



Conspecific Oophagy by an Invasive Argentine Black-and-White Tegu (*Salvator merianae*) in Florida, USA

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The Argentine Black-and-white Tegu (*Salvator merianae*) (Teiidae) is one of the largest lizards in South America, with adults reaching total lengths to 1.6 m and body masses to 5 kg (Andrade et al. 2004). This species is widely distributed across Argentina, Brazil, Paraguay, Uruguay, and eastern Bolivia (Fitzgerald et al. 1991; Murphy et al. 2016), where it occupies a broad range of habitats, including primary and secondary forests, thorn scrub savannas, tropical humid forests, riparian zones, coastal dunes, and disturbed environments such as agricultural fields and roadsides (Enge 2007; Schaumburg 2017).

Due to popularity in the international pet trade, *S. merianae* has been introduced into the USA, where it is considered an invasive species in Florida. Established populations occur in Miami-Dade, Hillsborough, Charlotte, and St. Lucie Counties in central and southern Florida, where the species occupies natural and human-modified landscapes (Enge 2007; Pernas et al. 2012; Klug et al. 2015; Krysko et al. 2016; Campbell et al. 2021; Quinn et al. 2022; Mason et al. 2024). Invasive tegus have demonstrated high reproductive potential, a broad diet, and behavioral adaptability, facilitating their ongoing spread and ecological impact (Mazzotti et al. 2015; Meshaka et al. 2020; Campbell et al. 2021; Harman 2023). Also, a suspected established tegu population in Georgia (Haro et al. 2020), a study in Alabama that demonstrated tegus can successfully overwinter in temperate climates (Goetz et al. 2021), and climate modeling (Jarnevich et al. 2018), provide further evidence that *S. merianae* is likely to continue expanding its range and associated effects in Florida and neighboring states.

Tegus are generalist omnivores with a broad diet in their native and invasive ranges, where they consume fruits, flowers, fungi, invertebrates, small vertebrates, carrion, and eggs (Mercolli and Yanosky 1994; Kiefer and Sazima 2002; Harman 2023). The diet varies ontogenetically due to changes in dentition and digestive capacity (Gomes 2015). Juveniles feed primarily on insects, spiders, snails, and fleshy fruits,

the latter of which contributes to seed dispersal (Castro and Galetti 2004). As they mature, the diet expands to includes plant roots, small vertebrates, and various eggs (Kiefer and Sazima 2002; Silva et al. 2014; Grimsley et al. 2025). In Florida, *S. merianae* has been documented preying on a wide array of native fauna, including eggs of ground-nesting reptiles and birds. A study in central Florida found that tegus consumed both bird (frequency of occurrence, FO = 5.38%) and reptilian eggs (FO = 5.38%), including those of state-listed species such as the Gopher Tortoise (*Gopherus polyphemus*) (Campbell et al. 2021). Mazzotti et al. (2015) also reported predation on eggs of American Alligators (*Alligator mississippiensis*) and Florida Red-bellied Cooters (*Pseudemys nelsoni*).

Despite extensive dietary studies based on stomach-content analyses or direct field observations, no published accounts document conspecific oophagy in *S. merianae*. However, anecdotal evidence from the species' native range suggests that this behavior may occur. Based on interviews with rural communities in Brazil, Silva et al. (2014) noted reports of tegus consuming eggs of their own species. Although not supported by physical evidence, these accounts suggest that conspecific egg predation could occur in some native populations.

We herein present the first confirmed record of conspecific oophagy for *S. merianae* based on the analysis of stomach contents of a female (Fig. 1) collected from an invasive Florida population captured during a removal effort on 9 May 2024, which coincides with the egg-laying period for tegus in Florida. The animal was captured in a trap located in an agricultural area in Miami-Dade County, Florida (25.392735, 80.541655). After capture, the tegu was euthanized and necropsied, during which a large bolus palpated in the stomach prompted the removal of the stomach contents. An empty shell of a reptilian egg and an intact reptilian egg were identifiable (Fig. 2). Identification as reptilian eggs was facilitated by the pliable nature of the shells, a characteristic of squamate



Figure 1. Conspecific egg consumption by a female Argentine Black-and-white Tegu (*Salvator merianae*) from Miami-Dade County, Florida. The adult female contained an intact egg, which was manually opened during necropsy and found to contain a partially developed conspecific. Photograph by M. Ojeda-Rojas.

eggs, including those of *S. merianae*, which exhibit minimal development of the calcareous layer (Packard and Packard 1980). The intact egg was opened to reveal a well-developed tegu embryo that maintained sufficient head morphology and coloration to identify it as *S. merianae* (Fig. 3).



Figure 2. Stomach contents of a female Argentine Black-and-white Tegu (*Salvator merianae*) from Miami-Dade County, Florida, showing evidence of conspecific oophagy: a partially digested embryo (A), a collapsed eggshell from which the embryo was removed during necropsy (B), and additional collapsed reptilian eggshells recovered from the stomach (C–E). Photograph by M. Ojeda-Rojas.

The size of the captured female (SVL 26.9 cm) was indicative of a late juvenile to reproductive-sized adult class (McCaffrey et al. 2023). Consequently, we considered the possibility that the ingested egg might have been laid by that individual, representing a case of post-oviposition oophagy. However, although the female had visible ovarian follicles at necropsy, their size, appearance, and lack of corpora lutea or distended oviducts that would indicate recent oviposition suggested instead early development rather than recent ovulation or post-ovipositional status. Hence, these observations appear to be a reliable indicator of an incidence of conspecific oophagy rather than consumption of the individual's own egg.

Conspecific oophagy has been documented in numerous reptilian species, including snakes and lizards (Polis and Myers 1985; Paterna 2023). Such behaviors likely are triggered by a range of ecological and biological factors, including environmental stress, limited food availability, high conspecific density, and individual traits such as age, size, sex, and relatedness (Fox 1975; Polis and Myers 1985). However, possible population-level consequences remain unclear, and we are unable to determine if conspecific oophagy reflected direct intraspecific competition or opportunistic predation.



Figure 3. A partially digested Argentine Black-and-white Tegu (*Salvator merianae*) embryo recovered from the stomach of a female conspecific: dorsal view of the specimen showing morphology and preserved pigmentation (left) and a closer view of the head and forelimbs (right). Despite partial digestion, the embryo retained distinctive cranial markings and body banding characteristic of *S. merianae*, supporting species-level identification. Photograph by M. Bassis.

Regardless, our observation confirms that *S. merianae* will consume conspecific eggs and raises broader ecological questions regarding the drivers and frequency of this behavior in native and invasive populations.

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