

salamanders in the field are scarce, particularly in less common species, and sexual behavior of many species has never been observed in the field (Arnold 1977. In Taylor and Guttman [eds.], *Reproductive Biology of Amphibians*, pp. 141–183, Plenum Press, New York). There is little published information about sexual behavior in spring salamanders. Bishop (1941. *Salamanders of New York*. Bull. New York State Mus. No. 324, Albany, New York) provided a detailed description (pp. 243–244) of an interaction between two specimens in the field, that he presumed to be a courting pair. This observation was also reported by Petranks (1998. *Salamanders of the United States and Canada*. Smithsonian. Inst. Press, Washington, D.C.). Bishop's description of *Gyrinophilus* courtship differs significantly from the elaborate courtship including tail-straddle walk that typifies courtship in the Plethodontidae (Arnold 1977, *op. cit.*) and that reported for closely related *Pseudotriton* (Organ and Organ 1968. *Copeia* 1968:217–223). It also differs from the description provided by Beachy (1997. *Herpetologica* 53:289–296) based on extensive observations from staged laboratory encounters.

On 21 September 1995 at Whiteside Mountain, Jackson County, North Carolina (USA), we encountered two large (SVL 86.7 mm and 90.6 mm) *G. porphyriticus* engaged in behavior remarkably similar to that described by Bishop. The two salamanders were in a shallow pool (~10 cm) in a small stream at the base of a rock face. The animals wrestled and writhed while biting each other aggressively. The behavior we observed resembled the aggressive interactions reported for many species of plethodontids (reviewed by Arnold 1977, *op. cit.*). After watching the salamanders engage in this behavior for about 10 minutes, they were collected and sacrificed the next day. Dissection revealed that both individuals were males, meaning that these behavioral interactions and probably those reported by Bishop (1941, *op. cit.*) are male-male agonistic behavior (sexual interference: Arnold 1976. *Z. Tierpsychol.* 42:247–300) rather than courtship behavior. The two specimens have been deposited in the North Carolina State Museum of Natural Sciences (NCSM 62159–62160).

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**NECTURUS MACULOSUS** (Mudpuppy). **PREDATION.** Predation on mudpuppies is not well documented. Herein I report predation on mudpuppies by mink (*Mustela vison*). During July 2001, Steven and Maureen Maslak of Rome, Maine, observed an adult mink carrying a mudpuppy in its mouth on the shore of Long Pond. The Maslaks often observe mink at this site, and often capture mudpuppies in their minnow traps. To my knowledge this is the first report of such predation.

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**NOTOPHTHALMUS VIRIDESCENS** (Eastern Red-Spotted Newt). **PREDATION.** No significant predation on adult eastern red-spotted newts, *Notophthalmus viridescens*, has been documented in the wild. Natural predation on the toxic adult newts might help explain their cryptic dorsal coloration.

During late September 1998, two female newts were placed in a



FIG. 1. Examples of limb predation on adult *Notophthalmus viridescens*.

minnow trap overnight in Binghamton University's Nature Preserve pond (Broome County, New York, USA), and one experienced limb and tail predation that provided the impetus for further investigation of newt predation. At 1700 h on 25 September and 2 and 9 October 2000 at the same site, three newts were placed in each of nine minnow traps set ca. 7 m apart, 45 cm deep, and 1.0 m from shore. Trap checks at 1000 h the following mornings revealed no newt captures. On 26 September, two of the 27 newts had disappeared and 11 had serious or fatal injuries: all lost limbs (Fig. 1), four had partial or total tail loss, and one had only the spine, head, and dorsal skin remaining (Fig. 2). On 3 October, one of the 27 newts was missing and one had lost a limb. No newts were injured or missing on 10 October. The first frost of the year occurred between the first and second trapping sessions, and two frosts occurred between the second and third. Injuries seemed to have been inflicted from outside the traps because many newts were found with their bodies partially pulled through the trap mesh. The predation seems to be crepuscular or nocturnal, as we have over 1500 newt captures in 3000 h of diurnal trapping (1000–1700 h) at the same population from March until June of 1999 and 2000 without an incident of predation (unpublished).

These are the first observations of natural and significant preda-

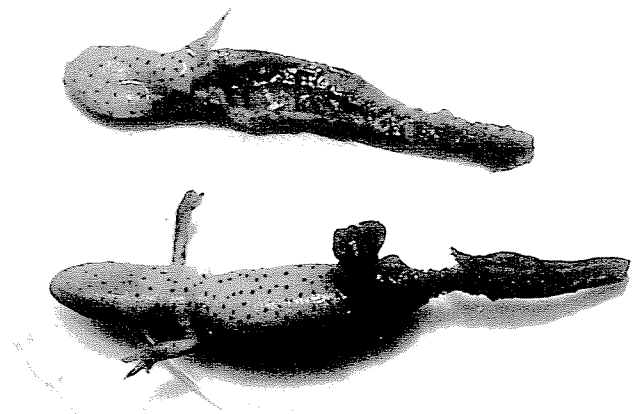


FIG. 2. Example of tail and ventral surface predation on adult *Notophthalmus viridescens*.