

Caatinga lowlands of northeastern Brazil (de Brito and Gonçalves 2012. Check List 8:968–969). Natural history data on this snake are sparse, especially concerning their diet. To date, only five species are known as prey, two snake species: *Oxyrhopus cf. trigeminus* and *Phylodryas* sp. and three lizard species: *Tropidurus torquatus*, *Diploglossus lessonae* and *Ameiva ameiva* (Gaiarsa et al. 2013. Pap. Avul. Zool. 53: 261–283). Here we report a novel prey item (*Boa constrictor*) in the diet of *B. sertaneja*.

On 5 April 2016, we captured a female *B. sertaneja* (SVL = 138.0 cm, tail length = 23.5 cm, mass = 1810 g after regurgitation) in a semiarid area of the Lipari Mineração LTDA near Nordestina in the state of Bahia, Brazil (10.9026°S, 39.4227°W; SAD 69). The *B. sertaneja* regurgitated a *B. constrictor* (SVL = 98.9 cm, tail length = 9.8 cm, mass = 780 g) that it had swallowed head-first. Our survey was part of the faunal rescue program of Lipari Mineração LTDA (license INEMA nº 8598).

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BOTHROPS PUBESCENS. SPERM IN THE SEXUAL SEGMENT OF THE KIDNEYS. In vertebrates, a reproductive function in the kidneys may have evolved independently three times: in a group of fishes (Courrier 1928. Arch. Anat. Hist. Embryol. 1:115–144), urodele amphibians (Aron 1924. Arch. Biol. Morphol. Exp. Comp. 34:1–166), and squamate reptiles (Regaud and Policard 1903. Arch. Anat. Microsc. Morphol. Exp. 6:191–282). Snakes, lizards, and amphisbaenians have a specialized portion of the nephron, which depends on testosterone levels to become hypertrophied and secretory: the sexual segment of the kidney (SSK; Volsøe 1944. Spolia Zool. Mus. Hauniensis 5:1–157; Bishop 1959. J. Morphol. 104:307–357). Many functions have been proposed for SSK secretions including sperm nutrition and activation, lubrication during copulation, and formation of a gelatinous copulatory plug that males deposit in the female's vagina during copulation (Fox 1977. In Gans and Parsons [eds.], *Biology of the Reptilia*, pp. 1–157. Academic Press, New York, New York.). To our knowledge, we present the first report of sperm in the SSK of a snake species. After dissection and macroscopic evaluation of the male urogenital tract (testes, ductus deferens, kidneys, and ureters), we conducted histological analysis of 46 males of *Bothrops pubescens* (Viperidae) for a broader study about reproduction of this snake species. Here, we report the discovery of sperm in the urinary tract of a male *B. pubescens* (MCT 16124). This specimen is held in the zoological collection Museu de Ciência e Tecnologia (MCT) of Pontifícia Universidade Católica (PUC) in Rio Grande do Sul State (RS). It was collected 10 June 2005 (autumn season) at São Jerônimo city (29.95888°S, 51.72194°W), RS, Brazil. We also recorded snout–vent length (SVL) and sexual maturity using the presence of sperm in the ductus deferens or testes as a criterion to consider the individual as sexually mature. The organs were preserved in 70% alcohol and processed for light microscopy by the paraffin method. Sections taken at 5 µm were stained with hematoxylin and eosin. Images of the slides were obtained via Image-Pro Express Olympus Program. No signs of abnormalities were detected in the macroscopic examination of the urogenital tract of the male *B. pubescens* (MCT 16124). This male was sexually mature (presence of sperm in the ductus deferens) and it measured 63 cm SVL. The kidneys showed normal conditions

