

Herpetological Survey of Appomattox-Buckingham State Forest and Holliday Lake State Park, 30 September, 2018

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Abstract: Volunteers of the Virginia Herpetological Society conducted a fall survey of Appomattox-Buckingham State Forest and Holliday Lake State Park in Appomattox and Buckingham counties. Two areas were surveyed, one site was primarily in Holliday Lake State Park in Appomattox County and another site was primarily in Appomattox County but also crossed into Buckingham County within the state forest. Survey methods included hand capture and visual observation of species. A total of 21 species were recorded, including one species, the Smooth Earthsnake (*Virginia valeriae*), that was not previously recorded in Buckingham County. A previous inventory in a nearby location in Appomattox county was completed in 2003 and 2004, which used a variety of sampling methods and over two complete breeding seasons (late December through September) and many more species were noted then. The VHS plans to survey other parts of this area in the fall and plans to perform surveys during the breeding season with more sampling methods to increase the number of species that have been observed in the county.

Key words: Survey, Appomattox County, Buckingham County, Appomattox-Buckingham State Forest, Holliday Lake State Forest, *Virginia valeriae*

INTRODUCTION

Appomattox-Buckingham State Forest (ABSF) is located in both Appomattox and Buckingham Counties, and Holliday Lake State Park (HLSP) is located in Appomattox County, nested within ABSF. ABSF was originally comprised of mainly farmland, but by the 1930s the land had become unproductive and eroded. The federal government began purchasing tracts of land at that time under the Bankhead-Jones Farm Tenant Act, which was enacted to help conserve and restore the land. In 1954 the land was deeded to the Commonwealth and grew to 8,000 hectares (19,808 acres). Today the ABSF is managed and used as a source of sustainable timber harvest and wildlife habitat. Recreational activities include hiking, horseback riding, hunting and fishing. The forest includes a variety of habitats including creeks, streams, seeps, vernal pools, upland forest, and open meadows. The dominant vegetation includes oaks,

hickories, yellow poplar, red maple, and pines.

HLSP is nested within ABSF on the Appomattox County side of Holiday Creek. The park includes Holiday Lake and a variety of short trails, as well as recreational camping, swimming, and fishing. The forest includes a variety of habitats including creeks, streams, seeps, vernal pools, upland forest, and open meadows. The dominant vegetation includes oaks, hickories, yellow poplar, red maple, and pines.

These properties are of interest to the VHS Conservation Committee because few official surveys have been conducted in the area, as exemplified by the current list of species observations for both Appomattox and Buckingham Counties. Due to the paucity of survey data from the area and the variety of habitats, there is potential for several county records and interesting finds.

Due to the large area to be surveyed, a pre-survey was conducted to locate potential surveying sites within both ABSF and HLSP. Future surveys are planned for the area to cover other parts of ABSF and HLSP that were not surveyed. Sunday was the day chosen to avoid any safety concerns with hunting season (Monday-Saturday). Twenty-one participants were present.

Survey Sites

The following is a general description of the survey areas. Coordinates were specific GPS coordinates provided by the group leaders at the survey starting point.

Site-1-Lakeshore Trail (37.395366°N, -78.640862°W) is located within HLSP near the boat ramp for Holiday Lake and at the trailhead for the Lakeshore Trail. This site includes Holiday Creek and Saunders Creek that feed into the lake. The main habitats found along the trail include wetlands, creeks, seeps, vernal pools, bottom forests, and upland forests.



Figure 1. Map showing the survey area within Site-1.

Site-2-Carter-Taylor Trail (37.433497°N, -78.638569°W) starts at the rear of the horse trailer parking area of ABSF. The dominant habitats around the trail include Holiday Creek and its tributaries, trout fishing trails that included seeps and wetlands, bottom forests, upland forests, and open fields. Since

this site included both sides of Holiday Creek, both Appomattox and Buckingham Counties were included in this area of the survey.



Figure 2. Map showing survey area within Site-2.

MATERIALS AND METHODS

Twenty-one volunteers participated in the survey for approximately six hours (from 09:00 to 15:30h, lunch break for 30 minutes) in the field on 30 September for a net survey total of 126 person hours. Two survey groups were organized to survey two sites (Sites-1 and 2 as described above). Weather conditions were overcast skies in the morning and partly cloudy with some sun in the afternoon. Temperatures started at about 19°C and went up to about 27°C by the conclusion of the survey.

