

Adult aggression toward hatchlings in Yellow Land Iguanas, *Conolophus subcristatus* (Gray, 1831), on Wolf Volcano, Isabela Island, Galápagos

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Adult–neonate aggressive interactions are rarely observed in reptiles, especially among iguanid lizards, for which reports of intraspecific aggression toward juveniles or neonates are exceptionally scarce. Cannibalism has been documented only sporadically in iguanids, including island populations of *Cyclura*, where it has been interpreted as a facultative and opportunistic behaviour potentially linked to density-dependent processes or intense intraspecific competition (Pérez-Buitrago et al., 2006). A recent review of predation on *Iguana iguana* reports a single documented case of cannibalism, also originating from a place with high population density, reinforcing the view that such behaviour is highly uncommon and context-dependent (van den Burg and Kaiser, 2026). These observations suggest that, although herbivory dominates the diet of adult iguanids, aggressive interactions involving juveniles can occur under natural conditions and may contribute to early-life mortality under specific circumstances.

The Yellow Land Iguana, *Conolophus subcristatus* (Gray, 1831), is a long-lived, primarily herbivorous species endemic to the Galápagos Islands with a well-documented ecology and behaviour. Neonates emerge into an environment where exposure to predators, harsh climatic conditions, and limited access to refuges impose strong selective pressures during the early post-hatching period (Carpenter, 1969; Snell and Tracy, 1985).

Although precise estimates of survival to adulthood are lacking for *C. subcristatus*, in another endemic Galápagos iguana, *Amblyrhynchus cristatus*, only a small fraction of hatchlings successfully recruit into the adult population (Laurie and Brown 1990), indicating that early life stages represent a critical demographic bottleneck in Galápagos iguanas. While these studies acknowledge that early-life mortality is substantial, the few available reports of intraspecific interactions involving adults and juveniles in iguanids are restricted to rare observations of aggression or cannibalism, primarily in insular or high-density populations, such as in *Cyclura* spp. (Pérez-Buitrago et al., 2006) and *I. iguana* (van den Burg and Kaiser, 2026).

Here, we present camera-trap evidence of an aggressive interaction between an adult male *C. subcristatus* and a conspecific neonate on Wolf Volcano, Isabela Island, Galápagos. This observation represents a rare observation of adult–neonate aggression in iguanids under natural conditions and contributes novel information to the understanding of potential sources of early-life mortality and intraspecific interactions in iguanid lizards.

Materials and Methods

Study area. We carried out this study on the northwestern slopes of Wolf Volcano, Isabela Island, Galápagos (0.0425°N, 91.3372°W, elevation 1707 m). The habitat is characterised by arid volcanic terrain dominated by sparse shrubs and cacti, with strong seasonal variation in temperature and precipitation. In this area, *C. subcristatus* occurs syntopically with the Pink Land Iguana, *Conolophus marthae* (Gentile & Snell, 2009), as documented by Gargano et al. (2024).

Camera trap survey. Camera traps were deployed as part of a long-term monitoring program aimed at improving knowledge of the ecology of *C. marthae*, in accordance with the species' conservation and management plan (Rueda et al., 2023). Since September

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2023, we have deployed a network of more than 50 motion-activated camera traps (Reconyx HyperFire 4K Professional) across the northwestern slope and within the volcano's crater, at elevations ranging between 500–1650 m. Cameras were mounted ca. 1 m above ground on metal posts to optimise detection of iguanas along trails, basking areas, and nesting grounds. Each camera was configured to trigger when the motion sensor was activated, capturing a sequence of five photographs with a three-second interval between frames. Each camera was equipped with a 64 GB memory card and programmed to operate continuously; with images collected ca. every three months.

Results

An aggressive interaction between an adult male *C. subcristatus* and a conspecific neonate was recorded by a camera trap located within a known nesting area of Pink and Yellow Land Iguanas inside the volcano's crater

(Fig. 1). The neonate was identified as *C. subcristatus* based on its dark brown to black dorsal colouration and the absence of the bright green background with irregular black maculation that characterises hatchlings of the sympatric *C. marthae*, as described by Carrión-Tacuri et al. (2026). The event was documented in a sequence of 75 photographs captured between 15:47:39–15:55:24 hours on 25 June 2025, when ambient temperatures were between 25–26 °C.