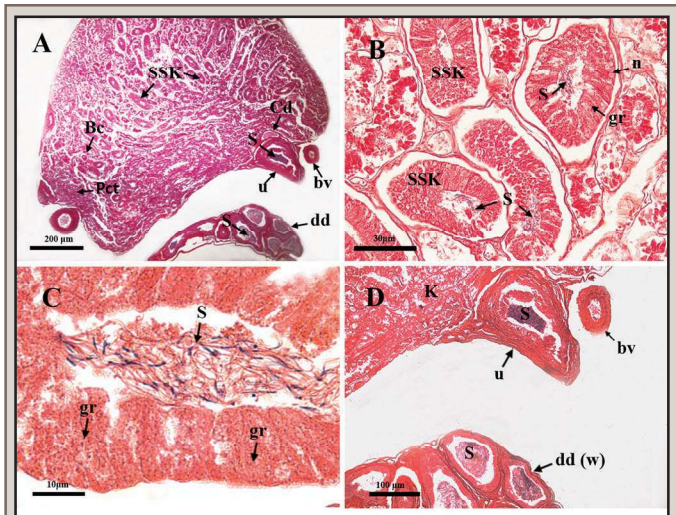


FIG. 1. Presence of sperm in the sexual segment of the kidney (SSK), ureter, and ductus deferens of *Bothrops pubescens*. A) Overview of the cranial portion of the kidney, showing stereotypical regions of the nephron (normal condition). B) Presence of sperm in the tubules of the SSK. C) Higher magnification of spermatozoa in the lumen of SSK tubules (full of granules). D) Presence of sperm in the lumen of the ureter and ductus deferens. Bc: Bowman's capsule, Bv: blood vessels, Cd: collecting duct, dd: ductus deferens, dd (w): ductus deferens (wall), gr: secretory granules, K: kidney, n: nucleus, Pct: proximal convoluted tubule, S: sperm, SSK: sexual segment of the kidney, U: ureter.

of nephron regions, including the Bowman's capsule, proximal convoluted tubules, distal convoluted tubules (SSK) and the collecting ducts (Fig. 1A). The epithelium of the SSK consisted of high and narrow cells presenting well-defined boundaries (Fig. 1B). The nucleus lied near the base of these cells and the cytoplasm was filled with eosinophilic secretory granules, demonstrating that the SSK was hypertrophied and at the secretory stage at this season (autumn) (Fig. 1B, C). The lumen of the SSK was visible and was partially filled with secretions from the SSK epithelium and an uncommon presence of sperm (Fig. 1B, C). Histological sections of the ureter also showed the presence of sperm in the lumen (Fig. 1D). The ductus deferens wall was intact and completely separated from the ureter. (Fig. 1D). Sperm were present in the lumen of the ductus deferens in a mass (Fig. 1D). This male was sampled during autumn, simultaneous to peak spermatogenesis (Barros et al., unpubl. data) and the mating season (Almeida-Santos and Salomão 2002. In Schuett et al. [eds.], *Biology of the Vipers*, pp. 445–462. Eagle Mountain Publishing, Eagle Mountain, Utah). Thus, abundant sperm would be exiting the ductus deferens at that time. The presence of sperm was observed in the ampulla ureter of viperids (Volsøe, *op. cit.*; Trauth and Sever 2011. In Aldridge and Sever [eds.], *Reproductive Biology and Phylogeny of Snakes*, pp. 411–475. Science Publishers, Enfield, Connecticut; Siegel et al. 2011. J. Zool. Syst. Evol. Res. 49:160–168). The ampulla ureter is located at the distal portion of the ureter, it is larger than the ureter and it communicates the ductus deferens and the ureter to the urodaeum, which is the part of the cloaca into which the ureters and the genital ducts empty (Volsøe, *op. cit.*; Siegel et al., *op. cit.*). One possibility is that sperm in the ampulla ureter ascended the ureter in this male of *B. pubescens*. The SSK has already been studied in many species (e.g., Krohmer 2004. J. Morphol. 261:70–80; Rojas et al. 2013. J. Morphol. 274:215–228), but sperm

has never been observed inside it, thus this finding seems novel and extremely rare. However, whether sperm presence in the SSK tubules is physiologically meaningful is unknown.

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BUNGARUS FLAVICEPS (Red-headed Krait). REPRODUCTION / MATING BEHAVIOR. *Bungarus flaviceps* occurs throughout Burma, southern Indochina, Sumatra, Borneo, and Peninsula Malaysia, where it mainly occurs in primary forests of highlands (Grismer 2011. Amphibians and Reptiles of the Seribuat Archipelago: a Field Guide. Edition Chimaira, Frankfurt am Main. 239 pp.). Of the three species of kraits (*Bungarus* spp., Elapidae) that occur in Malaysia, *B. flaviceps* is the least common and is said to exhibit sluggish behavior during the day (Das et al. 2015. In Gopalakrishnakone et al. [eds.], Clinical Toxicology in Asia Pacific and Africa, pp. 52–69. Springer, Netherlands). Little is known about its reproductive biology, apart from two clutches laid by wild-caught gravid females in the months of September and December with incubation periods of 81–84 days (Chanhome 2013. Trop. Nat. Hist. 13:59–63). The egg-development period of *B. flaviceps* is thought to be between two to three months (T. Vasaruchapong, pers. comm.). Here we report an observation of *B. flaviceps* mating behavior in the wild in the month of February.

