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JOURNAL INFORMATION

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(Editorial policy continued on inside back cover)

Cover Photo: Spotted Turtle *Clemmys guttata* from Ware Creek Wildlife Management Area.

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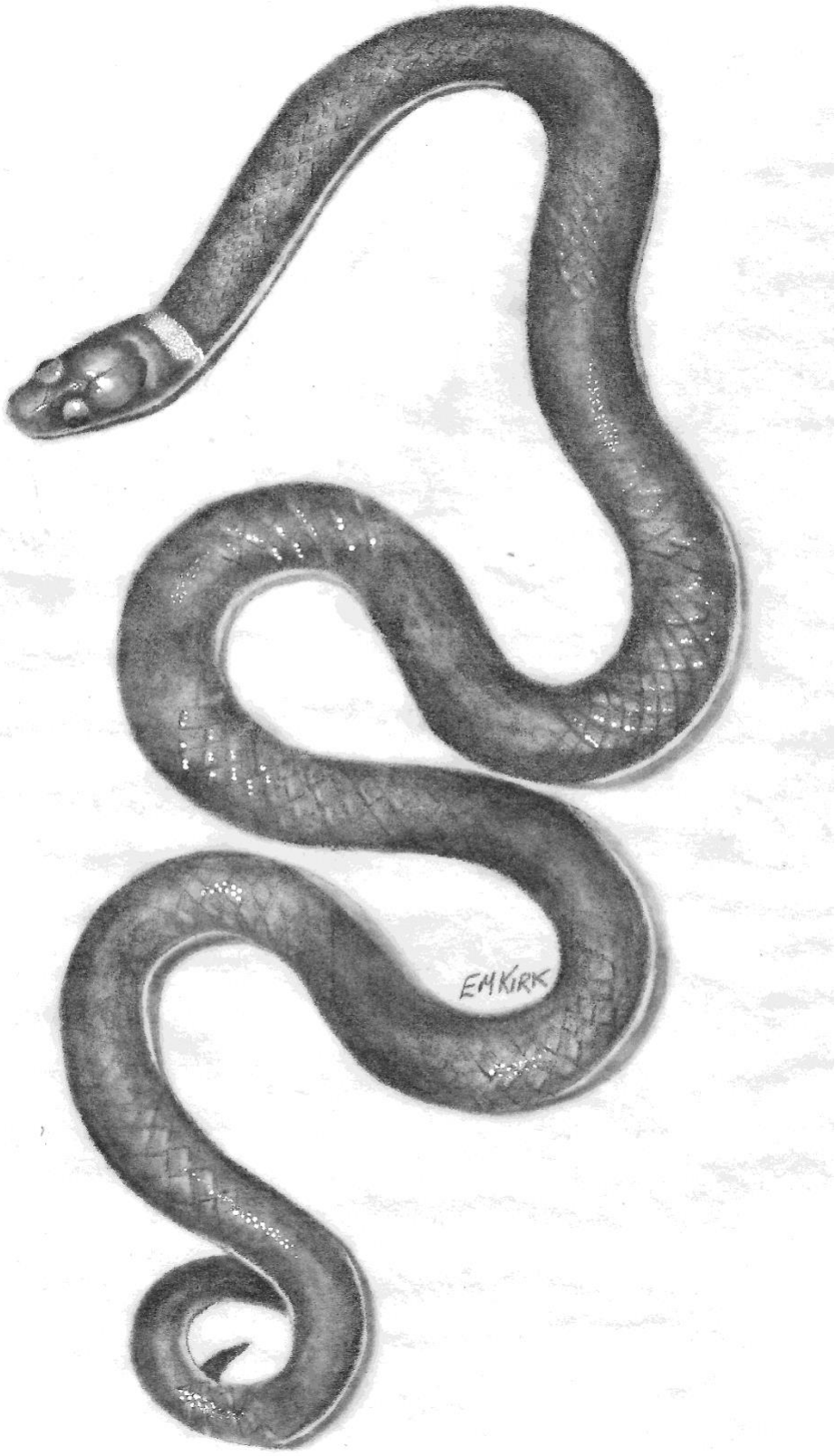
EM KIRK

Herpetological Survey of Ware Creek Wildlife Management Area 29 April and 6 May, 2018

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ABSTRACT: Ware Creek Wildlife Management Area includes over 1000 ha of forests, fields and wetlands. It was surveyed on 29 April and 6 May 2018. One hundred forty-seven individuals of 11 amphibian and 14 reptile species were recorded, including 3 species with DGIF conservation status tier II-IV status. If the observed *Pseudotriton* larvae could be confirmed as an Eastern Mud Salamander, it would represent a Tier IV species observation. No new records for New Kent County were documented, however, if *Acris gryllus* could be properly identified and vouchered it would have been a new record.

Key words: Herpetological Survey, Ware Creek WMA, New Kent County

INTRODUCTION

Ware Creek Wildlife Management Area (WCWMA) is located in the community of Barhamsville in New Kent County, VA. WCWMA was acquired by the Virginia Department of Game and Inland Fisheries (VDGIF) in 2016 and is comprised of over 1052.2 hectares (2600 acres) of mixed hardwood and pine forest, open fields and extensive wetlands. WCWMA is located on the York River and is bounded by Philbates and Ware Creeks. The uplands of WCWMA are comprised of mixed pines and hardwood forests. Agricultural fields provide habitat diversity with small wildlife clearings. Wetlands include rich salt marshes as well as tidal freshwater marshes and creeks and a few interior ponds. These valuable ecosystems are a potential home to a variety of wildlife and have not been previously surveyed by the Virginia Herpetological Society (VHS). WCWMA is of particular interest to the VHS Conservation Committee because 13 herpetological species having a VDGIF conservation status of Tier II-IV have been documented for New Kent County. Due to the large area to be surveyed, two Sunday survey dates, 29 April and 6 May, 2018 were selected. Sunday was the day chosen to avoid any safety concerns with spring turkey hunting season (Monday-Saturday). Fifteen participants surveyed WCWMA on 29 April and fourteen participants surveyed on 6 May.

Survey Sites

The following is a general description of the survey sites (Figure 1). Coordinates are specific GPS coordinates provided by the group leaders at the survey starting point. GPS coordinates for the large pond within WCWMA were also recorded.

Site-1-Millers Road South (N 37° 27.426', W -76° 47.011') Site-1 is located south of Millers Road from the parking area to the abandoned buildings and a large pond at the southeastern end of WCWMA. This site is comprised of mixed woodlands, a creek, wet areas, open fields near the abandoned buildings and the aforementioned pond (N37° 26.885', W-76° 46.226'). This site was surveyed on 29 April. Four un-baited minnow traps and a turtle trap, baited with a slightly opened can of sardines, were placed in the north end of the pond on 5 May and were retrieved and inspected the afternoon of 6 May.

