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LYSAPSUS LIMELLUM (ANURA: HYLIDAE): AVIAN PREDATION BY *BUTORIDES STRIATA* (PELECANIFORMES: ARDEIDAE) IN THE PANTANAL WETLAND, BRAZIL

LYSAPSUS LIMELLUM (ANURA: HYLIDAE): DEPREDACIÓN AVIAR POR *BUTORIDES STRIATA* (PELECANIFORMES: ARDEIDAE) EN EL PANTANAL, BRASIL

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Resumen.– La rana arlequín uruguaya *Lysapsus limellum* tiene amplia distribución en América del Sur, donde habita sabanas inundadas abiertas y áreas de selva tropical, y praderas flotantes de grandes ríos. En estos ecosistemas acuáticos, la especie se reproduce durante todo el año. Sin embargo, solo hay dos registros publicados de depredación de esta especie de rana por invertebrados. En esta nota, presentamos el primer registro de depredación de *L. limellum* por la garza estriada "Socozinho" *Butorides striata* en el Pantanal, centro de Brasil.

Palabras clave.– Ave zancuda, centro de Brasil, interacción depredador-presa, rana acuática.

Abstract.– The Uruguay harlequin frog *Lysapsus limellum* is widely distributed in South America, where it inhabits open flooded savannah, rainforest areas, and floating meadows of large rivers. In these aquatic ecosystems, the species has a prolonged breeding season. Nevertheless, its interspecific interactions are pooly known, with only two predation reports by invertebrates. In this note, we present the first record of *L. limellum* preyed upon the Striated heron "Socozinho" *Butorides striata* in the Pantanal Wetland, central Brazil.

Key words.– Aquatic frog, central Brazil, predator-prey interaction, wading bird.

Amphibians are prey to many species of birds (Lopes et al., 2005; Wells, 2007). Wading birds such as herons, egrets and bitterns are among the most important non-passerine birds that prey on amphibians (Hancock & Kushlan, 1984). The Striated heron *Butorides striata* is a small-sized and cosmopolitan species comprising 28 sub-species distributed throughout South America, Africa, Madagascar, Indian Ocean islands, southern and eastern Asia, the East Indies, Australia, and Pacific Ocean islands (Hancock & Kushlan, 1984; Kushlan & Hancock, 2005; Martínez-Vilalta et al., 2020; HeronConservation, 2023). They can be found in a variety of freshwater and marine habitats (Hancock & Kushlan, 1984; del Hoyo et al., 1992; Kushlan & Hancock, 2005). These herons feed primarily on fish, but they also consume amphibians, insects, spiders, leeches, crustaceans, mollusks, earthworms, polychaete worms, birds, small reptiles, and mice (del Hoyo et al., 1992; Kushlan & Hancock, 2005).

Lysapsus commonly known as the Harlequin frogs are represented by small-sized aquatic species widely distributed in South America, occurring in southwestern Guyana and

