

NATURAL HISTORY NOTES

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CAUDATA

AMBYSTOMA MACULATUM (Spotted Salamander). **MORTALITY.** *Ambystoma maculatum* are winter breeders in the southeastern United States. Individuals are often subjected to unpredictable environmental conditions, such as partial freezing of aquatic habitats, during their breeding activities. Adult mortality from partial freezing of aquatic habitat is known (Harris 1980. *Copeia* 1980:719–722), but has rarely been described. We report here on observations of *A. maculatum* mortality during reproduction after a partial freeze of a wetland in Mecklenburg County, North Carolina, USA during the winter of 2005.

Warm air temperatures (up to 20°C) and precipitation from 25–27 January proceeded and apparently initiated *A. maculatum* breeding activity. On 28 January, a cold front moved through the area and maximum air temperatures remained below freezing (-6°C) until 30 January. A thin (< 2 cm) layer of ice formed over the majority of the wetland, and remained until 8 February. We surveyed the wetland between 2–10 February 2005 and observed 27 dead *A. maculatum*; 21 females (mean SVL = 103.6 mm, SD = 3.82 mm; TTL = 192.3 ± 7.25 mm; N = 19), and 6 males (mean SVL = 99.2 ± 12.77 mm; TTL = 190.33 ± 28.12 mm). Seventeen of the females contained eggs (mean = 65.47 ± 48.59; range 11–182). Nine individuals had various body injuries such as missing pieces of the head and torso, or punctures in the ventral side. We also collected dead individuals of *Rana sphenocephala* (3), *R. catesbeiana* (2), *Pseudacris ferairum* (1), *Acris crepitans* (1), and *Chrysemys picta* (1).

Our observations confirm those of Harris (1980, *op. cit.*), which suggest that freezing of aquatic habitats can lead to mortality in *A. maculatum*, and that mortality is skewed towards females, even though males are often more numerous in breeding ponds (Stenhouse 1985. *Copeia* 1985:631–637). The reason females are more susceptible than males to freezing is unknown, however, we speculate it might be the result of egg-depositing behavior, sensitivity to reduced oxygen levels, or the reluctance to leave the wetland when gravid. Although we did find several individuals with injuries, we believe it is likely these injuries were induced post-mortem by aquatic invertebrates or other scavengers inhabiting the wetland. This research was supported by the Davidson College Department of Biology, Duke Power and National Science Foundation grant (DEB – 0347326) to MED.

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