

**LIOLAEMUS GRACILIS (Striped Slender Lizard). PREDATION.**

*Liolaemus gracilis* is a small-sized lizard with a wide distribution from northern Chubut to southern La Rioja provinces, in western Argentina, South America (Cei 1986. Reptiles del Centro, Centro-Oeste y Sur de la Argentina: Herpetofauna de las zonas áridas y semiáridas. Museo Regionale di Scienze Naturali, Florence, Italy. 527 pp.). The species inhabits sandy habitats, and little is known about its biology (Vega and Bellagamba 2005. Cuad. Herp. 18:3–13), including its predators, although snakes have been reported to prey on this lizard (Kozykariski et al. 2010. Herpetol. Rev. 42:80–81). Here we report on a novel, avian predator, the gray-billed shrike-tyrant (*Agriornis micropterus*) on *L. gracilis*.

We deployed a motion-triggered camera (Bushnell Trophy Cam HD Aggressor Low-Glow Trail Camera) programmed to take sequences of one picture and one video every 30 sec for 24 hrs a day to investigate the use of latrines by felines on the San Pablo de Valdes Wildlife Reserve, Biedma Department, Chubut Province, Argentina (42.6951°S, 64.1787°W; WGS 84; 55 m elev.). On 17 April 2023, at 1348 h, the camera trap video (available at <http://dx.doi.org/10.26153/tsw/48964>) captured 8 sec of footage of an *A. micropterus* holding a juvenile *L. gracilis* in its beak (Fig. 1). The recording did not show the capture or consumption events, but we infer the bird did consume the lizard.

To our knowledge this is the first instance of avian predation on *L. gracilis*, although this has been reported in other *Liolaemus* (Perez et al. 2010. Herpetol. Rev. 41:82). Even though consumption was not observed, the Gray-billed Shrike-tyrant is known to feed on vertebrates, including lizards (Salvador and Bodrati 2013. Biologica 16:135–140), so it is not surprising they would also feed on liolaemid lizards.



FIG. 1. *Agriornis micropterus* holding a *Liolaemus gracilis* in its beak in San Pablo de Valdes Wildlife Reserve, Peninsula Valdes, Chubut province, Argentina.

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**OPHISAURUS VENTRALIS (Eastern Glass Lizard). DIET.**

*Ophisaurus ventralis* is a large legless lizard found throughout the southeastern United States of America and its diet consists



FIG. 1. *Ophisaurus ventralis* consuming *Plethodon chlorobryonis*.

mainly of invertebrates (Hamilton and Pollack 1961. Herpetologica 72:99–106; Whitaker et al. 2012. Herpetol. Rev. 43:569–571), although small vertebrate prey have also been noted (Hamilton and Pollack 1961, *op. cit.*; Braswell and Palmer 1995. Reptiles of North Carolina. University of North Carolina Press, Chapel Hill, North Carolina. 106 pp.). Here we present a novel amphibian prey item, a salamander, for *O. ventralis* from North Carolina.

On 15 October 2021 at 1805 h we observed an adult *O. ventralis* eating an adult *Plethodon chlorobryonis* (Atlantic Coast Slimy Salamander) along a forested path near a campsite in the Croatan National Forest, Carteret County, North Carolina (34.6942°N, 77.0799°W; WGS 84; 605 m elev.). Initially the *O. ventralis* was found holding *P. chlorobryonis* by the midsection of the body (Fig. 1; video available at <http://dx.doi.org/10.26153/tsw/48709>). Over the course of several minutes, the lizard manipulated the salamander, stopping for a few short pauses, until it swallowed the salamander starting from the midsection. The salamander's tail was moving while being handled, but we are not sure if it was alive or the tail movement was caused by nerve responses.

To our knowledge, this is the first record of *O. ventralis* preying on a salamander, and the first record of lizard predation on a slimy salamander more broadly. Although all *Plethodon* salamanders produce skin secretions, the tail of slimy salamanders produce a slimy, sticky secretion when they are disturbed which is a defensive mechanism to deter predators (Highton 1995. Annu. Rev. Ecol. Syst. 26:579–600). Accounts of *P. chlorobryonis* predation are scarce but one report found the species in the digestive tract of a dead *Thamnophis sirtalis* at Croatan National Forest (Hofmann and Hofmann 2018. Herpetol. Rev. 49:91), but other predators of other closely related species in the *P. glutinosus* complex include amphibians, birds, and mammals (Highton 1995, *op. cit.*). We did not see any indication that the skin secretions from *P. chlorobryonis* had an effect on the *O. ventralis*, which leads to further questions about the tolerance of glass lizards for consuming prey with toxic secretions.

