

NATURAL HISTORY REPORTS

Morphology and Diet of Two Sympatric Snakes

PINTO ET AL. (2008. *Amphibia-Reptilia* 29:149–160) described the morphometry and diet of two sympatric species of *Chironius* (*C. flavolineatus* and *C. quadricarinatus*) from Brazilian Cerrado. The two species differ in external morphology, with *C. flavolineatus* longer and *C. quadricarinatus* heavier. Each species also showed marked sexual size dimorphism. Both species feed exclusively on frogs with a heavy preference for hylids, and may have a tendency to eat small prey. These two species have brownish ground colors and exhibit no ontogenetic variation, suggesting that juveniles and adults use similar substrates. *Chironius flavolineatus* and *C. quadricarinatus* are semi-arboreal, forage actively, and usually feed on the ground. *Chironius flavolineatus* uses higher vegetation for resting and, based on morphological results, seems to be more arboreal than *C. quadricarinatus*.

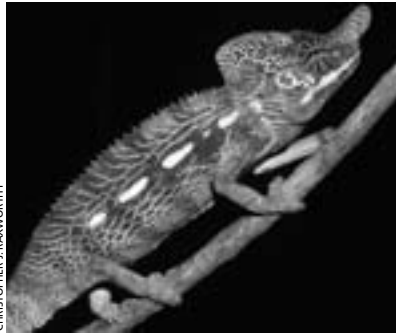


LAURIE J. VITT

Both *Chironius flavolineatus* (top) and *C. quadricarinatus* (bottom) are semi-arboreal, forage actively, and usually feed on the ground, but the former is more slender and elongate, suggesting that it is more arboreal.

A unique life history among tetrapods: An annual chameleon living mostly as an egg

The ~28,300 species of tetrapods (four-limbed vertebrates) almost exclusively have perennial life spans. KARSTEN ET AL. (2008. *Proceedings of the National Academy of Sciences of the United States of*



CHRISTOPHER J. RAXWORTHY

Furcifer labordi from Madagascar spends most of its life inside an egg.

America 105:8980–8984) discovered a remarkable annual tetrapod from the arid southwest of Madagascar: The chameleon *Furcifer labordi*, with a posthatching life span of just 4–5 months. At the start of the active season (November), an age cohort of hatchlings emerges; larger juveniles or adults are not present. These hatchlings grow rapidly, reach sexual maturity in less than 2 months, and reproduce in January–February. After reproduction, senescence appears, and the active season concludes with population-wide adult death. Consequently, during the dry season, the entire popula-

tion is represented by developing eggs that incubate for 8–9 months before synchronously hatching at the onset of the following rainy season. Remarkably, this chameleon spends more of its short annual life cycle inside the egg than outside of it. A review of tetrapod longevity (>1,700 species) found no others with such a short life span. These findings suggest that the notorious rapid death of chameleons in captivity may, for some species, actually represent the natural adult life span. Consequently, a new appraisal may be warranted concerning the viability of chameleon breeding programs, which could have special significance for species of conservation concern.

World's Smallest Snake

Islands are viewed as natural evolutionary laboratories for terrestrial organisms because they have boundaries that limit dispersal and often reveal evolutionary patterns and mechanisms. One such pattern is that the smallest and largest species of different types of tetrapod animals are frequently found on islands. HEDGES (2008. *Zootaxa* 1841: 1–30) described two new diminutive species of



S. BLAIR HEDGES

The Barbados Threadsnake (*Leptotyphlops carlae*) may be the world's smallest species of snake.



JENNIFER DALTRY

The Antigua Ground Lizard, *Ameiva griswoldi*, affected habitat use and abundance of *Anolis watsi* on small islands near Antigua.

snakes of the genus *Leptotyphlops* from the Lesser Antilles: One from Saint Lucia (*L. breuili*) and the other from Barbados (*L. carlae*). The species from Barbados is the world's smallest snake, with a total adult length of approximately 100 mm. Limited evidence indicates a clutch size of one and a greatly elongated egg shape. Comparison of egg shapes in snakes indicates that the shape is a packaging phenomenon, related primarily to the shape of the available body cavity and clutch size. The body shape of snakes also varies and influences the shape of snake eggs. The smallest snakes are typically stout-bodied, whereas the longest snakes usually are more slender. The allometry of organ size also affects clutch size and shape, because the smallest snakes have the smallest proportion of body cavity space available for reproduction. The best explanation for the observation of body size extremes on islands is that colonizing species have adapted to open ecological niches that would otherwise be occupied on the mainland. Island colonists encounter novel environments and reduced interspecific competition, allowing species to evolve physical traits, including extremes in size, not normally seen on continents. However, the lower limit of adult size appears to be constrained by the allometry of morphology, physiology, and reproduction. The smallest tetrapods have small clutches, usually one egg or young, and offspring that are relatively large. In the smallest snakes, offspring are one-half of the length of adults, compared with 10% adult length in the case of large species of snakes. Thus the evolutionary tradeoff between number and size of offspring appears to have reached a size boundary in these

species, limiting the evolution of yet smaller species.

Niche Relationships and Interspecific Interactions in Antigua Lizard Communities

Anolis lizards are the focus of most Caribbean lizard community ecology studies, with few studies including other common species that might influence community structure. To study niche relationships and interspecific interactions in Antigua lizard communities, KOLBE ET AL. (2008. *Copeia* 2008: 261–272) used five offshore islands with varying combinations of three diurnal lizards: *Ameiva griswoldi*, *Anolis leachii*, and *Anolis watsi*. The authors collected data on perch height, substrate, thermal microhabitat, body size, head length, daily activity, and abundance to characterize the ecological niche of each species. *Ameiva griswoldi* was more similar to *A. leachii* in size and daily activity, but more similar to *A. watsi* in perch height, and *A. leachii* and *A. watsi* were more similar in thermal microhabitat. This pattern of niche differentiation was consistent with niche complementarity, where species are

similar on some niche axes but differ on others. Using the same niche characteristics as in species comparisons, we tested for a niche shift among islands for *A. watsi*. In the absence of *A. griswoldi*, *A. watsi* used lower perches, sunnier microhabitats, and was found more often on the ground. In contrast, with *A. leachii* absent, *A. watsi* perched higher, more often in the shade, and on trunks. Furthermore, *A. watsi* was most abundant when with *A. leachii* only, but least abundant when alone with *A. griswoldi*. These results suggest interspecific interactions, most likely due to competition and intraguild predation, are important for structuring Antigua lizard communities.



CARLOS A. RODRIGUEZ GÓMEZ

The Barbuda Bank Tree Anole (*Anolis leachii*) also affected habitat use by smaller *Anolis watsi* on Antigua satellite islands.

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