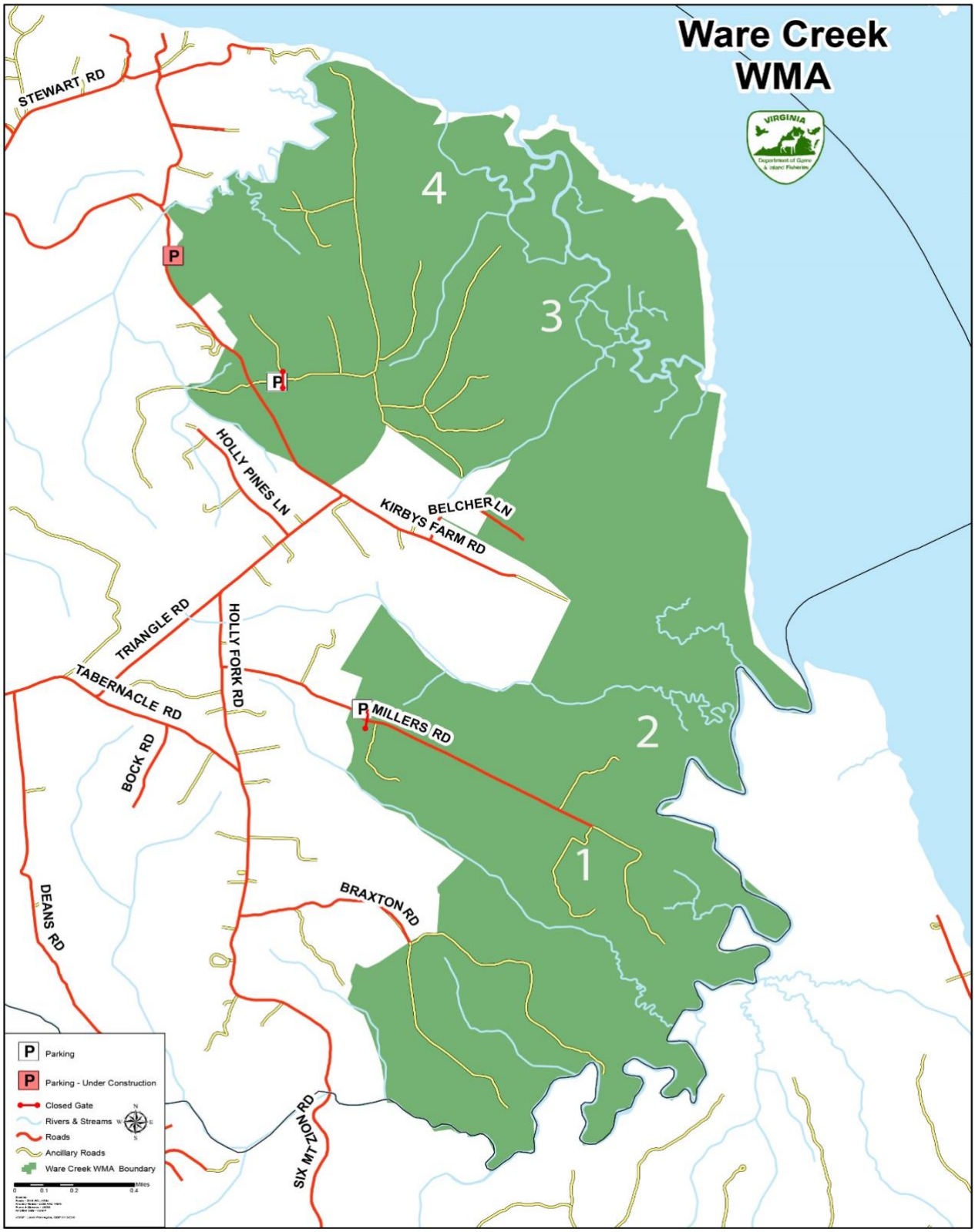

Figure 1. Survey sites within Ware Creek Wildlife Management Area.

Site-2-Millers Road North (N 37° 27.020', W-76° 46.106') Site-2 is the area north of Millers Road starting from a collapsed barn/shed at the southeastern end of WCWMA and includes open fields, wetlands leading to a tidal marsh, a dry gorge and mixed woodlands. This site was surveyed on 29 April.

Site-3- Duck Blind Road (N37° 28.356', W-76° 46.832') Site-3 includes mixed woods and the creek west of Duck Blind Road and the mixed woods and wet areas east of Duck Blind Road to the tidal marsh bordering the York River. Two un-baited minnow traps were positioned in a small seasonal pond near the start of Duck Blind Road the afternoon of 5 May. Site-3 was surveyed on 6 May and the minnow traps were retrieved and inspected at the end of the Site-3 survey.

Site-4-River Road (N37° 28.444', W-76° 47.247') Site-4 included the area east and west of River Road to the York River and includes pine forest, creeks, wet areas and tidal marsh. This site was surveyed on 6 May.

MATERIALS AND METHODS

Fifteen volunteers participated in the survey for approximately three hours (from 09:00 to 12:00h) within Site-1 and 13 volunteers participated for an additional two hours (13:00 to 15:00h) in the field within Site-2 on 29 April for a net survey total of about 71 person hours (Table 1). Due to the limited number of participants, one survey group was organized to survey two sites within WCWMA (Sites-1 and 2 as described above). Weather conditions were sunny, windy and cool for most of the morning, with temperatures ranging from 10° to 17° C. Afternoon temperatures ranged from 17° to 19° C and winds had subsided.

Prior to each survey, all participant footwear and survey gear (snake hooks, field sticks, dip nets etc.) were disinfected using Nolvasan® Solution (chlorhexidine diacetate). Survey participants on both survey days 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 release at the site of capture. Survey group leaders summarized and submitted all relevant data on VHS survey group data sheets.

On the afternoon of Saturday 5 May, a hoop turtle trap baited with sardines and four minnow traps were placed in the large pond at the east end of Site-1. Two minnow traps were also positioned in the small pond off Duck Blind Road within Site-3.

Fourteen volunteers participated in the survey on 6 May from 09:00 to 15:30 for a net survey total of about 70 person hours, subtracting time for lunch breaks (Table 2). Due to the large area to be surveyed, the volunteer participants were split into groups. One group surveyed Site-3 and the other group surveyed Site-4. Skies were mostly overcast although there was some spotty sunshine in the afternoon. Temperatures ranged from 14 to 24 °C.

At the end of the 6 May survey two minnow traps were retrieved from the small pond near Duck Blind Road within Site-3 and the hoop turtle trap and four minnow traps were retrieved from the large pond at east end of Site-1.

The following tables summarize the survey effort.

Table 1. Summary of the survey effort on 29 April 2018.

Survey Site	No. of Surveyors	Hours	Estimated Person Hours
1-Millers Road South	15	3	45
2-Millers Road North	13	2	26
Total			71

Table 2. Summary of the survey effort on 6 May 2018.

Survey Site	No. of Surveyors	Hours	Estimated Person Hours
3-Duck Blind Road	7	5	35
4-River Road	7	5	35
Total			70

RESULTS

During the two days of survey a total of 25 species were captured or positively identified, including 11 amphibians and 14 reptiles (Table 3). More than 50 *Anaxyrus* tadpoles in a mud puddle on Millers Road could not be positively identified.The survey produced a total of seven anuran, four salamander, five snake, five turtle and four lizard species. One hundred forty seven animals were captured or positively identified. However, at least three or possibly four of the previously documented 13 New Kent County species with VDGIF conservation status tier II-lV were found (Tier III *Clemmys guttata*, *Terrapene c. carolina* and Tier IV *Thamnophis s. sauritus*). The *Pseudotriton* larva could not be positively identified but might be *Pseudotriton m. montanus*, which has Tier IV conservation status. *Pseudotriton m. montanus* and *Pseudotriton r. ruber* have been previously documented in New Kent County. Two adult *Acris gryllus* were captured during the survey within Site-3. This species has not been previously documented for New Kent County although it has been documented in Henrico County, adjacent to the southwest and in James City County adjacent to the southeast. However, these specimens were not photographed during the survey on 6 May. Table 3 summarizes the results for both survey dates.

Table 3. Amphibians and reptiles observed at Ware Creek WMA.

Species/Site	1 Millers Road South	2 Millers Road North	3 Duck Blind Road	4 River Road	Total
Class Amphibia					
Anuran Species					
Acris crepitans	3				3
Acris gryllus			2		2
Anaxyrus americanus/fowleri	>50				>50
Anaxyrus fowleri			2		2
Hyla versicolor			1	1	2
Lithobates catesbeianus	3		1		4
Lithobates clamitans	38		1	1	40

Lithobates sphenocephalus utricularis	1		3		4
Total Anurans	>95	0	10	2	>107
Salamander species					
Desmognathus fuscus	4	1			5
Eurycea cirrigera			2		2
Plethodon cylindraceus		2		1	3
Pseudotriton (m. montanus/r.ruber)	1				1
Total Salamanders	5	3	2	1	11
Class Reptilia Snake Species					
Carphophis a. amoenus	6	13		7	26
Coluber c. constrictor		3	1		4
Diadophis punctatus edwardsii				1	1
Pantherophis alleghaniensis		2	1	2	5
Thamnophis s. sauritus	1				1
Total Snakes	7	18	2	10	37
Turtle species					
Chelydra serpentina		1	1		2
Chrysemys p. picta	1				1
Clemmys guttata	1		1	1	3
Kinosternon s. subrubrum	4	3			7
Terrapene c. carolina	3	1	5	6	15
Total Turtles	9	5	7	7	28
Lizard Species					
Plestiodon fasciatus	1		1	1	3
Plestiodon inexpectatus				1	1
Sceloporus undulatus		6			6
Scincella lateralis	2			2	4
Total Lizards	3	6	1	4	14
Total Amphibians & Reptiles	>119	32	22	24	>197

ANNOTATED CHECKLIST

Amphibians

1. *Acris crepitans* (Eastern Cricket Frog) Three adult Eastern Cricket Frogs were captured and photographed within Site-1 in or near a creek during the morning of 29 April. All appeared to be healthy.

