

An egg mass of the spotted salamander, *Ambystoma maculatum*, in an unusual terrestrial location

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North American salamanders in the family Ambystomidae typically oviposit in aquatic situations, (reviewed by Petranka, 1998). Spotted salamanders, *Ambystoma maculatum*, a species native to the eastern United States and southeastern Canada, deposit egg masses in vernal pools, swamps, roadside ditches, other water filled depressions, ponds, lakes, and the backwater portions of streams (Petranka, 1998). However, Boyle & Moldowan (2013) recently reported two novel instances of terrestrial oviposition under moist logs by *A. maculatum*. On 25 March 2016 at 1000 h (U.S. Eastern Standard Time), in Columbia County, Pennsylvania, USA (40°50'10.5"N, 76°22'19.1"W, WGS 84 grid), I found an *A. maculatum* egg mass situated on a stone protruding approximately 25 cm above the ground within a wooded vernal pool/wetland area (Fig. 1). The egg mass appeared to be attached to the stone (Thompson & Gates, 1982), but no attempt was made to move or otherwise disturb the egg mass. Approximately 50 other *A. maculatum* egg masses were observed in vernal pools throughout the area. After three weeks, the egg mass was observed to be intact and in the same position on the stone but appeared to have desiccated since the prior observation.

This observation of an egg mass in a terrestrial microhabitat is highly unusual for *A. maculatum* (Petranka 1998; Boyle & Moldowan, 2013). A possible explanation, is the surface of the stone was underwater when the female selected the site to oviposit, and subsequent drying of water "stranded" the egg mass (Nyman, 1987). However, no other egg masses observed at the site were stranded terrestrially, and consistent rainfall occurred during the observation period (pers. obs.), suggesting this scenario is unlikely. The egg mass or ovipositing female may have been moved to the location by another organism (i.e., a predator); however, the jelly coating on egg masses and toxic cutaneous secretions of adult *A. maculatum* are deterrent to many predators (Petranka, 1998). Therefore, the egg mass, intact and attached to the stone, might have been intentionally oviposited in this location. Boyle & Moldowan (2013) hypothesized that terrestrial oviposition in *A. maculatum* may occur in response to stressors. Perhaps a stressor (e.g., injury, intraspecific competition for oviposition sites) might have stimulated the *A. maculatum* to oviposit on the surface of the stone. The top surface of the stone bore small depressions and pitting which might hold a small quantity of water during rainy weather (Fig. 1), potentially stimulating oviposition at this unusual and unsuccessful oviposition site.

Further observation of *A. maculatum* breeding sites might elucidate further data on the causative mechanisms of the unusual observation of egg masses in terrestrial locations.



Figure 1. *A. maculatum* egg mass situated on a large, terrestrial stone within a wetland/vernal pool area in eastern Pennsylvania

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