

AMBYSTOMA MACULATUM (Spotted Salamander). **OVIPOSITION SITE.** *Ambystoma maculatum* breed and deposit egg masses within aquatic habitats in eastern North America during late winter or early to mid-spring, depending on geographic location and variation in seasonal weather conditions (Petranka 1998. Salamanders of the United States and Canada. Smithsonian Institution Press, Washington D.C. 587 pp.; Savage and Zamudio 2005. In Lannoo [ed.], Amphibian Declines: The Conservation Status of United States Species, pp. 621–627. University of California Press, Berkeley, California). Typical oviposition sites for *A. maculatum* include fishless vernal pools, roadside ditches and ruts, wetlands and marshes, water-filled depressions, stream backwaters, ponds, and fishless lakes (Petranka 1998, *op. cit.*; Savage and Zamudio 2005, *op. cit.*). On 19 April 2017, I observed five *A. maculatum* egg masses attached to woody debris within a spring pool approximately 50 m from where the spring flowed into a small pond in which centrarchid fish are present, in Sugarloaf Township, northern Columbia County, Pennsylvania, USA (41.240127°N, 76.37079°W; WGS 84). I noted approximately 30 other *A. maculatum* egg masses, as well as those of *Lithobates sylvaticus* (Wood Frog) located within a vernal pool complex ca. 75 m E of where the *A. maculatum* eggs were observed in the spring. This observation suggests that at least some of the *A. maculatum* population in this locality oviposit within a spring habitat, which is unusual for this species (Petranka 1998, *op. cit.*; Savage and Zamudio 2005, *op. cit.*).

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CRYPTOBRANCHUS ALLEGANIENSIS ALLEGANIENSIS (Eastern Hellbender). **TERRESTRIAL ACTIVITY.** A 1950 h, approximately one hour before sunset on 7 August 2017 within the Nottely River drainage, Union County, Georgia, USA (specific locality withheld due to conservation concerns), an adult hellbender (~36 cm total length) was observed out of water traversing along the surface of a maintained U.S. Forest Service trail ~12 m in elevation above and ~30 m from the margin of a stream (48% slope, surrounding understory vegetation consisting primarily of *Kalmia latifolia* (Mountain Laurel), *Rhododendron maximum* (Rhododendron) and ~15 m from and between two separate shallow hillside seepages (water depth < 2 cm). The observation occurred following a heavy and sustained precipitation event; 5.3 cm of rain fell within 24 h preceding the observation, 4.06 cm of which fell within three hours preceding the observation, and 2.7 cm of that fell within a 30-min. period one hour preceding the observation (University of Georgia, Automated Environmental Monitoring Network station, within ~10 km of the observation locality). The hellbender was observed crawling along ~12 m on the trail; when nudged after assuming a stationary position, the hellbender slowly retreated ~0.5 m to a ~1 cm deep puddle in the trail, once again assuming a stationary position, but within 10 min. of the original time of observation, the specimen had vacated the trail with no further observation.

Diurnal terrestrial movement has been observed in captive adult hellbenders (Floyd et al. 2013. *Herpetol. Rev.* 44:651) and adult hellbenders in the wild have been observed as far as 8.4 m from aquatic habitat in Virginia (Coe et al. 2016. *Herpetol. Rev.* 47:99–100). Beck (1965. *Field and Stream* 69:64–66, 109–113) reported catching hellbenders on land ~1 m from the water's edge within meat-baited mammal traps on more than one occasion



FIG. 1. An adult *Cryptobranchus alleganiensis* observed on a trail 30 m from a stream.

along the Allegheny River in Pennsylvania. Floyd et al. (2013, *op. cit.*) reported the observation of the terrestrial movement of a larval specimen in Georgia. To our knowledge, this is the first observation of terrestrial movement of a hellbender associated with a rainfall event, and represents the farthest documented distance a hellbender has been observed from water.