2. *Acris gryllus* (Southern Cricket Frog) Two adult Southern Cricket Frogs Toad were captured in a stream within Site-3 on 6 May. No diseases, injuries or parasites were found on either individual. This species has not been previously documented for New Kent County. The two adult Southern Cricket Frogs were not photographed on 6 May.

3. *Anaxyrus americanus/fowleri* (American/ Fowler's Toad) More than 50 *Anaxyrus* tadpoles were observed and photographed in a large mud puddle in Millers Road just before the parking area on 5 May within Site-1 prior to placement of traps. They could not be positively identified. Literature sources indicate that the breeding of American Toads occurs in March and April and often continues into late summer (Kleopfer et. al. 2011). Breeding of Fowler's Toads may occur from April to August. The observed tadpoles could be either species, although no adult American Toads were observed during the survey.

4. *Anaxyrus fowleri* (Fowler's Toad) Two adult Fowler's Toads were captured in pine woods habitat within Site-3 on 6 May. Each individual appeared to be healthy.

5. *Hyla versicolor* (Grey Treefrog) Two adult male Grey Treefrogs were heard calling on 6 May. One was heard in a mixed woods forest within Site-3 and the other was heard calling in a pine forest within Site-4.

6. *Lithobates catesbeianus* (American Bullfrog) Four adult American Bullfrogs were observed during the survey. Three adult male American Bullfrogs were heard calling from the large pond at the east end of Site-1 on 29 April. One adult bullfrog was captured in a stream within Site-3 on 6 May. This individual appeared to be healthy.

7. *Lithobates clamitans* (Green Frog) Forty Green Frogs were observed during the survey. Three adult males could be heard calling from the large pond and one adult Green Frog was captured near this pond at the east end of Site-1 on 29 April. The captured adult appeared to be healthy. Thirty four Green Frog tadpoles were retrieved from four minnow traps placed in the large pond on 6 May. All tadpoles appeared to be healthy. One adult male Green Frog was captured in a stream within Site-3 on 6 May and another adult Green Frog was captured using a dip net from a wet area within Site-4. Both of the captured Green Frogs appeared to be healthy and the Green Frog from Site-4 was photographed.

8. *Lithobates sphenocephalus utricularis* (Coastal Plains Leopard Frog) Four leopard frogs were observed during the survey. One adult Coastal Plains Leopard Frog was captured in the large pond at the east end of Site-1 on 29 April, was photographed, and appeared to be healthy. Three leopard frog tadpoles were captured in two minnow traps in the small pond near Duck Blind Road within Site-3 and all appeared to be healthy.

9. *Desmognathus fuscus* (Northern Dusky Salamander) Five Northern Dusky Salamanders were observed during the survey. One adult and three sub-adult Northern Dusky Salamanders were captured under logs in a muddy wet area in mixed woods within Site-1 on 29 April. All specimens were photographed and appeared to be healthy. One adult Northern Dusky Salamander was found under bark near a stream in mixed woods within

Site-2 on 29 April. This individual was also photographed and appeared to be healthy.

10. *Eurycea cirrigera* (Southern Two-lined Salamander) Two Southern Two-lined Salamanders were observed within Site-3 on 6 May. These adult Southern Two-lined Salamanders were captured in a stream and appeared to be healthy.

11. *Plethodon cylindraceus* (White Spotted Slimy Salamander) Three adult White Spotted Slimy Salamanders were observed during the survey. Two adult White Spotted Slimy Salamanders were captured under logs in a wooded area within Site-2 on 29 April. Each individual was photographed and appeared to be healthy. One adult White Spotted Slimy Salamander was captured under a log in pine woods within Site-4 on 6 May and also appeared to be healthy.

12. *Pseudotriton sp.* (Eastern Mud/ Northern Red Salamander) One *Pseudotriton* salamander larva was captured under a log in a muddy creek area within Site-1 on 29 April. This specimen was bagged, appeared to be healthy and was photographed. However, it could not be determined if it was an Eastern Mud or Northern Red Salamander larva. Both species have been previously documented in New Kent County.

Reptiles

13. *Carphophis a. amoenus* (Eastern Wormsnake) Twenty-six Eastern Wormsnakes were observed during the survey. Four adult and two juvenile Eastern Wormsnakes were captured under logs, bark and debris in mixed pine and hardwood forests within Site-1 on 29 April. All appeared to be healthy and several were photographed. Thirteen Eastern Wormsnakes were captured within Site-2 on 29 April. Four juveniles and one adult were found under debris near a collapsed shed. Eight adults were captured under logs and bark in mixed woods. All thirteen specimens observed within Site-2 appeared to be healthy and some were photographed. Seven adult Eastern Wormsnakes were captured in and under logs in pine forest within Site-4 on 6 May. All appeared to be healthy.

14. *Coluber c. constrictor* (Northern Black Racer) Four adult Northern Black Racers were observed during the survey. Three of these were observed basking in open areas within Site-2 on 29 April. One adult Northern Black Racer was observed basking in an open field near the edge of woods and quickly retreated into a brushy area. Another adult was observed basking in Millers Road near the edge of the woods and then disappeared. A third adult Northern Black Racer was observed basking in a grassy area near Millers Road and escaped into a tree to a height of about 4-5 meters and was photographed. One adult Northern Black Racer was captured on a wooded hillside within Site-3 on 6 May. This specimen appeared to be healthy.

15. *Diadophis punctatus edwardsii* (Northern Ring-necked Snake) One adult Northern Ring-necked Snake was captured under a log in pine forest within Site-4 on 6 May. This specimen was photographed and appeared to be healthy.

16. *Pantherophis alleghaniensis* (Eastern Ratsnake) Five Eastern Ratsnakes were observed during the survey. One juvenile Eastern Ratsnake was captured on the ground beneath a tree and one adult was observed basking on a bluff overlooking a creek within Site-2 on 29 April. The captured juvenile was photographed and appeared to be healthy. One adult Eastern Ratsnake was captured in a wooded area within Site-3 on 6 May and appeared to be healthy. Two adult Eastern Ratsnakes were captured while basking on the ground in pine forest within Site-4 on 6 May. Each specimen was photographed and appeared to be healthy.

17. *Thamnophis s. sauritus* (Common Ribbonsnake) One adult Common Ribbonsnake was observed basking on a grassy patch next to a creek within Site-1 on 29 April. This snake quickly disappeared into leaves and brush and could not be captured.

18. *Chelydra serpentina* (Snapping Turtle) The shell remains of one adult Snapping Turtle were in a muddy wet area within Site-2 on 29 April. The carapace of the deceased turtle was split horizontally. One neonate Snapping Turtle was captured in one of the minnow traps retrieved from the small pond near Duck Blind Road within Site-3 on 6 May. The neonate Snapping Turtle appeared to be healthy.

19. *Chrysemys p. picta* (Eastern Painted Turtle) One adult Eastern Painted Turtle was observed basking on a log within the large pond at the east end of Site-1 on 29 April.

20. *Clemmys guttata* (Spotted Turtle) Three adult Spotted Turtles were captured during the survey. One adult male Spotted Turtle was captured in a creek within Site-1 (N37^{o} 27.179', W-76^{o} 46.993') on 29 April. Another adult male was captured in a wetland area within Site-3 on 6 May. A third adult male was captured in a creek within Site-4 on 6 May. All three specimens were photographed and appeared to be healthy.

21. *Kinosternon s. subrubrum* (Southeastern Mud Turtle) Seven adult Southeastern Mud Turtles were captured during the survey on 29 April. Three adults were captured in the creek and one was captured on a log in the creek within Site-1. Two adult Southeastern Mud Turtles were found together in a muddy area, possibly mating, and one adult was captured in a wet area within Site-2. All seven specimens were photographed and appeared to be healthy.

22. *Terrapene c. carolina* (Woodland Box Turtle) Fifteen Woodland Box Turtles were observed during the survey and were present within all the survey sites. Two adult male and one adult female Woodland Box Turtles were captured in leaves and on the forest floor within Site-1 and One Adult male Woodland Box Turtle was found in leaves within Site-2 on 29 April. All four specimens were photographed and appeared to be healthy. Three female and two male adult male Woodland Box Turtles were captured near a stream in a wooded upland area within Site-3 on 6 May and all appeared to be healthy. Six adult Woodland Box Turtles, 3 males and 3 females, including one mating pair, were observed in pine needles within Site-4 on 6 May. One large male had some carapace scute damage, while the other five specimens all appeared to be healthy.

