

(May–June). The data presented here indicate that *S. punctata* is an oviparous species, an unusual reproductive mode for an aquatic snake as most aquatic snakes are viviparous (Shine 1983. *In* Biology of the Reptilia. Vol 15. Development B. C. Gans and F. Billet [eds.], pp. 605–694. John Wiley and Sons, New York.). However, some aquatic xenodontines such as *Helicops angulatus*, *H. hagmanni*, and *Pseudoeuryx plicatilis* present both viviparous and oviparous reproductive modes (Cunha and Nascimento 1981. Bol. Mus. Par. Emilio Goeldi 109:1–20). Therefore, additional data are needed to assess whether *S. punctata* follows this dual pattern. I thank I. Sazima for reviewing this manuscript.

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**THAMNOPHIS SIRTALIS PARIETALIS** (Red-sided Gartersnake) **MALE-MALE COPULATION.** Although male mimicry of females occurs in many animal species (Burley 1982. *In* Alexander and Tinkle [eds.], Natural Selection and Social Behavior, pp. 121–137. Chiron, New York), most cases of male-male courtship do not appear to progress to actual copulation (Bagemihl 1999. Biological Exuberance: Animal Homosexuality and Natural Diversity. St. Martin's Press, New York. 751 pp.). In reptiles, female mimicry apparently leading to homosexual copulation has been reported in one lizard species (*Anolis garmani*, Trivers 1976. Evolution 30:253–269), but with little detailed information. The only well-studied example of female mimicry in reptiles involves red-sided gartersnakes, *Thamnophis sirtalis parietalis*, that overwinter in large communal dens in Manitoba. The snakes court and mate as they emerge in spring. Courting males recognize the sex of other snakes based primarily on lipids in the skin (Mason 1992. *In* Gans and Crews [eds.], Biology of the Reptilia, Volume 18. Hormones, Brains and Behavior, pp. 114–228. Univ. Chicago Press, Chicago). In the Manitoba dens, some males (“she-males”) produce female-like pheromones, and thus attract substantial courtship from other males (Mason and Crews 1985. Nature 316:59–60; Shine et al. 2000. Anim. Behav. 59:349–359). In this note, we provide the first example of apparent male-male copulation.

On 17 May 1999, we were conducting ecological research at a large snake den in a gravel quarry 1.5 km N of Inwood, 0.5 km E of Highway 17 (50°31.58'N 97°29.71'W), in southern Manitoba, Canada. While collecting she-males for behavioral trials, we found a male (47.7 cm SVL, 13.2 cm tail length, 33.0 g) being actively courted by four other males. When the she-male was collected, we noticed that it was bleeding from the cloacal area, and that the snake's body contained a hard object a few centimetres anterior to the cloaca. We palpated this object posteriorly and out of the snake's cloaca. It was a gelatinous mating plug (Fig. 1), identical to those deposited in heterosexual matings by this species. The plug weighed 0.035 g, within the size range of plugs from male-female matings (Shine et al., unpubl. data). The she-male showed no overt physical peculiarities. Its sex was confirmed by manual eversion of hemipenes (Fig. 1). The snake and copulatory plug were preserved and deposited in the University of Michigan Museum of Zoology (UMMZ 224312).

Although we did not witness the actual copulation, the presence of the plug strongly suggests that this snake mated with another

male. Such behavior must be extremely rare: we have never recorded it during the observation, capture, and handling of many hundreds of she-males over many years. Most probably, the copulated male was moribund and unable to resist copulation. There is no need to invoke his co-operation in this event. Male gartersnakes at the dens frequently mate with dead and dying females, and with females with open wounds (usually, from pecks by crows) in their bodies (pers. obs.). A similar inability to resist mating attempts, because of poor health, may explain cases of interspecific copulations in captive snakes (Klauber 1956. Rattlesnakes: Their Habits, Life Histories and Influence on Mankind. Univ. California Press, Berkeley, California. 1533 pp.; Hardy 1998. Bull. Chicago Herpetol. Soc. 33:258–262).

Although the copulated male was not unusually slender-bodied (his mass relative to SVL was almost exactly average for males in this population; unpubl. data), other aspects support the idea that he was in poor health. He was limp-bodied when picked up and was covered in dirt; both of these traits characterize males that have emerged only recently from their overwinter den (Shine et al., unpubl. data). After we manually everted his hemipenes, he did not retract them. Indeed, they were still extruded when the snake was examined 24 h later, at the time he was killed and preserved.

Male-male courtship is frequently reported in captive snakes, but rarely progresses to copulation (Hardy 1998, *op. cit.*). To our knowledge, ours is the first record of male-male intromission by a free-ranging snake.

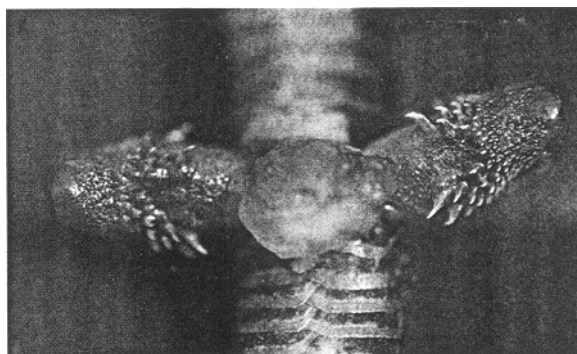


FIG. 1. Cloacal region of male gartersnake, showing everted hemipenes (to verify sex) and the cloacal plug partially everted from its vent.

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