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**PHRYNOSOMA CORNUTUM** (Texas Horned Lizard). **ABERRANT PARIETAL HORNS.** During reptile survey in the northeastern edge of the state of Sonora, Mexico, on 5 August 2022 we encountered an adult female *Phrynosoma cornutum* (estimated SVL = 103 mm), Municipio de Agua Prieta, ca. 11.6 km WSW of the edge of Agua Prieta (31.285°N, 109.6795°W; WGS 84; 1279 m elev.). At the time of capture, ca. 1830 h, the lizard was photographed from several angles before it was released (Arizona State University [ASU] HEP000691; photo voucher). Later examination of the photographs revealed two aberrant, symmetrical extra horns (Fig. 1A, P<sub>0</sub> and P<sub>0</sub>) associated with the parietal horns typical of this species (Fig. 1A, P<sub>2</sub> and P<sub>2</sub>; Sherbrooke 2003. Introduction to Horned Lizards of North America. University of California Press, Berkeley, California. 178 pp.). Here, we characterize these aberrant horns and discuss their phylogenetic significance in understanding homologous structures in horn patterns in the genus *Phrynosoma*, as determined by Powell and Russell (2024. Acta Zool. 105:57–80).

*Phrynosoma cornutum* normally exhibits a single pair of well-developed parietal horns, a trait shared with all *Phrynosoma* except *P. solare*, which exhibits two pairs of parietal horns (Sherbrooke 2003, *op. cit.*; Powell and Russell 2024, *op. cit.*), although aberrant configurations of parietal horns do occur in *P. solare* (Sherbrooke et al. 2023. Herpetol. Rev. 54:472–473). The two lateral parietal asperities, P<sub>2</sub> and P<sub>2</sub>, present on our *P. cornutum* photograph (Fig. 1A) correspond to the single pair of parietal horns typical of *P. cornutum* (Sherbrooke 2003, *op. cit.*; Powell and Russell 2024, *op. cit.*; Figs. 1B, C). In a typical *P. cornutum*, each P<sub>2</sub> is externally encircled dorsally at its base by three prominent scales (Fig. 1B: I, II, III), which are not supported by bony tubercles developed from the underlying parietal bone (Fig. 1C), whereas in our aberrant specimen there are only two prominent lateral scales evident (Fig. 1A: I, II). The medial most scale (Fig. 1B: III) is replaced by a hornlike asperity on either side (Fig. 1A, designated P<sub>0</sub>). It was not determined if these hornlike asperities were supported by bony outgrowths of the parietal, as in *P. solare* (Powell and Russell 2024, *op. cit.*). While this pair of hornlike asperities exhibit the external characteristics of horns as defined by Powell and Russell (2024, *op. cit.*), they are closely applied to the medial surfaces of the true horns (P<sub>2</sub>), only diverging partway down their common lengths. A close application of the medial parietal horns (P<sub>0</sub>) to the lateral parietal horns (P<sub>2</sub>) has been observed in aberrant *P. solare* (Baur 2010. Phrynosomatics 15:19; Jones and Winsor 2012. Herpetol. Rev. 42:336–337; Sherbrooke et al. 2023, *op. cit.*). The aberrant *P. cornutum* (Fig. 1A) also exhibits a more lateral orientation of the squamosal horns, and a wider separation between these and the parietal horns, than is normally displayed by this species (Fig. 1B). Additionally, its parietal P<sub>2</sub> horns are shorter (Fig. 1A, B).