23. *Plestiodon fasciatus* (Common Five-lined Skink) Three common Five-lined Skinks were observed during the survey. One Common Five-lined Skink was captured under a log in pine woods within Site-1 on 29 April. The specimen was photographed and appeared to be healthy. One juvenile Five-lined Skink was captured in a wooded area within Site-3 on 6 May and appeared to be healthy. One adult Common Five-lined Skink was captured under a log in pine woods within Site-4 on 6 May, was photographed and appeared to be healthy.

24. *Plestiodon inexpectatus* (Southeastern Five-lined Skink) One adult Southeastern Five-lined Skink was captured under a log in pine woods within Site-4 on 6 May. This skink was photographed and appeared to be healthy.

25. *Sceloporus undulatus* (Eastern Fence Lizard) Six adult Eastern Fence Lizards were observed within Site-2 on 29 April. Most of the specimens were observed on the forest floor or climbing trees. One individual was captured, photographed and appeared to be healthy.

26. *Scincella lateralis* (Little Brown Skink) Four adult Little Brown Skinks were observed during the survey. Two adult Little Brown Skinks were captured under logs in mixed woods within Site-1 on 29 April. Each specimen was photographed and appeared to be healthy. Two adult Little Brown Skinks were observed under logs in pine woods within Site-4 on 6 May but were not captured.

DISCUSSION

During the two-day survey of "WCWMA", the VHS survey groups positively identified 147 specimens representing twenty-five species (Table 3). There were eleven species of amphibians (seven frogs and four salamanders) and fourteen species of reptiles (five snakes, five turtles and four lizards). More than 50 *Anaxyrus* tadpoles observed in a large mud puddle in Millers Road could not be positively identified. All of the species encountered, except *A. gryllus* had been previously documented for New Kent County, although *A. gryllus* has been previously documented in Henrico County, which is adjacent to the southwest, and in James City County, which is adjacent to the southeast. Unfortunately, the two captured *A. gryllus* specimens were not photographed.

Anuran species were the most frequently encountered animals during the survey with more than 107 observations. However, most of the observed animals (>87) were tadpoles, only 20 adult anurans were observed. This seems like a low number of observations relative to the available wetland habitat and the number of snakes (37) and turtles (28) encountered.

There were at least three and possibly four species, captured and photographed, with designated conservation status as defined in "Virginia's 2015 Wildlife Action Plan" published by VDGIF, *Clemmys Gutatta* (Spotted Turtle), *Terrapene c. carolina* (Woodland Box Turtle) and *Thamnophis s. sauritus* (Common Ribbon Snake) were positively identified. The *Pseudotriton* larva could not be positively identified but could be *P. m. montanus*. *Thamnophis. s. sauritus* and *P. m. montanus* have a conservation status of "*Tier lV Moderate Conservation Need." Clemmys guttata* and *T. c. carolina* have a conservation status of *Tier III High Conservation need.*

In addition, VDGIF (2015) gives each tiered species a conservation opportunity ranking of A, B or C**.** An A ranking 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. A and B rankings indicates only research needs have been identified for this

species or "on the ground" conservation actions cannot be implemented due to resource constraints. A and C rankings indicates no "on the ground" conservation actions or research needs that could benefit this species have been identified or all identified conservation opportunities for a species have been exhausted. *C. guttata, P. m. montanus, T. c. carolina* and *T. s. sauritus* all have an A ranking. For each of these species habitat conservation and restoration are underway (wetlands preservation and water quality improvement for the aquatic species and open canopy forest and meadows preservation for *T. c. carolina).*

Nine other species with VDGIF conservation status Tier II-IV, which had previously been documented for New Kent County, were not observed during the survey. These are *Cemophora coccinea copei* (Northern Scarletsnake), *Farnacia a. abacura* (Eastern Mudsnake), *Farancia e. erytrogramma* (Common Rainbow Snake), *Heterodon platirhinos* (Eastern Hog-nosed Snake), *Liodytes r. rigida* (Eastern Glossy Swampsnake), *Malaclemys t. terrapin* (Northern Diamond-backed Terrapin), *Ophisaurus attenautus longicaudus* (Eastern Slender Glass Lizard), *Scaphiopus holbrookii* (Eastern Spadefoot) and *Trachemys s. scripta* (Yellow-bellied Slider).

The International Union for Conservation of Nature and Natural Resources ("IUCN") publishes "The IUCN Red List of Threatened Species". The conservation status of *C. guttata, P. montanus, T. c. carolina* and *T. s. sauritus* have been evaluated by the IUCN Red List of Threatened Species across the known historic range for each species. Hammerson (2008) rated *P. m. montanus* as a threatened species of least concern because of its wide distribution, presumed large population and because it is not likely declining fast enough to be listed in a more threatened category. Hammerson (2007) also evaluated *T. s.* sauritus as a threatened species of least concern with a presumed population in excess of 100,000 that is either relatively stable over the historic range or declining at a rate of less than 10% over 10 years or three generations. The six sub-species of *T. carolina,* including *T. c. carolina*, were evaluated by van Dijk (2011) as a threatened species that are vulnerable due to a widespread and persistent gradual population decline which probably exceeds 30% over three generations, conservatively considered as 50 years. A variety of factors are cited as possible explanations for the decline of *T. Carolina* including habitat destruction, pollution, pesticide effects and vehicle strikes among others. *C. guttata* was also evaluated by van Dijk (2011) and rated endangered over its historic range. It is estimated with a generation time of probably over 25 years, the species is likely to have suffered more than 50% overall reduction, much of this being irreversible through habitat loss. *C. guttata* requires specialized wetlands, such as marshes, bogs, small streams, swamps and wet meadows. Most localized populations are very small and highly vulnerable to wetlands habitat destruction.

The Northeast Regional Office of the U.S. Fish and Wildlife Service, which is responsible for 13 U.S. states ranging from Maine to Virginia, has developed a conservation program for three turtle species, including C. guttata, which are threatened to be classified as endangered. Dalaba (2017) reports that a major mile marker looms ahead in 2023, when the U.S. Fish and Wildlife Service plans to determine if Spotted, Blanding's (*Emydodea blandingii*) or Wood Turtles (*Glyptemys insculpta*) need to be listed under the Endangered Species Act. These turtles use large tracts of land crossing roads and agricultural operations to reach their favorite spots year after year. While roads turn their home ranges into a dangerous maze, landscape changes for agriculture and housing further degrade wetlands and natural areas. Efforts are underway across the range of each species to avoid the need to list them under the Endangered Species Act. With around 75% of

remaining wetlands being privately owned, private landowners have a lot of influence. The U.S. Fish and Wildlife Service's program "Partners for Fish and Wildlife" works with landowners to protect and restore wetlands, as well as streams and grasslands, for the greater benefit of the people and wildlife that live on them.

The 2016 VDGIF acquisition of the acreage that now encompasses WCWMA will help protect habitat for many Virginia species, including the threatened *C.guttata*.

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29 April Survey Participants: Liz Allan, Audrey Boraski, Luca Cantanzaro, Jill Card, Bill Feeney, Todd Georgel, Jason Kaufman, Sam Kaufman, Anna Kim, Brian Kim, Jordan Kim, Karl Kratzer, Catey Lavagnino, Dave Perry, and David Van Gelder.

6 May Survey Participants: Travis Anthony, Dane Conley, Samantha Dillon, Jeff Dragon, Robert Frezza, Rosemary Frezza, Todd Georgel, David Hart, Karl Kratzer, Vinny Passaro, Michael Pauli, Dave Perry, David Van Gelder and Patrick Wamsley.

Results of the Twelfth Annual HerpBlitz: Hidden Valley Wildlife Management Area

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Abstract: Hidden Valley Wildlife Management Area was surveyed 9-11 June 2017 by up to seven volunteers (Table 1). Due to the limited roads, we were able to access only about 25% of the total area, on the western side of the WMA. During the survey, a total of 404 animals comprising fifteen species of amphibians (four anuran species and eleven species of salamanders), and five species of reptiles (all snakes) were documented. No new county records were found, however, a new locality for the green salamander is reported. Due to the high elevation of the WMA, the survey was heavily weighted towards amphibians, particularly salamanders.