The sequence begins at 15:47:39, when a neonate appears near the adult male *C. subcristatus* (Fig. 1). At 15:48:00, the adult male is observed holding the neonate in its mouth while moving across the volcanic substrate. The adult then exits the camera's field of view still carrying the neonate. At 15:52:26, the adult male re-enters the frame with the neonate yet in its mouth. At this point, the neonate appears severely compromised, showing a markedly limp body posture (Fig. 1). The interaction continues until 15:55:13, when the adult male is observed without the neonate in its mouth. The



Figure 1. Camera-trap images documenting an adult-neonate aggressive interaction in the Yellow Land Iguana (*Conolophus subcristatus*) on Wolf Volcano, Isabela Island, Galápagos.

final images of the sequence show the adult moving away from the camera's field of view. The ultimate fate of the neonate could not be determined from the available images.

Discussion

The aggressive interaction documented here between an adult male *Conolophus subcristatus* and a conspecific neonate represents a rare observation of adult–neonate aggression under natural conditions. In reptiles, intraspecific aggressive interactions involving juveniles or neonates are generally infrequent and strongly context-dependent, occurring under specific ecological or demographic circumstances rather than as a regular behavioural strategy (Fox, 1975; Polis, 1981; Polis and Myers, 1985). Such events are typically interpreted as facultative behaviours associated with size asymmetries, territoriality, or opportunistic responses, and do not necessarily implicate intentional infanticide or cannibalism. Similar and rare contest-dependent cases involving infanticide or cannibalism have been reported across diverse lizard lineages, often based on isolated field records or opportunistic observations, highlighting the value of documenting such events despite their apparent low frequency (van Blerk et al., 2021).

In lizards, attacks on smaller conspecifics have often been described as by-products of territorial defence or mistaken predatory responses, particularly under conditions of frequent encounters between age classes and high local density, as documented in insular systems (Polis, 1981; Cooper et al., 2014). Within iguanid lizards, reports of intraspecific aggression toward juveniles or neonates are relatively scarce, but have been documented in insular systems (e.g., Pérez-Buitrago et al., 2006) and, more rarely, in mainland populations (e.g., van den Burg and Kaiser, 2026). Although the present observation includes the adult male orally manipulating the neonate, consumption was not observed, and therefore this event cannot be conclusively classified as cannibalism or predation.

The early post-hatching period represents a critical and vulnerable life stage for *Conolophus* species. Previous studies on *C. subcristatus* have documented high mortality during the earliest life stages, largely attributed to predation, environmental exposure, and limited access to suitable refuges (Carpenter, 1969; Snell and Tracy, 1985). The observation reported here suggests that, in addition to these well-known factors, intraspecific aggressive interactions may

occasionally contribute to neonatal mortality risk, particularly in areas where nesting grounds and adult activity overlap spatially. The fact that this interaction was recorded within a known nesting area on Wolf Volcano is noteworthy, as such sites may represent spatially sensitive zones where adult activity, territorial behaviour, and the presence of neonates converge, potentially increasing the likelihood of encounters between age classes. However, the present record does not allow inference about the frequency or demographic significance of such interactions.

The coexistence of *C. subcristatus* with the Critically Endangered *C. marthae* on Wolf Volcano provides an important ecological context for this observation (Gentile, 2012). Although no evidence currently exists of similar adult–neonate interactions involving *C. marthae*, the present record highlights a form of intraspecific interaction that may be relevant as a reference when evaluating early-life mortality risks in sympatric *Conolophus* species occupying shared nesting areas. Continued monitoring to better characterise whether aggression by adult iguanas affects neonate survival in *C. subcristatus* and *C. marthae* is warranted for both species, including an improved understanding of whether interspecific interactions between these sympatric species also occur within shared nesting areas.

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