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EARLY EMERGENCE AND UNUSUAL COLORATION IN EASTERN MILK SNAKES (*LAMPROPELTIS TRIANGULUM TRIANGULUM*) IN THE NORTHERN BLUE RIDGE MOUNTAINS OF VIRGINIA – North American milksnakes (*Lampropeltis triangulum*) are well known for striking geographic variation in color and pattern (Conant, 1943; Williams, 1988; Bartlett & Tennant, 2000; Tennant & Bartlett, 2000; Ernst & Ernst, 2003). Less has been written about the natural history of this species and most of it is anecdotal (e.g., Surface, 1906; Uhler et al., 1939; Mahan, 1956; Lee, 1968; Tryon, 1982). Several authors (e.g., Fitch, 1970, 1999; Klemens, 1993; Palmer & Braswell, 1995; Hulse et al., 2001) have studied habitat use, seasonal activity, reproduction, and population ecology, albeit in

locations outside of Virginia. Williams (1988) and Ernst & Ernst (2003) summarized the natural history of *L. triangulum*. Mitchell (1994) reviewed new and published information on the natural history and phenotypic variation of this snake in the Commonwealth. The earliest known date of activity documented was 18 April and the latest was 19 October. Observations of this snake are still needed to expand our knowledge of its natural history and understanding of its seasonal activity patterns. Phenotypic variation is complex across the state and particularly in the northern Blue Ridge Mountains. We offer additional information on seasonal activity and color and pattern variation in this snake from the northern Blue Ridge.

On 2 February 2006, David Carr found an adult Eastern Milksnake (*L. triangulum triangulum*, total length 565 mm) dead on Berry's Ferry Road adjacent to the University of Virginia's Blandy Experimental Farm in Clarke County, Virginia (39° 03.613' N, 78° 04.903' W). It was killed while crossing a two-lane asphalt road with forest on both sides. One side had a mowed grassy strip about 2.5 m wide between the road and woods. Trees in the woodlot included Red Oak (*Quercus ruber*), Black Oak (*Q. velutina*), White Oak (*Q. alba*), Hackberry (*Celtis laevigata*), and Mockernut Hickory (*Carya tomentosa*). *Smilax* spp. vines and the invasives Bush Honeysuckle (*Lonicera marrowii*) and Japanese honeysuckle (*L. japonica*) occurred in the understory. The substrate had an abundance of leaf litter. The surrounding area has rural residences, an intensive dairy farm, cornfields, hay fields, pastures, limestone outcrops, stacked rock walls, and forest (as described above). The highest daytime air temperature on 2 February was 9.5° C and the lowest was -2° C (University of Virginia, Blandy Farm weather station). Air temperatures over the two-day period prior to the snake's activity were 17° C on 31 January and 17.5° C on 1 February, and the lows for these dates were 0° and -1° C, respectively. The observation of a road-kill on 2 February extends the earliest known activity date in Virginia by an additional 75 days. There were no obvious injuries or marks that would have suggested that a predator had pulled it out of its hibernation site. Thus, the likely conclusion is that this individual responded to the warm winter temperatures.

The snake found DOR on 2 February exhibited the colors and patterns typical of Eastern Milksnakes occurring in the mountains of Virginia (see Mitchell, 1994 for full descriptions). Like other normally patterned *L. triangulum* from the northern Blue Ridge Mountains, it had reddish-brown body blotches edged in black, and the neck blotch is connected to the one on the dorsum of the head to form a typical Y-shaped

pattern of normal background color in the center (Mitchell, 1994). Most of the dorsal blotches had extensions on each side that reached the ventral scales, a feature not characteristic of most Eastern Milksnakes. Smaller, lateral black blotches in typical phenotypes alternate with the dorsal blotches and encroach onto the venter as well. Ventral scales of normal milksnakes phenotypes in Virginia are cream to yellowish and peppered variously in black; they alternate with black half- to full-sized ventral scales. In contrast, the DOR snake had an immaculate white venter with few black specks and lacked the black half and full scales completely (Fig. 1).

Another *L. triangulum*, found alive on Blandy Farm on 6 April 2006, exhibited the typical pattern as noted above but differed in coloration. Each body blotch on this snake was orange with a narrow black border; blotch count was 36 (within the range of 26-41 known for this region, Mitchell, 1994). Dorsal body blotches had no lateral extensions and most terminated on scale row 5 (Fig. 2). The neck blotch was connected to the one on the head but the single, central patch of background color lacked the upper arms of the normal Y-shape marking. The alternating lateral blotches were a combination of black and orange and only reached the lateral margins of the ventral scales. Background color of Eastern Milksnakes in Virginia is normally brown to gray variously peppered with black specks (Mitchell, 1994). The snake found on Blandy Farm had a light orange-tan background speckled in black. Its venter was orange with some black peppering that alternated irregularly with completely black scales. The black eye-jaw stripe was present on this snake, a feature characteristic of Virginia Milksnakes. Its ventral scale count was 194 and subcaudal scale count 54, both



Fig. 1. Ventral pattern of a *Lampropeltis triangulum* from Clarke County, Virginia, with a nearly immaculate white venter and only the lateral blotches encroaching onto the ventral scales. Photo by Carrie Seltzer.



Fig. 2. An unusually-colored *Lampropeltis triangulum* from Clarke County, Virginia. Dorsal blotches are orange and the background color is light tan. The dorsal scales are peppered with black specks. Photo by Carrie Seltzer.

within the normal range known for this area (Mitchell, 1994). Despite the unusual orange coloration, this individual would readily key out using pattern and scale characters as *Lampropeltis t. triangulum*.

Other milksnakes from this region exhibit phenotypes that differ from the normal Eastern Milksnake form. Baird & Girard (1853) described a milksnake from Clarke County, Virginia, as *Ophibolus clericus* (USNM 2380) because the dorsal pattern appears as a series of black rings alternating with "ash-colored" rings. Body blotch count was 29, the blotches extended to near the venter, and the venter was "yellowish white with distinct black quadrate black blotches." This taxon was later synonymized by Stejneger & Barbour (1917) in recognition that *O. clericus* was only an unusual Eastern Milksnake. Another milksnake collected in Shenandoah National

Park (SNP) in 1962 (USNM 148479) has 26 dorsal blotches that extend to scale row 1 and the neck blotch is not connected to the one on the head. A milksnake found DOR on Skyline Drive in SNP in the 1980s, Rockingham County, had 29 orange blotches that nearly overlapped the entire body and a neck blotch that did not connect to the head blotch (JCM, pers. obs.). Williams (1988) considered the original USNM specimen from Clarke County an intergrade between *L. triangulum triangulum* and *L. triangulum elapsoides*. Presumably, the two noted from SNP would also fit into this category.

*Lampropeltis triangulum* populations in the upper Shenandoah Valley and northern Blue Ridge Mountains in Virginia may possess complex genotypes that

underlie the range of phenotypes noted from Clarke County and SNP. This may not be the case in more southern parts of the Blue Ridge and in the Ridge and Valley physiographic provinces (Mitchell, 1994). Clearly, the pattern and color complexity of milksnakes in the northern Blue Ridge Mountains, as well as the natural history and ecology of these populations, warrants further study. Careful notes on all aspects of phenotypic variation, microhabitat, weather, and behavior should be accumulated on all milksnakes in the Virginia Blue Ridge and Shenandoah Valley so that the causes and ramifications of the extensive range of variation in this species can be better understood.

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