Key words: Herpetological Survey, Hidden Valley WMA, Washington County, Aneides aeneus

INTRODUCTION

Hidden Valley Wildlife Management Area (HVWMA) is a large, 2590 hectare, high elevation property in the Valley and Ridge Physiographic Province. It is north of Abingdon, Virginia along the northern border of Washington County. The highest elevation exceeds 1280 m (4200 feet) along the ridge of Brumley Mountain at the western edge of the WMA. The 25 hectare (60 acre) Hidden Valley Lake lies in the valley north of Brumley Mountain (see Figure 1) at an elevation of about 1100 m (3600 feet). Due to its high elevation, HVWMA is cooler and wetter than surrounding regions, with an annual rainfall of 107 cm (42 inches). Hidden Valley Lake was formed by damming Brumley Creek, the major stream passing through the WMA. Brumley Creek originates near the lake and flows into the North Fork of the Holston River. The valley through which Brumley Creek flows is underlain by carbonate rocks which are easily eroded. The surrounding ridges, including Brumley Mountain, are composed of the more resistant sandstones and quartizes (Blevins et al., 2017).

The WMA has a steep topography which has severely limited the ability to build roads and make the area accessible. There is only one 3.5 km primary road (Co. Rt. 690) into the WMA and one 1 km secondary road (Skycraft Road) seasonally open. The majority (94%) of the WMA is forested, with less than 40 ha consisting of open ground. HVWMA was purchased in 1961. The virgin forest was timbered in the late 1930s, so it now consists of 80-90 year old second growth hardwoods. The primary deciduous trees are Oaks, Hickories, Maples, Beech, Basswood, Tulip Poplar, Birches, Locust and Cherry. There are also some evergreen species, including Hemlock, Red Spruce and White Pine. There have been few surveys of any of the flora or fauna in HVWMA although a Forest Inventory is proposed to be completed by 2020. No tiered species have been confirmed within the WMA. There are some small-scale timbering operations planned, to increase early successional habitats needed for several birds. Finding any tiered species would influence future management plans, such as where the timbering operations would occur (Blevins et al., 2017).

HVWMA was surveyed 9-11 June 2017 by up to seven volunteers from the VHS. Due to the limited roads, we were able to access only about 25% of the total area, on the western side of the WMA. HVWMA is probably the most heavily used WMA any of the volunteers have ever visited. The lake is used for fishing and kayaking. There are also hunting and hiking opportunities, although we were not present during any of the hunting seasons. There is an adjacent rock cliff that is frequently

used by the Hidden Valley Carolina Climbing Coalition for rock climbing. HVWMA is part of a string of public lands running along northern Washington County. The Jefferson National Forest lies to the west and Clinch Valley Wildlife Management Area is to the east.

Survey Sites

The following is a general description of the survey sites. GPS coordinates were provided either by direct measurement or from Google Earth. Refer to Figure 1 for a map of the WMA with the sites indicated.

Site 1: The top of Brimley Ridge at Microwave Towers, west of Skycraft Road. A hardwood forest composed mostly of Maple, Hickory, Scarlet Oak, Hemlock and Rhododendron. (36º 49' 14" N; 82º 04' 38" W; approximate elevation 1200 m). Site 1 was surveyed on 9 June.

Site 2: The top of Brimley Ridge west of Skycraft Road. A hardwood forest composed mostly of Maple, Hickory, and Scarlet Oak. An understory consisted of Cinnamon Fern, Raspberry, Galax, Squaw Root and May Apple. (36º 50' 03.0" N; 82º 04' 50.0" W). Site 2 was surveyed on 10 June.

Site 3: The eastern end of the Wildlife Management Area, known as "The Butt". A rocky slope leading to large relatively flat rock walls at least 20 m tall. A hardwood forest consisting of Scarlet Oak, Sugar and Red Maple, and Hickory. The understory included Ferns, Sassafras and Green Brier. (36º 50' 01" N; 82º 05' 23" W). Site 3a was surveyed at 1200 h on 10 June and at 2100 h for site 3b.

Site 4: The slope above Co. Rt. 690 near the western end of Hidden Valley Lake, following a small stream up the slope. A hardwood forest consisting of Scarlet Oak, Maple, and Hickory. (36º 50' 21.1" N; 82º 05' 06.8" W). Site 4 was surveyed on 10 June.

Site 5: A forested slope at the eastern end of Hidden Valley Lake, following Long Arm Hollow, including several small streams. A hardwood forest including Tulip, Scarlet Oak, Maple, Hemlock and Hickory. The understory included Striped Maple and Squaw Root. (36º 50' 55.1" N; 82º 04' 20.0" W). This was one of the lower elevation sites, starting at about 1100 m. Site 5 was surveyed on 10 June.

Site 6: Along the shore of Brumley Creek, which is dammed to form Hidden Valley Lake. We followed Brumley Creek to the west. A hardwood forest consisting of Maple, Hemlock, Scarlet Oak, Cucumber Magnolia, Tulip, and extensive Rhododendron thickets. The understory included Sassafras, Striped Maple, Squaw Root, Trillium, Christmas Ferns, Club Moss, and Indian Pipe. (36º 51' 04" N; 82º 03' 55.7" W). Site 6 was surveyed on 11 June.

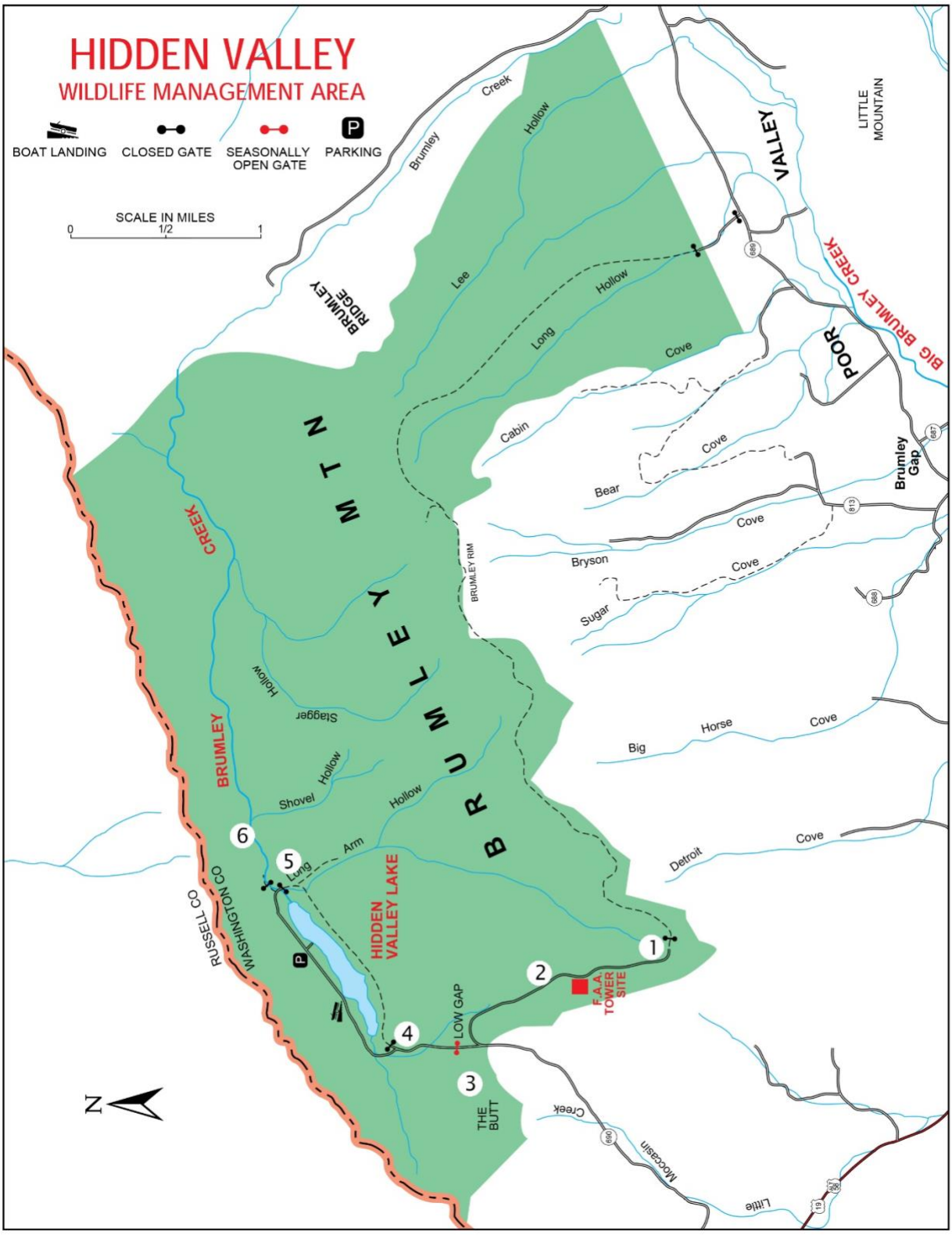

Figure 1. Hidden Valley Wildlife Management Area with six survey sites indicated.

