

HERPETOLOGICAL SURVEYS IN TENNESSEE WILDLIFE RESOURCES AGENCY'S ADMINISTRATIVE REGION IV FROM 2016

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Abstract.—Wildlife Surveys are conducted year-round by Tennessee Wildlife Resources Agency biologists for all classes of wildlife. Specifically, Diversity Biologists are tasked with inventory and monitoring Amphibians, Reptiles, Birds, and Mammals. Several techniques are utilized to achieve this. I am presenting an update of the herpetological work and species captured within TWRA's administrative Region IV in 2016.

Key Words.—Greatest Conservation Need, Inventory

Since 2004, the Tennessee Wildlife Resources Agency (TWRA) has been surveying nongame species on numerous Wildlife Management Areas (WMA's), State Parks and other public lands. Recently, these inventories have focused on vertebrate species of Greatest Conservation Need (GCN). Within each of TWRA's four administrative Regions, one Wildlife Manager 1 has been tasked with the responsibility of conducting inventories. This monitoring is conducted to "gain a long-term understanding of trends in populations or ecosystem health, provide greater understanding of species responses and needs relative to problems and changing environmental conditions, and assess the results and effectiveness of conservation actions" (TWRA 2015).

METHODS AND MATERIALS

Study Site—. Survey sites represented a mixture of wetland, ponds, streams, riparian areas, rock outcrops, native warm season grass fields, old fields, Northern hardwood forests, Southern hardwood forests, and grassy balds. Survey sites included Henderson Island Wildlife Refuge in Jefferson County, Kyker Bottoms

WMA in Blount County, Lick Creek Bottoms WMA in Greene County, Nolichucky WMA in Greene County, Buffalo Springs WMA in Grainger County, Forks of the River WMA in Knox County, North Cumberland WMA Royal Blue Unit in Campbell County and Tackett Creek Unit in Claiborne County, Roan Mountain State Park in Carter County, the Unaka Mountain portion of the Cherokee WMA and National Forest in Unicoi County, and some private property in Campbell County.

I conducted on 11 sites in East Tennessee, from January to September 2016. I utilized coverboard arrays and tin transects to capture the majority of species. Coverboard arrays typically consisted of 0.6 meter by 0.6 meter pieces of plywood arranged in a 5 board by 5 board grid approximately 3 meters apart, and placed on bare ground by raking leaves and other debris away. Tin transects were 0.6 meter by 1.2 meter pieces of metal placed on top of the grass, and arranged in a straight line transect approximately 10 meters apart. I conducted Visual Encounter Surveys (VES) that were either timed or area constrained. To locate herpetofauna, I turned over logs or other cover objects, inspected rock crevices, and sifted through leaf litter. Given the variety of activity preferences, I conducted VES

during both day and night. I also used pitfall traps, reptile box traps, and funnel traps with drift fence arrays of various designs to trap herpetofauna. On 7–9 June 2016 a BioBlitz was conducted at Tackett Creek in Claiborne County. A BioBlitz is a high intense team effort over a designated time period to document as many species as possible (Karns et al. 2006; Lundmark 2003). This BioBlitz lasted 3 days and 2 nights, and a total of 13 biologists, managers, technicians, and volunteers assisted with the effort. The BioBlitz was for all species of wildlife, but the techniques that were utilized to capture herpetofauna were VES, tin transects, and coverboard arrays. Date, sex, age, weight (WT), snout-to-vent length (SVL), total length (TL) or carapace length (CARL), latitude, and longitude were recorded for each specimen captured. No specimen was intentionally vouchered, but if one was found dead, then it was collected and is now housed for educational purposes by TWRA Region IV.

RESULTS

In total, 34 different species were captured in Region IV in 2016 (See Table 1). The Tackett Creek Unit of North Cumberland WMA had the most species documented with twelve, and six of those being snake species which was the most of any area. The Eastern black kingsnake (*Lampropeltis nigra*) found at Buffalo Springs WMA in Grainger County may represent a County Record, but this needs to be verified.

