

breeds in May, a time when precipitation is increasing. The climate in May is similar to Sept in that both months experience a marked increase in precipitation compared to the preceding months (mean monthly precipitation of 96.7 mm in April increases to 313.7 mm in May, and 243 mm in July increases to 342.4 mm in Sept). This climate pattern is similar to what is experienced in Costa Rica. It is possible that breeding is triggered by the increase precipitation at the end of the rainy season, and as a result the end of the mini dry season may trigger a similar breeding event. On first day of the observation (13 Sept) it rained from ~1300 h to ~1700 h, which is typical weather of the area in Sept. Considering the range of reported breeding activity, the reproductive cycle of *I. confiferus* warrants more investigation, particularly in Panama.

I thank J. Knight, K. Knight, S. Mullin, and the EIU Herpetology Lab, and especially J. Ray and the staff at La MICA Biological Station for their assistance.

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**OSTEOCEPHALUS TAURINUS (Manaus Slender-legged Treefrog).** **PREDATION.** Amphibians are common prey for a great variety of vertebrates, arthropods, and even carnivorous plants (Duellman and Trueb 1986. *Biology of Amphibians*. McGraw-Hill, New York; Pough et al. 1998. *Herpetology*. Prentice-Hall, New Jersey). Snakes are among the most representative vertebrate predators of anurans (Toledo et al. 2007. *J. Zool.* 271:170–177).

Male *Osteocephalus taurinus* may reach 71–92 mm, while females reach 90–101 mm (Lima et al. 2006. *Guia de Sapos da Reserva Adolpho Ducke, Amazônia Central*. Áttema, Manaus). The species occurs in the Amazon Basin of Ecuador, Brazil, Bolivia, Peru, Colombia, as well as in the upper Orinoco Basin of Venezuela, and Guiana (Frost 2010. *Amphibian Species of the World: an Online Reference*. Ver. 5.5 [31 January 2011]. Electronic database accessible at <http://research.amnh.org/vz/herpetology/amphibia/>. American Museum of Natural History, New York). It occurs in forested habitats throughout the Amazon Forest, and in gallery forests within the open Cerrado biome, in Mato Grosso and Maranhão, Brazil (IUCN 2010. *Conservation International and NatureServe. Global Amphibians Assessment*. <http://www.globalamphibians.org>. Accessed 22 Aug 2010). We here report predation of *O. taurinus* by *Leptodeira annulata*.

On 08 Jul 2010 at 1911 h, near the margin of a stream in gallery forest in the municipality of Lucas do Rio Verde, state of Mato Grosso, Brazil, a distress call in the leaf litter revealed an adult *O. taurinus* being predated by an adult *L. annulata* (Fig. 1). The snake seized the treefrog by the inguinal region, but freed it still alive, upon capture. After been placed in a plastic bag with its prey, the snake proceeded to swallow it. Both specimens were collected and deposited at the Coleção Zoológica de Vertebrados of the Universidade Federal de Mato Grosso (municipality of Cuiabá, Mato Grosso State, Brazil), accession number UFMT 8770.

Anurans are common prey of *L. annulata* (Cantor and Pizzato 2008. *Herpetol. Rev.* 39:462–463; Martins and Oliveira 1999. *Herpetol. Nat. Hist.* 6:78–150; Morais and Ávila 2006. *Herpetol. Rev.* 37:76; Vitt 1996. *Herpetol. Nat. Hist.* 4:69–76). To our knowledge, this is the first report of *L. annulata* preying upon *O. taurinus*, one of the most abundant anurans among gallery forests at Lucas do Rio Verde. Much of the original vegetation in this



FIG. 1. An adult *Osteocephalus taurinus* being preyed upon by an adult *Leptodeira annulata* in a gallery forest at Lucas do Rio Verde, state of Mato Grosso, Brazil.

municipality has been removed for the establishment of huge plantations of soybeans and other grains, and only narrow strips of gallery forest are left among the matrix of cultivated land. We here emphasize the importance of promoting effective measures for the conservation of these forested relicts, which offer conditions for the successful establishment of populations of anurans such as *O. taurinus*, and their predators, including *L. annulata*. We thank Fabrício H. Oda for comments on this manuscript.