At 2215 h on 7 Feb 2017, two *B. flaviceps* were encountered in mating position with their tails intertwined in a patch of secondary forest near Ulu Yam, Selangor, central Peninsular Malaysia (3.3862°N, 101.6784°E; WGS 84). However, the pair was disturbed by human presence and light, resulting in the male (SVL ca. 180 cm) and female (SVL ca. 120 cm) moving away in opposing directions. The hemipenis of the male remained attached to the cloaca of the female (Fig. 1). The female then moved into a hole so that only her tail remained visible while the male remained close by, still connected to the female at the base of the tail. The entire observation lasted approximately 15 min as the observer moved away to reduce disturbance to the mating pair.

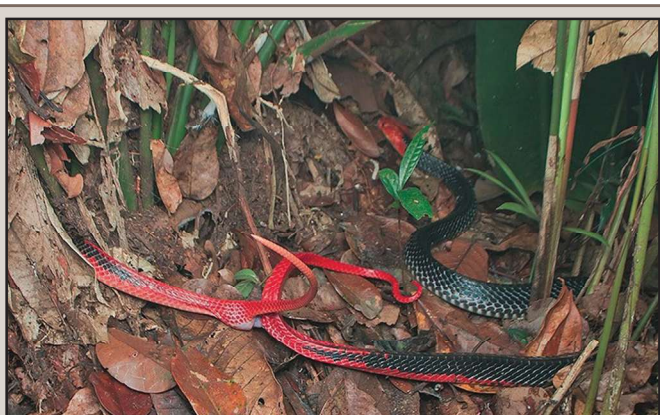


FIG. 1. A mating pair of *Bungarus flaviceps*, with body of the female (left) partially hidden.

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CANDOIA BIBRONI (Pacific Boa). DIET. Despite being widespread and common throughout the southwestern Pacific, the natural history of *Candoia bibroni* remains poorly known. Published works indicate that the species' diet consists primarily of skinks and rodents, although bats, birds, geckos, and *Brachylophus* iguanas are also known prey (McDowell 1979. J. Herpetol. 13:1–92; Gibbons and Watkins 1982. In Burghardt and Rand [eds.], Iguanas of the World, pp. 418–441. Noyes Publications, Park Ridge, New Jersey; Harlow and Shine 1992. J. Herpetol. 26:60–66; Fisher et al. 2013. Herpetol. Rev. 44:140–141). Here, we report the first instances of Pacific Boas eating amphibians in the wild. Specifically, we documented *Cornufer vitianus* (Fiji Ground Frog) and *C. vitiensis* (Fiji Tree Frog), both formerly in the genus *Platymantis* (for taxonomic discussion see Brown et al. 2015. Zool. J. Linn. Soc.-Lond. 174:130–168), as prey for the first time. To minimize confusion, hereafter we will refer to these species as boa, ground frog, and tree frog.

At 0035 h on 4 May 2011 (new moon, 20–50% cloud cover, ca. 20°C), while spotlighting for petrels in a grassy area cleared of trees, one of us (MJF) encountered a juvenile boa swallowing a ground frog in a grassy area cleared of trees near the crest of Waitabua Hill, Gau Island, Fiji (18.04°S, 179.30°E, WGS 84; 440 m elev.). The snake was just beginning to consume the frog when first sighted (Fig. 1), and within 10 min it completed ingestion and moved off through the tall grass. Smooth skin and lack of enlarged finger discs confirmed the frog's identification as a ground frog, and this is the only species of *Cornufer* known on Gau Island.

In the late afternoon of 10 December 2015, while doing rope-aided canopy surveys of a selectively-logged primary rainforest, one of us (SP) captured a juvenile female boa (SVL = 525 mm, total length = 618 mm, 62.4 g including prey) at 7.6 km N and 6.1 km W (airline) of Nabukelevu Village, Serua District, Serua Province, Viti Levu Island, Fiji (18.05965°S, 177.80925°E, WGS 84; 610 m elev.). The snake (SUVA 00362) was hiding among accumulated leaf litter and fronds of an epiphytic *Drynaria rigidula* fern ca. 12 m high on the tree trunk. A pronounced bulge was visible in its midsection, indicating a recent meal. Dissection revealed



FIG. 1. *Candoia bibroni* eating *Cornufer vitianus*. Both photos illustrate the same predation event.