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Reappearance of the Eastern Collared Lizard (*Crotaphytus collaris*) Along Shorelines of Bull Shoals Lake in Northern Arkansas

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Running Title: *Crotaphytus collaris* along shore of Bull Shoals Lake, Arkansas

Two hydroelectric dams were constructed between the late 1940s and early 1950s by the United States Army Corps of Engineers (USACE) along the White River system. These dams have resulted in fluctuating pool levels especially within the last decade. Recently, from 2004-2011, Bull Shoals Lake has experienced drastic variation in the water table levels creating "flooding events" in which water levels rose nearly 50 ft above the normal level. The highest recorded water level was reached on May 28, 2011 at 696.46 ft (<http://bullshoals.uslakes.info/Level.asp>).

The Eastern Collared Lizard, *Crotaphytus collaris*, is found among cedar glades in the Ozark Highlands in Arkansas and Missouri. This saxicolous (rock dwelling) species is rarely (if ever) observed in a forest terrain (Angert et al. 2002, Trauth et al. 2004). In 2011, Trauth (2011) deemed the population at Bull Shoals Lake in Marion County, Arkansas completely extirpated, which resulted from inundation of the reservoir. As a result the population is not likely to recover due to "isolated populations of very small effective sizes" are "particularly vulnerable to extinction" (Hutchinson and Templeton, 1999). Furthermore, the closest extant population is 3 miles from the Bull Shoals population separated by forested habitat which limits dispersal capabilities.

Since the Eastern Collared Lizard restricts its range to cedar glades or glade-like rocky habitats, overwintering must occur in underground hibernacula along the glade ridden shoreline of Bull Shoals Lake. Fluctuations in ambient temperatures act as environmental cues for these lizards to enter and exit their underground hibernacula. According to Trauth (2011), the timing of the massive increases in water levels coincided with a time at which the Eastern Collared Lizards at this locale had not yet emerged from their hibernacula.

Collared lizards located along these glade shorelines were unable to retreat to higher ground, trapped in the underground hibernacula and were

subjected to drowning because of the combination of local habitat restriction and rapid rise of water table levels. Other poikilothermic species, such as the Fence Lizard, *Sceloporus consobrinus*, were able to avoid this catastrophe as a large number of individuals are found in forest terrain at higher elevations (Angert et al. 2002).

Trauth (2011) noticed a drastic decline in the population of *Crotaphytus collaris* in 2010 when searching historic localities. Although Trauth declared the population "extirpated" in his 2011 publication, he strongly doubted this to be the case and stated "a complete population crash would seem unlikely... [as] one would generally assume that some lizards should have survived."

During a three day trip (May 20-22, 2012), we traversed many historic areas of *Crotaphytus collaris* in search for lizards. A total of 26 man hours was devoted to searching for lizards along the Bull Shoals Lake shorelines. Observations were made by traversing the shoreline in a boat and by walking along the shoreline flipping rocks or examining perch rocks. During this trip a single female (possibly gravid, as evidenced by expanded girth) was located at one of the historic sites (T20N, R15W, Sec 16) (Fig. 1, square). The female was observed along the rocky glade shoreline approximately 5-10 m from the shoreline.

This area (Fig. 2) consists of glade habitat until the edgeline of the forest terrain and even some large rocks within the outer rim of the forested area which could have provided refuge for some lizards during the flooding periods. Upon capture of the female she was visually inspected for any external abnormalities, photographed, and released at historic site 1 in order to observe future activity of this lizard (Fig. 1, polygon).

As a result of our search efforts the claims made by Trauth (2011) appear to be premature. However, determining if the population was truly extirpated and then recolonized or if the population was never fully extirpated may need further investigation. This finding

shows this species should be highly monitored and conservation actions may need to be put forth in order in to preserve this local population.

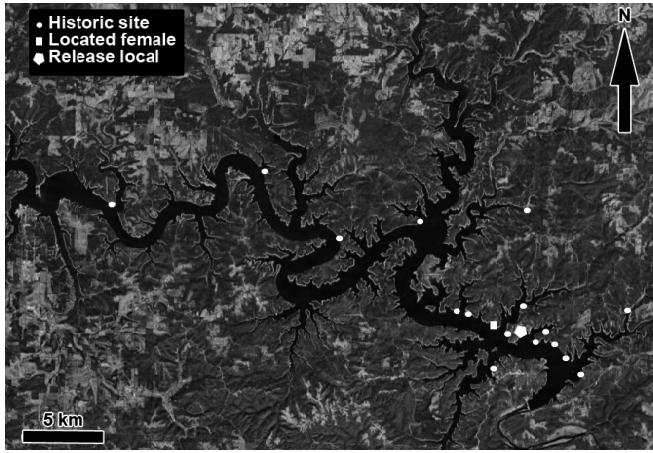


Figure 1. Historic collection sites of *Crotaphytus collaris* with location of observed female and location of release.



Figure 2. Photo of the habitat and location (T20N, R15W, Sec 16) where the female *Crotaphytus collaris* was captured.

Literature Cited

- Angert AL, D Hutchison, D Glossip and JB Losos.** 2002. Microhabitat use and thermal biology of the collared lizard (*Crotaphytus collaris collaris*) and the fence lizard (*Sceloporus undulatus*) in Missouri glades. *Journal of Herpetology* 36:23-9.
- Trauth SE.** 2011. Rapid reservoir inundation causes complete extirpation of the eastern collared lizard (*Crotaphytus collaris*) along the shoreline of Bull Shoals Lake in northern Arkansas. *Journal of the Arkansas Academy of Science* 65:133-137.
- Trauth SE, HW Robinson and MV Plummer.** 2004. *The Amphibians and Reptiles of Arkansas.* University of Arkansas Press. 421 p.