FIG. 1. Remnants of a drop of blood emitted from post-cloacal scent gland of *Pantherophis guttatus*.

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***PHILODRYAS OLFERSII* (Lichtenstein's Green Racer). REPRODUCTIVE BEHAVIOR.** *Philodryas olfersii* is a dipsadine colubrid found throughout most of northern South America, especially in the Brazilian Cerrado, Atlantic Forest, Caatinga, Pampas, and Pantanal, and in scattered areas of the Amazon rainforest (Nogueira et al. 2019. S. Am. J. Herpetol. 14:1–274). It preys mostly on anurans and has arboreal habits, with diurnal activity mainly from 1100 to 1600 h (Fowler and Salomão 1994. Bull. Chicago Herpetol. Soc. 29:229–232; Hartmann and Marques 2005. Amphibia-Reptilia 26:25–31). Male *P. olfersii* have an increase in testicular volume in the hottest and wettest months, from November to February (De Mesquita et al. 2013. Herpetol. J. 23:39–44). Female vitellogenesis occurs from March to December, but the peak is concentrated from July to November, coinciding with ovulation and egg-laying that starts in September and lasts until January (Vitt and Vangilder 1983. Amphibia-Reptilia 4:273–296; Fowler et al. 1998. The Snake 28:71–78; De Mesquita et al. 2013, *op. cit.*). Reproductive aggregations have been observed in March and April (Cechin and Hartmann 2001. Herpetol. Rev. 32:187; Banci et al. 2021. Herpetol. Rev. 52:881). Copulation in captivity was observed in April (Fowler et al. 1998, *op. cit.*). Females are larger than males and this may be related to the mating system that the species exhibits (Shine 1994. Copeia 1994:326–346; Hartmann and Marques 2005, *op. cit.*). Here, we provide and contextualize a record of reproductive behavior of *P. olfersii* in nature.

At ca. 0800 h on 8 December 2022, two *P. olfersii* were found together by Laís V. L. Berçan on the branches of a *Murraya paniculata* ca. 1 m above the ground in an urban area of Coronel Fabriciano (19.5311°S, 42.5796°W; WGS 84), Minas Gerais, Brazil. The larger female was perched higher than the smaller male (Fig. 1). The couple had their cloacal regions opposite one another and a swelling in the female's cloacal region was observed, probably due to the inserted hemipenis (Fig. 1). The duration of copulation was at least one hour.

FIG. 1. Reproductive behavior of *Philodryas olfersii* showing the male's tail (blue arrowhead), the female's tail (red arrowhead) with swollen cloacal region (white rectangle), and the male's body in the background (white arrow).

Female-biased sexual size dimorphism corroborates the reproductive aggregations that are observed in *P. olfersii* (Shine 1994, *op. cit.*; Cechin and Hartmann 2001, *op. cit.*; Hartmann and Marques 2005, *op. cit.*; Banci et al. 2021, *op. cit.*). However, monogamous copulation also appears to occur, as seen here and previously only in captivity (Fowler et al. 1998, *op. cit.*; F. Andrade, pers. comm.). Reproductive aggregations may decrease female choice, whereas copulation with a single partner may increase it, as well as the effects of intersexual selection (Rivas and Burghardt 2001. Anim. Behav. 62:1–6). For males, copulation with a single partner reduces intraspecific competition (Shine 2003. Proc. R. Soc. B 270:995–1004). In addition, male *P. olfersii* may be able to store sperm in the ductus deferens throughout the year, as seen in *P. patagoniensis*, enabling opportunistic copulation (Loebens et al. 2016. Acta Zool. 98:329–339).

The timing of copulation observed here coincides with copulation observed in captivity, as well as with the period of the year when *P. olfersii* are most active (November and December), suggesting that the mating season is a determining factor for the seasonal activity of this species (Fowler and Salomão 1994, *op. cit.*; De Mesquita et al. 2013, *op. cit.*). The timing is also concomitant with periods of higher testicular volume and ovulation (Fowler et al. 1998, *op. cit.*; De Mesquita et al. 2013, *op. cit.*), characterizing a reproductive pattern with facultative sperm storage (Crews 1984. Horm. Behav. 18:22–28). On the other hand, other observations of courtship and copulation have been observed during autumn (dissociated from the period of ovulation), implying obligatory sperm storage (Crews 1984, *op. cit.*; Fowler et al. 1998, *op. cit.*;

Cechin and Hartmann 2001, *op. cit.*; Banci et al. 2021, *op. cit.*). We suggest that associated and dissociated reproductive patterns are both adopted by *P. olfersii*, as previously proposed (Fowler et al. 1998, *op. cit.*). However, further studies need to be carried out to understand the factors that are related to this, including the use of histological techniques to assess where sperm storage occurs and for how long.