MATERIALS AND METHODS

The following techniques were used by surveyors during the weekend survey: hand capture, visual observations, turning but replacing cover objects such as logs and rocks, and listening for calling anurans, both at day and at night. Animals hand captured were examined visually for malformations, diseases, injury, and parasites. Animals were released at the site of capture. Digital photos were taken as vouchers for species. Data sheets were kept with information on each animal and the microhabitat where the animal was found. The data sheets were deposited in the VHS Archive. Table 1 below gives a summary of how much time was spent at each survey site. Five turtle hoop traps and two crayfish traps, baited with sardines, were set in the streams, beaver ponds and marshes on the western end of Hidden Valley Lake. The identity of several slimy salamanders (*Plethodon glutinosus* complex) were determined using protein electrophoresis following the methods of Highton et al. (1989).

Table 1. Summary of work effort at the different sites sampled during the Hidden Valley Wildlife Management Area Survey.

Site	No. Surveyors	Hours	Person Hours
1	2	0.75	1.5
2	6	0.83	5
3a	6	0.83	5
3b	4	2.0	8
4	6	0.67	4
5	6	1.25	7.5
6	4	2.17	8.7

RESULTS

During the survey, a total of 404 animals comprising fifteen species of amphibians (four anuran species and eleven species of salamanders), and five species of reptiles (all snakes) were documented. Table 2 below summarizes information from each of the surveyed sites.

Table 2. Amphibians and Reptiles observed at Hidden Valley WMA.

Species/Site	1	2	3a	3b	4	5	6	Misc.	Total
Amphibians									
Lithobates catesbeianus								1C	1
Lithobates clamitans								4C	4
Lithobates palustris								1	1
Pseudacris crucifer								10C	10
Aneides aeneus				3					3
Desmognathus fuscus					3	4	2		9
Desmognathus monticola						5			5
Desmognathus ochrophaeus	10	20	15	25	19	19	47		155
Eurycea cirrigera					1	1	1		3
Gyrinophilus p. porphyriticus					1				1
Notophthalamus v. viridescens								2	2
Plethodon cinereus	6	14	18	6		3	7		54
Plethodon glutinosus		2	7	26	3	3	2		43
Plethodon montanus	16	25	23	27	9		1		101
Pseudotriton ruber						1	2		3

Reptiles									
Diadophus punctatus edwardsii				1					1
Lampropeltis t. triangulum								1	1
Nerodia s. sipedon						3	2		5
Pantherophis alleghaniensis								1DOR	1
Thamnophis s. sirtalis								1DOR	1
Total	32	61	36	88	63	39	64	21	404

ANNOTATED CHECKLIST

Amphibians

1. *Lithobates catesbeianus* (American Bullfrog) A single adult male American Bullfrog was heard calling from Hidden Valley Lake on the morning of 11 June.

2. *Lithobates clamitans* (Green Frog) A chorus of at least four Green Frogs was heard on the evening of 9 June from the marshy western end of Hidden Valley Lake.

3. *Lithobates palustris* (Pickerel Frog) A single adult Pickerel Frog was seen on the marshy western end of Hidden Valley Lake while setting turtle hoop traps.

4. *Pseudacris crucifer* (Spring Peeper) A large chorus of Spring Peepers was heard on the evening of 9 June from the marshy western end of Hidden Valley Lake. The chorus was continuous with overlapping calls.

5. *Aneides aeneus* (Green Salamander) Three Green Salamanders were seen on the evening of 10 June from the rocky cliffs at The Butt (site 3b). One was in a crevice of the rock. One was out on the rock surface; and a gravid female was in a small hole-like depression in the rock surface. There had not been rain for at least the past two days, however, at some places on the rock surface there was a small drip of water down the surface of the rock wall.

6. *Desmognathus fuscus* (Northern Dusky Salamander) A total of nine Northern Dusky Salamanders were found in several streams going into or flowing from Hidden Valley Lake (sites 4, 5 and 6). They were under rocks or logs very near, or in, the water.

7. *Desmognathus monticola* (Seal Salamander) We saw three Seal Salamanders in a stream flowing into Hidden Valley Lake, quite near the entrance of the stream into the lake (site 5). Most were under rocks in the water.

8. *Desmognathus ochrophaeus* (Alleghany Mountain Dusky Salamander) This was the most commonly encountered salamander during the survey. They were found at every site examined. They were present under rocks, logs and loose bark on the ground. Some were found quite near streams. Others were found at high elevations on the ridges of Brumley Mountain, far from any source of water. Large adults were typically melanistic, or all black. Smaller individuals were quite varied in their coloration. Some had yellow, red-brown or red irregular marks on their back. One from site 3b had irregular yellow-green marks on the back, reminiscent of a Green Salamander.

9. *Eurycea cirrigera* (Southern Two-lined Salamander) Three Southern Two-lined Salamanders were found, one each at sites 4, 5 and 6. Two were at least 10 m from a stream, one was under the rock of a fire pit and one under a log. The third was closer to water, under a log.

10. *Gyrinophilus p. porphyriticus* (Northern Spring Salamander) A single large larval Spring Salamander was found under a rock in a stream at site 4.

11. *Notophthalamus v. viridescens* (Eastern Red-spotted Newt) Two adult Red-spotted Newts were observed incidentally. One was in one of the beaver ponds in the marshy western end of Hidden

Valley Lake, seen while setting turtle hoop traps on 9 June. The other was seen in the lake itself near the shore while waiting for members to gather the morning of 10 June. No efts were seen in the woods surrounding the Lake.

12. *Plethodon cinereus* (Red-backed Salamander) The Red-backed Salamander was a commonly observed salamander at all sites except site 4. They were found under rocks, logs and loose bark. All but one was the red-backed color morph. Only a single "lead-back" was seen and confirmed by the ventral coloration.

13. *Plethodon glutinosus* (Northern Slimy Salamander) The Northern Slimy Salamander was found at all sites except site 1. They were found under rocks and logs on the forest floor.

14. *Plethodon montanus* (Northern Gray-cheeked Salamander) The Northern Gray-cheeked Salamander was the second most-commonly observed animal on the HerpBlitz. It was found at every site except site 5, which was the lowest elevation site visited. They were typically found under logs, but were also found under rocks, under loose bark on the ground, and loose bark on trees.

15. *Pseudotriton r. ruber* (Northern Red Salamander) Red Salamanders were found at two sites (5 and 6). The one from site 5 was a young adult found under a log, a considerable distance from the nearest stream. The second, from site 6, was a large larva found inside a sphagnum moss clump on the edge of a woodland vernal pool.

Reptiles

16. *Diadophis punctatus edwardsii* (Northern Ring-necked Snake) A single live, adult ring-necked snake was found, apparently foraging, on the evening of 10 June along the base of the cliffs at The Butt (site 3b). It had the complete neck band and the unspotted venter of the Northern Ring-necked Snake.

17. Nerodia sipedon (Northern Watersnake) Five watersnakes were seen at the north end of Hidden Valley Lake. Specimens were observed but went into the water before they could be captured.

18. *Lampropeltis t. triangulum* (Eastern Milksnake) A young Eastern Milksnake was found several days prior to the HerpBlitz under a rock in a small rocky outcrop near the east end of Hidden Valley Lake.

19. *Pantherophis alleghaniensis* (Eastern Ratsnake) A large, adult Eastern Ratsnake was found dead on Alternate Route 58, 1.1 km south of Co. Rt. 690 on the afternoon of 9 June, near the entrance to the WMA.

20. *Thamnophis s. sirtalis* (Eastern Gartersnake) An adult Eastern Gartersnake was found dead on Co. Rt. 690, 0.33 km from the kiosk at the entrance to the WMA on the morning of 11 June.