Maximum-likelihood ancestor reconstruction of parietal asperity number in *Phrynosoma* suggests that the medial pair of parietal horns in *P. solare* is derived from a medial pair of parietal tubercles, supported by outgrowths of the bone, that flank the lateral horns, which are homologous with the P<sub>2</sub> horns of the

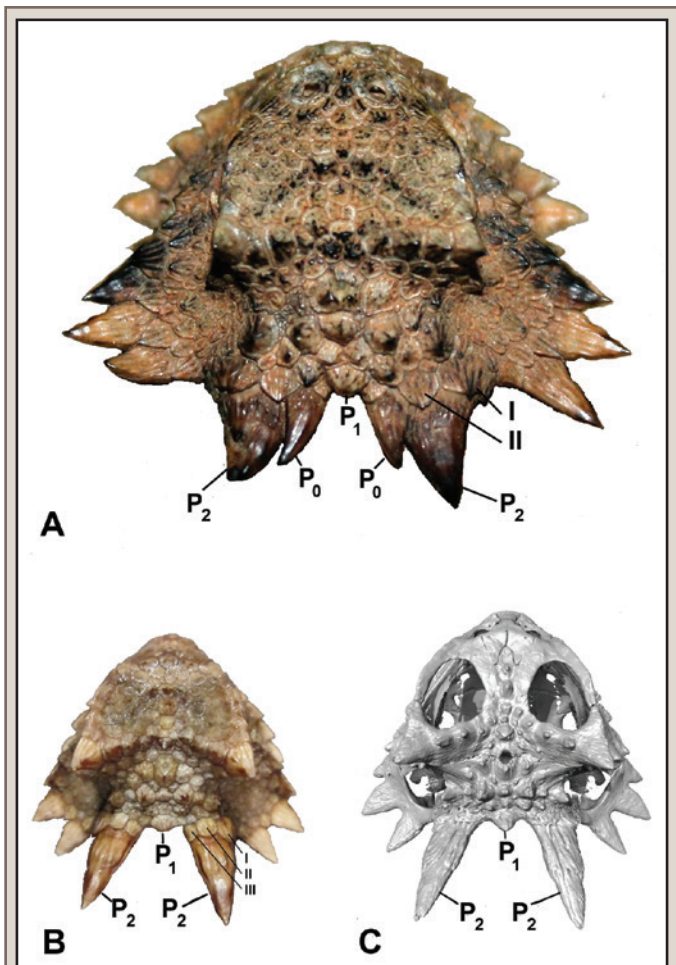


FIG. 1. A) Dorsal head view of cranial horn structures around the posterior edge of a Texas Horned Lizard (*Phrynosoma cornutum*) bearing supernumerary parietal horns. The aberrant horn arrangement of four apparent parietal horns, two medial and smaller (P<sub>0</sub>), and two lateral and larger (P<sub>2</sub>). Prominent scales encircling base of P<sub>2</sub> indicated on right side (I–II). Median parietal horn designated P<sub>1</sub>; B) dorsal head view of external anatomy of normal *P. cornutum* (Biodiversity Research and Teaching Collection, Texas A&M University [TCWC] 15129: female, 65 mm SVL), showing external anatomy and squamation associated with P<sub>2</sub> and P<sub>1</sub>; note three large scales enclosing bases of the P<sub>2</sub> horns (I–III); C)  $\mu$ -CT dorsal view scan of typical *P. cornutum* dermatocranium, with paired lateral parietal horns (P<sub>2</sub>) and medial unpaired parietal horns (P<sub>1</sub>). Note that there are no tubercles underlying the enlarged scales flanking the bases of the P<sub>2</sub> horns (see B).

remaining species of the genus (Powell and Russell 2024, *op. cit.*). These tubercles are nearly ubiquitous in *Phrynosoma* and have been reconstructed to have been present in the last common ancestor of the genus (Powell and Russell 2024, *op. cit.*). In *P. cornutum*, both these and the lateral parietal tubercles flanking P<sub>2</sub> have been lost (Fig. 1C), but they are reconstructed as likely having been present in the common ancestor of *P. cornutum* and the Doliosaurus, Brevicauda, and Tapaja clades (Powell and Russell 2024, *op. cit.*). Thus, these supernumerary horns in our aberrant *P. cornutum* (e.g., Fig. 1A: P<sub>0</sub>) would represent a hypertrophied atavism. While we cannot be certain that the supernumerary horns we found in the present specimen of *P. cornutum* are supported by bony outgrowths of the parietal, they appear to replicate the derived condition hypothesized for *P. solare*, and these supernumerary horns would correspond to