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***PITUOPHIS MELANOLEUCUS LODINGI* (Black Pinesnake). MORPHOLOGY.** A large colubrine found in southern Mississippi and southwestern Alabama, USA, sexual differences in morphology of *Pituophis melanoleucus lodingi* have been previously described by Conant (1956. Am. Mus. Novit. 1781:1–31) and Stull (1940. Bull. U.S. Nat. Mus. 175:1–225). However, these descriptions were based on small sample sizes (≤ 14 individuals), which prevented statistical evaluation of morphometric differences by sex. We assessed sexual differences in the aforementioned features, as well as snout–vent length, mass, head width, jaw length, anal scale width, and anal scale depth, using a larger data set. We used morphometric data from an ongoing, long-term *P. m. lodingi* monitoring program in and around the Camp Shelby Joint Forces Training Center near Hattiesburg, Mississippi. Animals were captured and measured to the nearest 0.1 centimeter or whole gram for lengths/widths and mass, respectively. We analyzed our data with Wilcoxon sum rank tests to determine whether there was statistical evidence for differences in morphometric values between sexes ($\alpha = 0.05$). Following Conant (1956, *op. cit.*), we only evaluated animals >100 cm total length (male: N = 95; female: N = 65), and we excluded animals with injuries (i.e., damaged or missing tails).

Mean morphometric values were higher for males than females for all traits except for ventral scale counts, anal scale width, and anal scale depth (Table 1). We found strong statistical evidence of sexual dimorphism in tail length (W = 1,507.5; $P < 0.0001$), the ratio of tail length to total length (W = 838, $P < 0.0001$), subcaudal scale counts (W = 867; $P < 0.0001$), ventral scale counts (W = 1,495; $P = 0.01$), and anal scale width (W = 3,127; $P = 0.007$). We found little to no statistical evidence for differences in snout–vent length (W = 2,884.5; $P = 0.48$), total length (W = 2,666; $P = 0.14$), mass (W = 2,650; $P = 0.29$), head width (W = 2,456; $P = 0.47$), jaw length (W = 2,540; $P = 0.50$), or anal scale depth (W = 2,921; $P = 0.07$). Our measurements, scale counts, and ratios of tail length to total length are similar to those previously reported by Conant (1956, *op. cit.*) and Stull (1940, *op. cit.*). Our results also reflect sexual differences in tail length and scutellation reported for other *Pituophis* (Stull 1940, *op. cit.*). However, we did not find statistical evidence for sexual differences in any body length measurements other than tail length.

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***PLAGIOPHOLIS STYANI* (Chinese Mountain Snake). DIET.** *Plagiopholis styani* is a cryptic, small-to-medium-sized fossorial pseudoxenodontine with a discontinuous distribution in China (Fujian, Zhejiang, Anhui, Jiangxi, Guangxi, Sichuan, and Gansu) (Zhao and Adler 1993. Herpetology of China. SSAR, Oxford, Ohio. 522 pp.), Vietnam (Uetz et al. [eds.] 2024. The Reptile Database. www.reptile-database.org, 5 Jan 2024) and Taiwan (Huang et al. 1999. Bull. Natl. Mus. Nat. Sci. 12:117–124.). Some previous literature has mentioned that this species feeds on earthworms, but none have identified prey to any finer resolution (Pope 1935. The Reptiles of China. The American Museum of Natural History, New York. 604 pp.; Maslin 1950. Proc. Calif. Acad. Sci. 26:419–466).

At ca. 1205 h on 20 July 2020, we observed a *P. styani* preying on a giant earthworm in the family Megascolexidae (Fig. 1). The worm was still immature, and we were unable to determine whether it belonged to *Amynthas* or *Metaphire* from the photographs. The event was observed on a hiking trail midway to Sunlo Lake in Yilan County, northeastern Taiwan (24.6899°N, 121.5491°E; WGS 84; 1138 m elev.). The snake's length was ca. 30 cm, although we did not collect any measurements of the snake in order to avoid interrupting the feeding process. Planted

TABLE 1. *Pituophis melanoleucus lodingi* morphometric means and ranges (in parentheses) by sex from animals measured as part of a long-term monitoring program in and around the Camp Shelby Joint Forces Training Center near Hattiesburg, Mississippi, USA (total: N = 160; male [M]: N = 95; female [F]: N = 65). All lengths are in cm and mass is in g.

Sex	Snout–vent length	Tail length	Total length	% tail length to total length	Subcaudal scales	Ventral scales	Mass	Head width	Jaw length	Anal scale width	Anal scale depth
M	130 ± 15.8 (89.5–163.0)	20.0 ± 2.87 (12.2–27.0)	150.0 ± 18.2 (105–190)	13.3 ± 1.1 (8.4–16.4)	58.9 ± 4.7 (35–67)	215.0 ± 4.9 (201–228)	824.0 ± 326.0 (258.0–1678.0)	3.4 ± 0.5 (2.1–4.9)	4.1 ± 0.4 (3.1–5.5)	1.6 ± 0.4 (0.4–2.8)	0.8 ± 0.2 (0.4–1.3
F	128 ± 15.6 (95.2–157.0)	17.6 ± 2.06 (12.8–20.8)	146.0 ± 17.3 (108–178)	12.1 ± 0.8 (10.2–14.3)	54.2 ± 3.8 (45–66)	217.0 ± 4.9 (205–227)	769.0 ± 298.0 (248.0–1486.0)	3.3 ± 0.6 (1.8–4.8)	4.0 ± 0.5 (2.5–5.2)	1.8 ± 0.4 (0.8–2.8)	0.8 ± 0.2 (0.1–1.2)