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EURYCEA BISLINEATA (Northern Two-lined Salamander). **OOPHAGY.** Cannibalism and caudal predation is well known in many large plethodontid salamanders, mainly semi-aquatic species from the genera *Desmognathus*, *Gyrinophilus*, and *Pseudotriton*. Specifically, adults and large larvae from these genera are known to consume larval conspecifics and the larvae of related species, though smaller metamorphosed individuals are also occasionally predated upon (Bruce 1979. *Evolution* 33:998–1000; Beachy 1997. *Copeia* 1997:131–137). Conversely, oophagy/egg cannibalism has only been reported in the adults of the semi-aquatic plethodontid salamanders *Desmognathus auriculatus* (Chaney 1949. *The Life History of Desmognathus fuscus auriculatus*. M.S. Thesis, Tulane University, New Orleans, Louisiana. 130 pp.), *D. carolinensis* (Tilley 1972. *Copeia* 1972:532–540), *D. fuscus* (Bishop 1941. *New York State Bull.* 324), *D. ochrophaeus* (Wood and Wood 1955. *J. Tennessee Acad. Sci.* 39:36–39), *D. ocoee* (Tilley 1972, *op. cit.*), *D. monticola* (Camp 1997. *Herpetol. Rev.* 28:81–82), in larval *Gyrinophilus porphyriticus* (Bruce 1979,

op. cit.), and an unsuccessful attempt was reported in a female *Pseudotriton ruber* (Miller et al. 2007. *Herpetol. Conserv. Biol.* 3:203–210).

On 8 April 2017, an adult female *Eurycea bislineata* (82.2 mm total length; 1.6 g) was found underneath a submerged rock in a first-order stream impacted by mountain top removal mining with a valley fill in Breathitt County, Kentucky, USA (37.42377°N, 83.17386°W; WGS 84). Non-lethal gastric lavage was performed and three eggs (3.62 mm in diameter) were recovered. Bishop (1941, *op. cit.*) noted freshly laid eggs are 2.5–3.0 mm in diameter, however, the *Eurycea* eggs in this region are well-developed in early April, and after four sampling periods, no *Pseudotriton* or *Gyrinophilus* were captured at this site. Therefore, the eggs most likely belong to another *Eurycea* (e.g., *E. bislineata* or *E. longicauda*). To our knowledge, this is the first report of oophagy in *E. bislineata* or in a member of the genus *Eurycea*. The female was found under a submerged rock devoid of eggs and no nests were seen within 10 m of the individual, though a female-guarded *Eurycea* nest had been observed 3 weeks before. Therefore, it is uncertain if the eggs were from this individual's nest or from the nest of another female.

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PLETHODON CHLOROBRYONIS (Atlantic Coast Slimy Salamander). PREDATION. Salamanders of the genus *Plethodon* are well-known prey items of *Thamnophis sirtalis* (Ernst and Ernst

2003. *Snakes of the United States and Canada*, Smithsonian Institution Press, Washington, DC. 668 pp.). Reports of predation upon species in the *Plethodon glutinosus* complex, however, are much less common. *Thamnophis sirtalis* is known to predate four species in the complex: *P. albagula* (Konvalinka and Trauth 2003. *Herpetol. Rev.* 34:378), *P. chatahoochee* (Pierson et al. 2014. *Herpetol. Rev.* 45:302), *P. cylindraceus* (Uhler et al. 1939. *Trans. Am. Wildl. Conf.* 4:605–622), and *P. glutinosus* (McCoard 2008. M.S. Thesis. Marshall University, Huntington, West Virginia. 96 pp.).

At ~1015 h on 5 August 2017, we found a male *T. sirtalis* (Fig 1.) dead on a gravel road in the Croatan National Forest, near Havelock, Craven County, North Carolina, USA (34.95010°N, 77.03840°W, WGS 84; 11 m elev.). The anterior half of a *P. chlorobryonis* was largely intact and protruding from an injury at mid-body of the deceased snake. Further dissection of the *T. sirtalis* revealed mostly digested portions of the posterior half of the *P. chlorobryonis*, which had been swallowed tail-first. *Thamnophis sirtalis* is sympatric with *P. chlorobryonis* across the salamander's entire range, and given the generalist feeding strategy of *T. sirtalis*, predator-prey interaction between the two species is not unexpected. To our knowledge, however, this is the first confirmed record of such an interaction, making *P. chlorobryonis* the fifth member of the *P. glutinosus* complex known to be consumed by *T. sirtalis*.