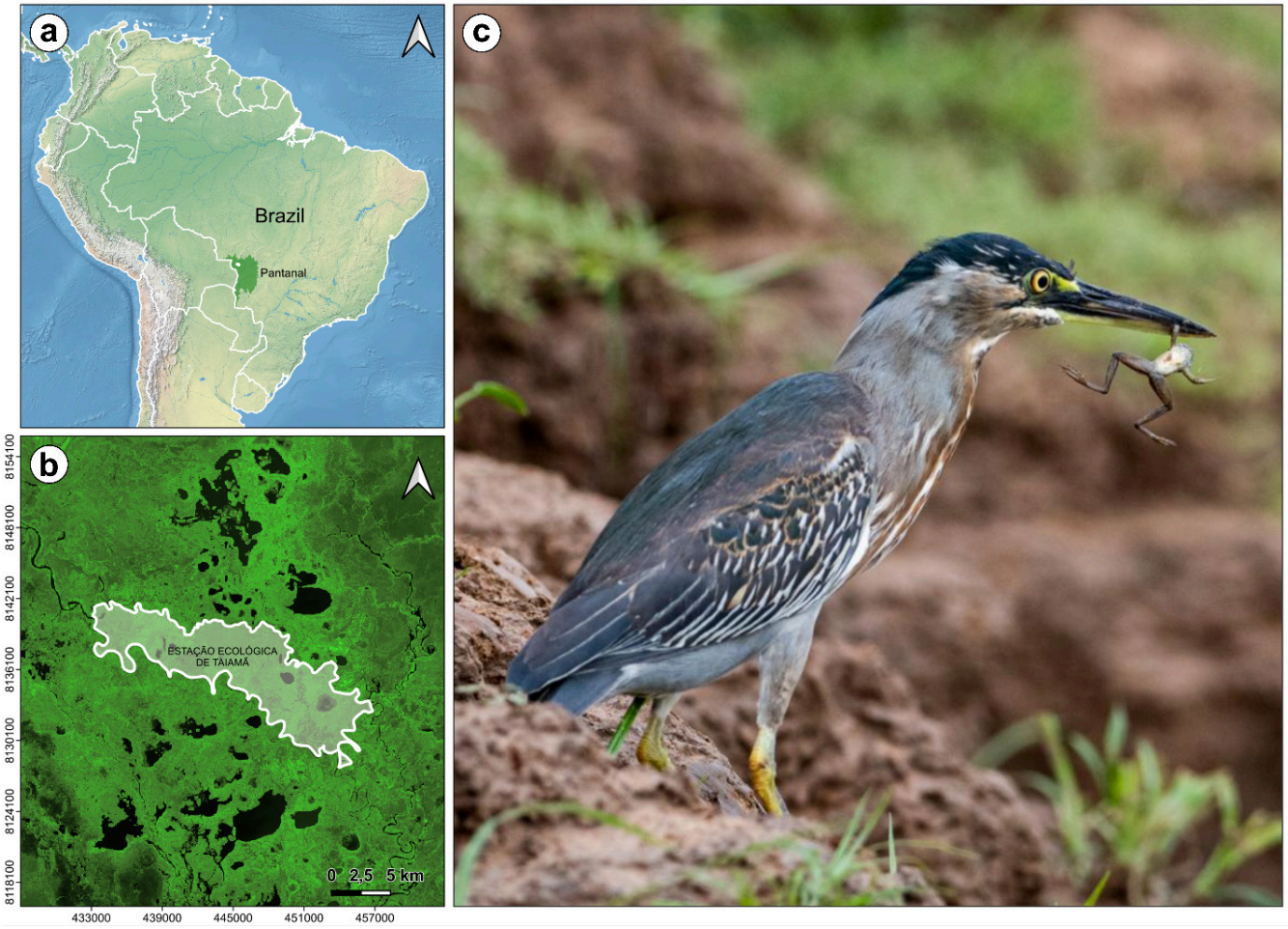

Figura 1. Registro de depredación de *Butorides striata* sobre *Lysapsys limellum*. A-B. Ubicación de la Estação Ecológica de Taiamã (ESEC Taiamã) en el Pantanal, municipio de Cáceres, estado de Mato Grosso, centro de Brasil. C. B. striata adulta sosteniendo un individuo adulto de L. limellum en el borde de una laguna. Mapa: Fabricio H. Oda. Foto: Henrique Olsen.

Figure 1. Predation record of *Butorides striata* on *Lysapsys limellum*. A-B. Location of the Estação Ecológica de Taiamã (ESEC Taiamã) in the Pantanal, municipality of Cáceres, state of Mato Grosso, central Brazil. C) Adult *B. striata* holding an adult individual of *L. limellum* at the border of a lagoon. Map: Fabrício H. Oda. Photo: Henrique Olsen

adjacent northern to southern Brazil, respectively, Uruguay, Paraguay, Bolivia, and northern Argentina (Frost, 2023). This genus comprises four valid species: *L. bolivianus* Gallardo, 1961, *L. caraya* Gallardo, 1964, *L. laevis* (Parker, 1935) and *L. limellum* Cope, 1862. The Uruguay harlequin frog, *L. limellum* has diurnal and nocturnal activity and is associated with aquatic macrophytes in open flooded savannah and rainforest areas, and floating meadows of large rivers (Prado & Uetanabaro, 2000; Lavilla et al., 2004). It is distributed in northwestern Uruguay, Paraguay, Bolivia, and northern Argentina (Weiler et al., 2013; Laufer et al., 2021; Frost, 2023). In Brazil, it occurs in the states of Pará, Mato Grosso, Mato Grosso do Sul, and Paraná (Prado & Uetanabaro, 2000; Affonso et al., 2014; Ávila et al., 2021; Cassundé et al., 2022).

Lysapsus limellum is a common species in the Pantanal Wetland, where it breeds throughout the year (Prado & Uetanabaro, 2000; Lavilla et al., 2004). Nevertheless, there are only two predation records by invertebrates on *L. limellum* (Landgref Filho et al., 2019). Here, we report the predation of *L. limellum* by the Striated heron "Socozinho" *Butorides striata* in the Pantanal Wetland, central Brazil (Fig. 1A-B). The predation record on *L. limellum* was obtained from an occasional observation during bird watching at the Estação Ecológica de Taiamã (21K 445639.03 m E, 8135971.32

m S, Datum SIRGAS2000, between 93 m and 118 m a.s.l.), located in the Pantanal Wetland, municipality of Cáceres, state of Mato Grosso, central Brazil. On 12 January 2023, Henrique Olsen observed an adult *B. striata* walking near the border of a lagoon in active-search. In two minutes of observation, suddenly the bird beaked amongst the water plants bringing captured in its beak an adult individual of *L. limellum* (Fig. 1C), identified by the presence of dark stripe on the inner surface of the thighs (de Lema & Martins, 2011). After this, the bird swallowed the anuran.

Herons are diurnal and visually oriented predators specialized in consuming fish, but feed on anurans with regularity, being considered convenience predators (Toledo et al., 2007). A review on predators of Neotropical aquatic frogs has shown that Wading birds accounted for 90% of the predation events among the diurnal predators of these anurans (Landgref Filho et al., 2019). In the Pantanal, Wading birds forage in environments inhabited by aquatic frogs such as *Pseudis platensis* and *Lysapsus limellum* (Prado, 2003; Landgref Filho et al., 2019). Therefore, predator-prey interaction between them is likely to occur. However, there are only two published predation reports involving *L. limellum* as prey: one by a Giant water bug (Belostomatidae) and another by a Wolf spider (Lycosidae) (Garda et al., 2007).

Hence, to our knowledge, we not only report the first record of *L. limellum* being preyed by the Striated heron "Socozinho" *Butorides striata*, but also the first record of a bird and a vertebrate as a potential predator of *L. limellum*. This shows that, even though *L. limellum* is common and widely distributed species, little is known about its interspecific interactions. The description of this predation event here, contributes to the reduction of Eltonian shortfall (Hortal et al., 2015), since we are providing knowledge about interactions among species. Moreover, given that *L. limellum* is an aquatic species inhabitant of water bodies margins, it remains unknown whether its primary predators would be aquatic birds, such as Striated heron "Socozinho", invertebrates or even aquatic snakes.

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