Prior to the survey, all participant footwear and survey gear (snake hooks, field sticks, dip nets etc.) were disinfected using a 10% bleach solution with water. Survey participants used multiple collecting methods to find amphibians and reptiles, including visual observation, listening for calling anurans, hand capture, and over-turning objects with snake hooks and field sticks. All captured animals were observed to identify possible malformations, injuries or disease and other unique markings and characteristics. Digital photos were taken of many of the captured animals prior to their

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release at the site of capture. Survey group leaders summarized and submitted all

relevant data on VHS survey group data sheets.

Table 1. Summary of the survey effort.

Survey Area	No. of Surveyors	Hours	Estimated Person Hours
1-Lakeshore Trail (HLSP)	12	6	72
2-Carter-Taylor Trail (ABSF)	9	6	54
Total			126

RESULTS

A total of 22 species were captured or positively identified, including 12 Amphibians and 10 Reptiles (Table 3). The survey produced a total of five anuran, seven salamander, four snake, three turtle, and three lizard species. About 71 individual

animals were captured or observed and positively identified. In Buckingham County there was one county record (*Virginia valeriae*). Table 3 summarizes the results.

Table 3. Survey Results (*denotes species county record)

County	Appomattox	Buckingham	Total
Class Amphibia			
Anuran Species			
<i>Acris crepitans</i>	13	4	17
<i>Lithobates catesbeianus</i>	1	0	1
<i>Lithobates clamitans</i>	1	0	1
<i>Lithobates palustris</i>	1	0	1
<i>Pseudacris crucifer</i>	1	0	1
Total Anurans			21
Salamander species			
<i>Desmognathus fuscus</i>	2	3	5
<i>Eurycea cirrigera</i>	1	0	1
<i>Eurycea guttolineata</i>	4	0	4
<i>Notophthalmus v. viridescens</i>	3	0	3
<i>Plethodon cinereus</i>	8	1	9
<i>Plethodon cylindraceus</i>	1	2	3
<i>Pseudotriton ruber</i>	1	0	1
Total Salamanders			26
Total Amphibians			47
Class Reptilia			
Snake Species			
<i>Coluber c. constrictor</i>	0	1	1

Catesbeiana 39(1)

<i>Diadophis punctatus</i>	2	0	2
<i>Opheodrys aestivus</i>	1	0	1
<i>Virginia valeriae*</i>	0	1	1
Total Snakes			5
Turtle species			
<i>Chrysemys picta</i>	6	0	6
<i>Kinosternon s. subrubrum</i>	1	0	1
<i>Terrapene c. carolina</i>	1	1	2
Total Turtles			9
Lizard Species			
<i>Plestidon fasciatus</i>	6	3	9
<i>Sceloporus undulatus</i>	1	0	1
Total Lizards			10
Total Reptiles			24

ANNOTATED CHECKLIST

Amphibians

1. *Acris crepitans* (Cricket Frog) Seventeen Cricket Frogs were observed throughout the survey and were found at both survey sites in both counties. Most were found near creeks and moist areas along the trails.
2. *Lithobates catesbeianus* (Bullfrog) One individual was observed near Holiday Creek within Site-2 in Appomattox County and was captured and appeared to be healthy.
3. *Lithobates clamitans* (Greenfrog) One juvenile was captured in Appomattox County along one of the streams within Site-1.
4. *Lithobates palustris* (Pickerel Frog) A total of six adults were captured or observed in a stream in Site-1. One female was found with about 36 mites, and another adult was found with two mites.

5. *Pseudacris crucifer* (Spring Peeper) One adult male was heard calling within the floodplain of a stream, and one adult was captured and released along the shore of Holiday Lake on the forest floor near a stream in Site-1.

6. *Desmognathus fuscus* (Northern Dusky Salamander) Two adults were captured under rocks near a stream in Site-1 and three adults were captured under woody debris near a stream in Site-2.



7. *Eurycea cirrigera* (Southern Two-Lined Salamander) A single adult was captured under roots along the bank of a small stream in Site-1.

8. *Eurycea guttolineata* (Three-lined Salamander) Three adults were captured under rocks near a stream, and one gravid female was found under a log in Site-1.

9. *Notophthalmus viridescens* (Eastern Newt) A total of three were found, one adult along the shore of Holiday Lake within Site-1, one eft was found, and another eft was found dead on a road.

10. *Plethodon cinereus* (Red-backed Salamander) A total of eight individuals were found under logs in Site-1, and one juvenile was found under a log in Site-2.

11. *Plethodon cylindraceus* (White-spotted Slimy Salamander) One adult was found under a large log in Site-1, and one adult male and a juvenile were found under logs near a trout trail in Site-2.

12. *Pseudotriton ruber* (Red Salamander) One adult was found under a log near a stream in Site-2, in Appomattox County.