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PLETHODON GLUTINOSUS (Northern Slimy Salamander). CLIMBING BEHAVIOR. Rainfall and moisture are important mediators of above-ground activity in plethodontid salamanders (Spotila 1972. *Ecol. Monogr.* 42:95–125). Without sufficient moisture, rates of evaporative water loss during above-ground activity are often too high to allow for such behavior (Spight 1968. *Physiol. Zool.* 41:195–203). Arboreal movements tend to be even more restricted by moisture because arboreal habitats lack the solid interface for efficient water exchange that is provided by soil (Spight 1967. *Biol. Bull.* 132:126–132). It is unsurprising then that observations of climbing behavior in *P. glutinosus* have mostly been restricted to rainy nights (Cliburn and Porter 1986. *J. Mississippi Acad. Sci.* 31:91–96). These temporally and moisture-driven restrictions on climbing behavior are known in many climbing species of plethodontids (Jaeger 1978. *Copeia* 1979:686–691; Trauth et al. 2000. *Herpetol. Rev.* 31:232–233; McEntire 2016. *Copeia* 104:124–131), and daytime climbing behavior has rarely been reported within most Appalachian plethodontid lineages (McEntire 2016, *op. cit.*). Herein, I report a rare observation of a plethodontid climbing a tree during the middle of a hot, sunny day.

At 1400 h on 15 June 2016, I encountered a small adult *P. glutinosus* perched on the trunk of a small maple tree 70 cm from the ground (Fig. 1) within mixed deciduous and longleaf pine forest in Oak Mountain State Park, Shelby County, Alabama, USA (33.32848°N, 86.75092°W; WGS 84). Skies were sunny and the air temperature was ~30°C (estimated from a reading of 30°C at the nearest weather station, about 8 km away, in Pelham, Alabama). Light rain precipitated during the early morning, but ended by 0800 h, giving way to sunny skies by 0815 h. The salamander was not present on the tree at 0830 h (30 min. after the rain ended), and therefore must have climbed the tree during sunny daytime

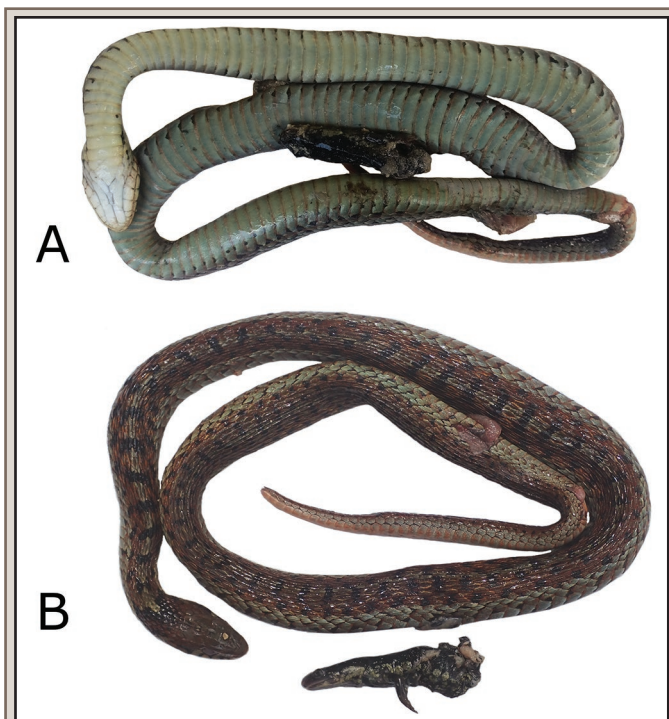


FIG 1. A) Ventral view of a DOR *Thamnophis sirtalis*, with partially-digested *Plethodon chlorobryonis* protruding from mid-body. B) Dorsal view of *T. sirtalis*, with partial *P. chlorobryonis* removed from digestive system.