan Vaz Ribeiro y (B) Instituto Brasileiro de Meio Ambiente y Recursos Naturales Renovables - IBAMA

Figure 2. (A) Female individual found accidentally turned down and killed by another female, (B) Competition for the same nesting site. Photos: (A) Maurivan Vaz Ribeiro and (B) Brazilian Institute of the Environment and Renewable Natural Resources - IBAMA.

& Jansen, 2010) and, therefore, competing for ideal sites may seem advantageous. In general, they choose higher places on the beaches (Pantoja-Lima et al., 2009; Segundo et al., 2015), increasing the chances of survival of the young due to the seasonality (high and low flows) of the rivers, with the nesting on the Crixás-Açu River during the dry season (Bataus, 1998). However, this is the first report of accidental death of turtles by other changes during the reproductive period and can help to better understand the processes behind the competition for nests on spawning beaches.

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