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**PLATYMANTIS SPELAEUS (Cave Wrinkled Ground Frog).** **DIRECT DEVELOPMENT.** *Platymantis spelaeus* is endemic to southern Negros Island, Philippines, and is one of four recognized species of Philippine limestone forest frogs. All species of the genus *Platymantis* are recognized as direct developing frogs, often laying egg clusters on aerial leaves, branches, or ground leaf litter (Brown and Alcalá 1982. *Proc. Biol. Soc. Washington* 95:386–391; Brown and Alcalá 1983. *In* Rhodin and Miyata [eds.], *Advances in Herpetology and Evolutionary Biology: Essays in Honor of Ernest E. Williams*, pp. 416–428. Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts). It has been hypothesized that all four obligate karst forest species breed in limestone crevices and small caves (Brown and Alcalá 2000. *Haring Ibon* 2:19–22; Brown et al. 2003. *Haring Ibon* 43:91–109; Siler et al. 2007. *Herpetologica* 63:351–364; Siler et al. 2009. *Herpetologica* 65:92–104); however, to date, no data have been presented in direct support of this hypothesis. To our knowledge, this is the first evidence of direct development in cave systems for species of the genus *Platymantis*.

While conducting fieldwork in the Philippines, we observed newly metamorphosed juvenile *Platymantis spelaeus* inside a



FIG. 1. An adult male (top) and a newly metamorphosed juvenile (bottom) *Platymantis spelaeus* in southwest Negros Island, Philippines.

small cave system, 2–4 m from the entrance to the cave. The observation was made on 27 Oct 2004, in secondary-growth forest, in the Municipality of Cauayan, Barangay Camalandaan, Negros Occidental Province, Negros Island, Philippines (9.8378667°N, 122.5053667°E, WGS 84; elev. 350 m). Adult specimens were observed calling on karst formations surrounding the cave system. One adult (CDS 266, male, 49.0 mm SVL, 8.9 g, Fig. 1a) and three juvenile (PNM Developmental Series 07; juvenile 1, 8.26 mm SVL, Fig. 1b; juvenile 2; 8.38 mm SVL; juvenile 3, 8.14 mm SVL) specimens were deposited in the herpetological collections of the Philippine National Museum.

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**PLEURODEMA CORDOBAE** (Octoploid *Pleurodema*). **CLUTCH SIZE.** *Pleurodema cordobae* is only known from the type locality and little is known about the reproductive biology and natural history of this recently described species. The species is known to lay eggs in semi-submerged gelatinous egg masses that adhere to vegetation (Valetti et al. 2009. *Zootaxa* 2073:1–21). Herein we document the number of eggs per egg mass and the density of egg masses in two ponds at the type locality.

On 2 Dec 2010 we visited two ponds at Estancia Los Tabaquillos, Córdoba province, Argentina (32.3995°S, 64.926°W, ca. 2105 m elev.) and observed numerous egg masses of *P. cordobae*. The embryos in different egg masses were staged at Gosner 15 and 19 (Gosner 1960. *Herpetologica* 16:183–190). The area of the larger pond was 236 m<sup>2</sup>; clutch number was 203, and density of egg masses was 0.86/m<sup>2</sup>. In the smaller pond (7 m<sup>2</sup>), clutch number was 27 and density of egg-masses was 3.82/m<sup>2</sup>. The average number of eggs per egg mass was 137 (N = 11; range = 74–215; SD = 45.9).

The eggs masses were adhered to vegetation which was most abundant along the edge of the ponds, thus the greatest density of nests in the smaller pond could be due to the higher edge/area rate.

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**PSEUDOEPIDALEA BRONGERSMAI** (Brongersma's Toad). **PREDATION.** Among arthropods, spiders are well known as predators of reptiles and amphibians (Armas 2000. *Revista Ibérica de Aracnología* 3:87–88; Manzanilla et al. 2008. *Bol. Soc. Entomológica Aragonesa* 42:317–319; Barbo et al. 2009. *Herpetol. Notes* 2:99–100; Maffei et al. 2010. *Herpetol. Notes* 3:167–170).



FIG. 1. Dry metamorph of *Pseudoepidalea brongersmai*, partially eaten on the head and right foreleg (arrow).



FIG. 2. *Arctosa* sp. (Family: Lycosidae).