DISCUSSION

Our survey of Hidden Valley Wildlife Management Area yielded fifteen species of amphibians (four anurans and eleven salamanders) and five species of reptiles, all being snakes. This number of species is less than what was reported at a survey of the nearby Clinch River Mountain Wildlife Management Area. Pinder and Greenlee (1999) report finding 18 amphibians and 10 reptiles. The difference in species counts between the properties could be due to differences in the number of survey volunteers, environmental conditions, and number of microhabitats found on each property. An interesting similarity of the two surveys was that neither survey produced any observations of lizards. *Plestiodon fasciatus* and *Sceloporus undulatus* are the only species of lizards documented for Washington County (VAFWIS database). Due to the elevation, some biogeographical barrier or poor survey weather, lizards have not been documented for either property. Pinder and Greenlee (op. cit.) did report finding four species of turtles. Two of the turtles they reported, *Chelydra serpentina* and *Terrapene c. carolina*, have a state-wide distribution but

Apalone s. spinifera and *Graptemys geographica* are turtle species specifically associated with the Tennessee River watershed. Hidden Valley WMA has flowing through it Brumley Creek which discharges into the North Fork Holston then the Tennessee River. Despite this fact we were unable to record any species of turtles despite many hours of visual surveys and trapping with baited hoop turtle traps. Besides the above-mentioned turtles *Chrysemys p. picta* is documented for Washington County and *Sternotherus odoratus* has a state-wide distribution and is found in surrounding counties. More intensive trapping of the lake and streams of Hidden Valley WMA and more searching of terrestrial habitat may yield records of turtles. We report five species of snakes, one less than reported by Pinder and Greenlee (op. cit.). They found one additional snake, *Agkistrodon contortrix*. *Crotalus horridus*, *Opheodrys aestivus*, and *Regina septemvittata* are documented for Washington County and *Carphophis a. amoenus* and *Coluber c. constrictor* are found in surrounding counties. With additional searching these snakes in addition to other smaller fossorial snakes may be found at this wildlife management area property.

The VHS survey of Clinch River WMA found the same species of salamanders as we report for Hidden Valley with the exception of three additional species not found at Hidden Valley including *Cryptobranchus a. alleganiensis*, *Eurycea l. longicauda* and *Plethodon richmondi*. Hellbenders may be found in Hidden Valley with more intensive surveys or eDNA sampling. Brumley Creek is a large stream and may support juvenile Hellbenders. *Necturus m. maculosus* is documented in counties to the east, north, and west, and with the right sampling techniques may be found at Hidden Valley. *Desmognathus quadramaculatus*, *Plethodon ventralis*, and *Pseudotriton montanus diastictus* are three species already documented for Washington County. *Eurycea lucifuga* may be added to the salamander list for this property if proper habitat can be located and surveyed. *Hemidactylium scutatum*, which has a state-wide distribution, may also be found. Hidden Valley WMA has many wet areas supporting large growths of *Sphagum sp*. moss, a preferred habitat of Four-toed Salamanders. Despite finding phenotypically varied slimy salamanders a small sampling of salamanders genetically tested were all found to be *Plethodon glutinosus* and not *Plethodon kentucki*. We were unable to find any vernal pools which would support Ambystomid salamanders.

Future surveys may find vernal pools and may add these species: *Ambystoma maculatum*, *Ambystoma opacum* and *Ambystoma jeffersonianum*. We did search the highest elevation spots on the property and did not find any of the high-altitude species such as *Plethodon yonahlossee* and *Desmognathus organi*, which can be found on White Top and Mount Rogers. The prospects of finding such species is probably remote since Hoffman (1992) indicated that the Clinch Mountains had been extensively surveyed for *Plethodon yonahlossee*. The low number of documented anurans for Hidden Valley is comparable to the Clinch Mountain WMA survey. The Clinch Mountain WMA survey reported five species of anurans compared to our four. We found the same species with the exception of *Anaxyrus a. americanus*. Surveys during optimal breeding times should be able to increase the count for this group. Hoffman (1981) reported *Pseudacris brachyphona* to be abundant along highway 689 which borders the southern part of this property. He indicated in his 1981 paper that in this area *Pseudacris brachyphona* calls and lays eggs strictly from February to mid-April. Common species such as *Hyla chrysoscelis*, *Lithobates sylvaticus*, and *Pseudacris feriarum* have been documented for the county and could be potentially found on Hidden Valley property. *Anaxyrus fowleri* has been documented in surrounding counties.

Hidden Valley WMA is found in an interesting biogeographical area. It is a large piece of property and we were only able to survey a small portion of

it. Future surveys to this area are warranted and may yield many new records.

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The authors wish to thank the volunteers who made the long trek out to western Virginia for this survey. Special thanks go to Tom Hampton, the Hidden Valley Wildlife Management Area Manager, for facilitating the survey and providing access to Skycraft Road. This survey was performed under Virginia Scientific Collecting Permit #056556.

David Snyder, Matt Neff, Jason Gibson, Tina Altizer, JD Kleopfer, Paul Sattler, not shown – Sarah Collette.

Field Notes

***Anaxyrus fowleri* (Fowler's Toad):** VA, Clarke County, 106 Island Farm Lane, Boyce. 25 August 2017. Jen Riley.

County Record: On 25 August 2017 a toad was found in the cage of a captive eagle, at the Blue Ridge Wildlife Center in Boyce, VA. The toad had ventral lacerations and was treated and, after full recovery, released. A photograph of the toad was submitted to the VHS Identification Web Page, where it was identified as a Fowler's Toad. Several other toads have since been found at the same locality, indicating it is not an isolated occurrence. Fowler's Toad has not been previously reported for Clarke County, although they are for all surrounding counties. This report thus fills a gap in the distribution records. A digital photo was submitted to the VHS Archive (# 495) as a voucher for this new county record.

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***Hyla gratiosa* (Barking Treefrog).** VA: Dinwiddie County, community of Sutherland. 12 Aug 2017. Peter and Angela Hoffman.

Confirmation Observation: Angela Hoffman sent an email with an attached photograph to Susan Watson, of VDGIF. The photograph was of a treefrog that she and her husband, Peter, discovered in the bathroom of their residence. She inquired what species of treefrog it was. Upon opening the photo attachment, Susan realized it was the State Threatened Barking Treefrog. The Hoffmans had already captured the treefrog and released it outside on a tree in their yard before sending the email and photo. This specimen represents a second county record for the Barking Treefrog in Dinwiddie County, and helps fill a gap in the distribution since this species has been reported from almost every surrounding county. Mitchell and Reay (1999, Atlas of Amphibians and Reptiles in Virginia. Special Publication Number 1, Virginia Department of Game and Inland Fisheries) does not report any records of Barking Treefrog in Dinwiddie County. However, the Virginia Department of Game and Inland Fisheries' Species Observations (SppObs) Database (formerly known as Collections Database) (1991-2018) recently received a record of the Barking Treefrog, in Dinwiddie County, from 14 July 2016. The Hoffmans' photographic voucher (VHS Archive #496) is included with the field note submission.

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***Hyla versicolor* (Gray Treefrog)** VA: Rappahannock County, Ben Venue Road (38.722365, -78.067079), 24 June 2018, James Fox and Matt Anthony.

County record: As we were driving along Ben Venue Road just north of US 211 (Lee Highway) at approximately22:00 hr on 24 June 2018 we heard several Gray Treefrogs calling. The Gray Treefrog is widespread throughout Virginia and I suspect they are common in Rappahannock County. However, they have not been recorded in Rappahannock previously, although they have from every surrounding county except Madison to the south.. I stopped and took a recording to document the occurrence. *Hyla versicolor* and *Hyla chrysoscelis* are identical in appearance and the mating call is the easiest way to differentiate the two species, *Hyla versicolor* having the faster trill. A digital recording of the mating call was submitted to the VHS Archive (# 499) as a voucher.

James Fox
Front Royal, VA

Snake Entanglement Event. VA: City of Chesapeake, Cavalier Wildlife Management Area. 24 April 2017 to 2 May 2017. John (J.D.) Kleopfer, David Norris, and Becky Gwynn.

Erosion control blankets (ECBs) are often used in landscaping to control soil erosion and allow grass or other ground cover to grow. These products are made of various materials, including plastic and nylon. Unfortunately, ECBs made from these synthetic products have been well documented to entangle and kill wildlife, particularly snakes (Barton, C. and K. Kinkead. 2005. Do erosion control and snakes mesh? Soil and Water Conservation Society 60:33A-35A.). So well in fact, that they are sometimes specifically promoted as an effective product in controlling snakes around residential properties and bird houses (Kapfer, J.M., and R.A. Paloski. 2011. On the threat to snakes of mesh deployed for erosion control and wildlife exclusion. Herpetological Conservation and Biology 6:1-9). Although synthetic ECBs (Fig. 1) are marketed as being photodegradable when exposed to the sun, they can continue to entangle and kill wildlife years after project completion (Kleopfer pers. obs. 2018). This problem can be compounded when these products are used in shaded, forested areas or when the grass or ground cover becomes tall enough that it shades the matting. Here we report on an extreme snake entanglement event in synthetic matting and the effectiveness of the response in using a natural fiber-based matting as a replacement.