Reptiles

13. *Coluber c. constrictor* (Northern Black Racer) One adult was found on the ground next to the trail on Site-2. The individual appeared to have a scar injury on one ventral scale, but otherwise appeared healthy.

14. *Diadophis punctatus edwardsii* (Northern Ring-necked Snake) Two adults were found under bark of a dead tree in Site-1.

15. *Opheodrys aestivus* (Rough Green Snake) One juvenile was found dead on a paved road in Site-1.

16. *Virginia valeriae* (Smooth Earth Snake) One adult was found near a trail next to a stream in Site-2. This observation is a Buckingham County record, no observations of the species had previously been reported.



17. *Chrysemys picta* (Eastern Painted Turtle) A total of six adults were observed basking on woody debris on Holiday Lake in Site-1.

18. *Kinosternon s. subrubrum* (Eastern Mud Turtle) One adult was found in a stream near a trail in Site-1.

19. *Terrapene c. carolina* (Woodland Box Turtle) One adult female was found on the trail in an open meadow in Site-1, and a juvenile was found on a trail in Site-2.

20. *Plestidon fasciatus* (Five-lined Skink) Six individuals were found in Site-1, and 3 were found in Site-2.

21. *Sceloporus undulatus* (Eastern Fence Lizard) One juvenile was found on a tree near a trail in Site-1.

DISCUSSION

During the survey of HLSP and ABSF, the VHS survey groups positively identified more than 71 specimens representing 21 species (Table 3). There were 12 species of amphibians (five frogs and seven salamanders) and nine species of reptiles (four snakes, three turtles, and two lizards).

One new record, *Virginia valeriae* (Smooth Earth Snake), was documented for Buckingham County.

There was one species, captured and photographed in both areas surveyed, with designated conservation status as defined in “Virginia’s 2015 Wildlife Action Plan” published by VDGIF; *Terapene c. carolina* (Woodland Box Turtle), which has a conservation status of “Tier III. High Conservation Need.” The opportunity ranking of A indicates “on the ground” species or habitat management strategies have been identified that are expected to benefit this species, at least some of which can be implemented with existing resources and have a reasonable chance of improving the species conservation status. For this species, habitat conservation and restoration are underway (open canopy forest and meadows preservation).

Prior to our survey, official surveys took place at the Appomattox Court House National Historical Park in Appomattox County in 2002, 2003, and 2004 as part of an Inventory and Monitoring Program managed by the National Park Service (Mitchell, 2006). The site surveyed by Mitchell is approximately 20 km west of the area of our survey in 2018. Several species were noted, many of which were not observed during our survey. The reason for this is because the inventory effort by Mitchell took place during the breeding season (late December through September) and over two seasons (2003-2004, and an initial survey in May 2002), as well as incorporated several strategic sampling methods, including audio surveys, road surveys, dipnet surveys, minnow trap surveys, turtle trap surveys, and visual encounter surveys. Biometric data was also taken during this survey for all captured individuals.

Upon completion of our survey, the volunteers were visited by park staff, including the park naturalist. The park naturalist reported observations of several species in Appomattox County, a few of which were not found during the survey, including in Appomattox County, Mole Kingsnake (*Lampropeltis c. rhombomaculata*), Dekay’s Brownsnake (*Storeria dekayi*), Northern Watersnake (*Nerodia s. sipedon*), Red Cornsnake (*Pantherophis guttatus*), Common Ribbonsnake (*Thamnophis s. sauritus*), Eastern Gartersnake (*Thamnophis s. sirtalis*), Smooth Earthsnake (*Virginia v. valeriae*), Snapping Turtle (*Chelydra serpentina*), Fowler’s Toad (*Anaxyrus fowleri*), Spotted Salamander (*Ambystoma maculatum*), Marbled Salamander (*Ambystoma opacum*); and in Buckingham County, Dekay’s Brownsnake (*Storeria dekayi*), Coastal Plains Leopard Frog (*Lithobates s. utricularius*), Pickerel Frog (*Lithobates palustris*), and Green Treefrog (*Hyla cinerea*). In the future, VHS plans to survey additional areas of both HLSP in Appomattox County and ABSF in both Appomattox and Buckingham counties as the naturalist’s reports need to be verified. We also recommend at least one survey in this area that occurs during the main breeding season for many species (late December through early June) and one that incorporates a variety of survey methods so that more species are included.

LITERATURE CITED

- Mitchell, J. C. 2006. Inventory of Amphibians and Reptiles of Appomattox Court House National Historical Park. National Park Service, Northeast Region. Philadelphia, PA. Technical Report NPS/NER/NRTR-2006/056
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Action Plan. Henrico, VA 2-2, 26-1, 26-2, 26-127, 26-131

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