DISCUSSION

The highest intense efforts put forth this year for herpetological studies were in tin transects at the Tackett Creek Unit of North Cumberland WMA and in visual encounter surveys for salamanders in the Unaka Mountain portion of Cherokee WMA and National Forest, and this shows in the data. Of special note are the following species of Greatest Conservation Need (GCN) that were captured: green

salamander (*Aneides aeneus*), Wehltre's salamander (*Plethodon wehltrei*), Weller's salamander (*Plethodon welleri*), and Yonahlossee salamander (*Plethodon yonahlossee*). The green salamander found at Tackett Creek represents a new site for this species and warrants further study. The Wehltre's salamander was found from the only known location of the species in the state of Tennessee. Future efforts by TWRA Region IV include, more intense surveys for green salamanders at known sites, surveying for new sites of green and Wehltre's salamanders, and swabbing of all snakes for Snake Fungal Disease (*Ophidiomyces ophiodiicola*) in conjunction with a study by Tennessee Tech University.

LITERATURE CITED

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TABLE 1. Results of biodiversity surveys in TWRA Administrative Region IV in 2016.

Common Name	Scientific Name	Henderson Island	Kyker Bottoms	Buffalo Springs	Forks of the River	Lick Creek & Nolichucky	Royal Blue Unit	Tackett Creek Unit	Roan Mountain SP	Unaka Mountain	Private Property
Salamanders											
Spotted Salamander	<i>Ambystoma maculatum</i>	X						X			X
Green Salamander	<i>Aneides aeneus</i>										
Northern Dusky Salamander	<i>Desmognathus fuscus</i>			X						X	
Shovel-nosed Salamander	<i>Desmognathus marmoratus</i>									X	
Blue Ridge Dusky Salamander	<i>Desmognathus orestes</i>									X	
Black-bellied Salamander	<i>Desmognathus quadramaculatus</i>									X	
Southern Two-lined Salamander	<i>Eurycea cirrigera</i>			X							
Southern Zigzag Salamander	<i>Plethodon ventralis</i>	X									
Northern Slimy Salamander	<i>Plethodon glutinosus</i>			X			X	X			
White-spotted Slimy Salamander	<i>Plethodon cylindraceus</i>								X	X	
Northern Gray-cheeked Salamander	<i>Plethodon montanus</i>									X	
Wehrle's Salamander	<i>Plethodon wehrlei</i>										X
Weller's Salamander	<i>Plethodon welleri</i>									X	
Yonahlossee Salamander	<i>Plethodon yonahlossee</i>								X		
Red Salamander	<i>Pseudotriton ruber</i>									X	
Eastern Red Spotted Newt	<i>Notophthalmus viridescens</i>			X	X						
Anurans											
American Toad	<i>Anaxyrus americanus</i>			X				X			
Spring Peeper	<i>Pseudacris crucifer</i>							X			
Upland Chorus Frog	<i>Pseudacris feriarum</i>							X			
Eastern Narrow-mouthed toad	<i>Gastrophryne carolinensis</i>			X		X					
American Bullfrog	<i>Lithobates catesbeianus</i>			X							
Green Frog	<i>Lithobates clamitans</i>							X			
Lizards											
Eastern Fence Lizard	<i>Sceloporus undulatus</i>				X						
Common Five-lined Skink	<i>Plestidon fasciatus</i>	X									
Snakes											
Eastern Wormsnake	<i>Carphophis amoenus</i>						X				
Racer	<i>Coluber constrictor</i>		X			X	X	X			
Eastern Black Kingsnake	<i>Lampropeltis nigra</i>		X	X				X			
Milksnake	<i>Lampropeltis triangulum</i>							X			
Northern Watersnake	<i>Nerodia sipedon</i>							X			
Cornsnake	<i>Pantherophis guttatus</i>		X			X					
Gray Ratsnake	<i>Pantherophis spiloides</i>			X		X		X			
Common Gartersnake	<i>Thamnophis sirtalis</i>					X					
Copperhead	<i>Agkistrodon contortrix</i>							X			
Turtles											
Eastern Box Turtle	<i>Terrapene carolina</i>				X						