Over a period of 8 days from 24 April 2017 to 2 May 2017, forty-two snakes (comprising seven species: *Agkistrodon contortrix, Coluber constrictor, Pantherophis alleghaniensis Lampropeltis getula, Nerodia sipedon, N. erythrogaster, Thamnophis sirtalis*) were found entangled in synthetic ECBs at a wetland restoration project at the Cavalier Wildlife Management Area in the City of Chesapeake, Virginia. Twenty-seven of the snakes were successfully disentangled and released. However, fifteen were found dead. The response by the Virginia Department of Game and Inland Fisheries (DGIF) staff was to immediately remove and replace the synthetic matting with Cori Mat (Fig. 2), which is a coconut fiber-based product that is more flexible and has been shown to be more "wildlife friendly" (Kapfer, J.M., and R.A. Paloski. 2011). After the Cori Mat was installed, two of the sites where the entanglements primarily occurred were monitored daily from 5 May to 11 May (except for the 10th). No entanglements were observed during this period. The DGIF is currently working with other state agencies in changing Best Management Practices (BMPs) and the use of synthetic ECBs.


Figure 1. Synthetic ECB.


Figure 2: Cori Mat.

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Carphophis amoenus amoenus (Eastern Wormsnake) VA: Patrick County. Fairystone Farms Wildlife Management Area (N 36°47'43.27", W 80°7'47.54"). 27 October 2017. Randy Ferguson.

Arboreality: Ecologically the Eastern Wormsnake is classified as having a fossorial lifestyle (Ernst, C.H. and E.M. Ernst. 2003. Snakes of the United States and Canada. Smithsonian Books. Washington D.C. 668pp.). Mitchell (1994. The Reptiles of Virginia. Smithsonian Institution Press. Washington, D.C. 352 pp.) and Palmer and Braswell (1995. Reptiles of North Carolina. The University of North Carolina Press. Chapel Hill, North Carolina. 412 pp.) report this species from open fields, under various cover objects, in rotten logs, in forested habitats, and on paved roads. All of the above cited authors state that this species is chiefly nocturnal with very few observations of it being found in the open during daylight hours. None of them report arboreal behavior being reported for this species. John Orr (personal communication) stated that out of 120 wormsnake observations he made while working on his master's thesis only one snake was found in the open and not under a cover object. He did not observe any wormsnakes in an arboreal position. After an extensive search of the literature and consulting wormsnake experts we could find no published account or knowledge of this species being found off of the ground.

The purpose of this note is to document arboreal behavior for this species. On 27 October 2017 at 1723 h, RF observed an adult Eastern Wormsnake approximately 45 centimeters above ground in a small shrub. RF took several digital photos of this behavior and these have been deposited in the VHS digital archives (#491). To our knowledge this represents the first time this behavior has been observed for Eastern Wormsnakes in Virginia. Little is known about small fossorial snakes, so we encourage any unusual observations for these species to be published.

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***Kinosternon subrubrum* (Eastern Mud Turtle)**
VA: Henry County, Patrick Henry Community College, 645 Patriot Avenue (36°44'32.82"N, 79°52'35.20"W). 1 August, 2018. Jason D. Gibson and Jason L. Worley.

County Record Confirmation: The Eastern Mud Turtle is a freshwater turtle that inhabits a wide variety of shallow and slow moving water habitats including streams, ponds, and lakes (Ernst, C.H., J.E. Lovich, and R.W. Barbour, 1994, Turtles of the United States and Canada. Smithsonian Institution Press, Washington D.C. 578 pp.). In Virginia, the Eastern Mud Turtle is generally common on the coastal plain but finds its most western range extension in the southern piedmont. According to the Department of Game and Inland Fisheries VA Fish and Wildlife Information Service (VAFWIS), the Virginia Herpetological Society (https://www.virginiaherpetologicalsociety.com/reptiles/turtles/stinkpot/stinkpot.php) Tobey (1985. Virginia's Amphibians and Reptiles: A Distributional Survey. Virginia Herpetological Society, Purcellville, VA. 114 pp.), and Mitchell and Reay (1999, Atlas of Amphibians and Reptiles in Virginia, Special Publication No.1, Virginia Department of Game and Inland Fisheries, Richmond, VA, 122 pp.), the most western boundary for this species occurs in Pittsylvania and Bedford Counties. However, according to Mitchell (1994. The Reptiles of Virginia. Smithsonian Institution Press, Washington D.C. 352 pp.), the distribution of the Eastern Mud Turtle extends into mid-Henry County, which is west of Pittsylvania County. The distribution record for Henry County, reported in the Reptiles of Virginia, comes from a vouchered hatchling mud turtle found by George Burton in 1939, housed in the Carnegie Museum of Natural History (CM 18355). Burton did not record specific locality data but did indicate the specimen was found near Spencer, Virginia. It is unknown why this record was not included by the Department of Game and Inland Fisheries in the making of the Atlas of Amphibians and Reptiles of Virginia (Joe Mitchell, pers. comm.). Since 1939, there has been no confirmation of this species in Henry County and no reports west of this location.

The purpose of this field note is to confirm the presence of the Eastern Mud Turtle in its most western range and to voucher three new sites in Henry County so that further researchers can continue to expand where this species resides on its western boundary. Our earliest date of observation in Henry County was on 16 February 2018, with additional sightings in 1 August 2018, 4 September 2018, and 11 October 2018 in various locations within the county. The earliest sighting, on 16 February, was made of a male mud turtle (8.8 cm PL and 10.9 CL) sitting in leaf litter on the forest floor on the campus of Patrick Henry Community College (36°44'36.08"N, 79°52'34.58"W). Adjacent to this site are several vernal pools and an ephemeral stream. The 1 August observation was of a female turtle, also on the property of Patrick Henry Community College, found near an overgrown marginal edge of a pond located adjacent to a dirt service road. On 4 September, an AOR adult turtle was observed basking at 0800h on a paved driveway which enters onto Terrys Mountain Road (36°43'23.53"N, 79°49'21.70"W). A large farm pond is located .35 km east from where the turtle was observed. The latest observation for this species was on 11 October. A single DOR adult turtle was observed on Barrow Mill Road (36°44'1.73"N, 79°51'12.35"W). Two streams run parallel to the road and are approximately .3 km each away from the observed turtle. The movement of the Eastern Mud Turtle during the months observed range from early morning (0800 h) to mid-afternoon (1400 h). According to Mitchell (1994), the months of normal activity occurs from March to November; however, may begin during warm days in February, as observed.

The importance of reporting county record confirmations cannot be understated. This specific account highlights how mistakes or omissions can diminish our understanding of where these species live. We encourage other researchers to report confirmations when records in counties are old or few. A digital voucher photograph of this species was submitted to the VHS archives (# 498).

Jason D. Gibson & Jason L. Worley
Patrick Henry Community College
STEM Division
645 Patriot Avenue
Martinsville Va, 24112

***Nerodia erythrogaster* (Plain-bellied Watersnake).** VA: Prince George Co., [lat./long. coordinates: 37.2547222, -77.0043889]. 31 May 2017. Noel P. and Susan H. Watson.

County Record: Noel Watson found a freshly killed Plain-bellied Watersnake (*Nerodia erythrogaster*) on a rural road (Brandon Road, Route 611), in Prince George County. Noel photographed the specimen, and Susan Watson identified it via the photographs. It appeared to have been recently run over by a vehicle. This specimen represents a new county record for Plain-bellied Watersnake in Prince George County. Mitchell (1994, The Reptiles of Virginia. Smithsonian Press, Washington, D.C. 352pp.), Mitchell and Reay (1999, Atlas of Amphibians and Reptiles in Virginia. Special Publication Number 1, Virginia Department of Game and Inland Fisheries), and the Virginia Department of Game and Inland Fisheries' Species Observations (SppObs) Database (formerly known as Collections Database) (1991-2017) do not report any records of Plain-bellied Watersnake in Prince George County. Noel's photograph vouchers are included with this field note submission (Archive #500).

Noel P. and Susan H. Watson
2401 Branchwood Drive
North Prince George, VA 23860

***Ophisaurus attenuates longicaudus* (Eastern Slender Glass Lizard):** VA, James City County, 8636 Merry Oaks Lane, Toano. 30 September 2018. Lisa Reagan.

County Record: On 30 September 2018, while mowing a high knoll in a meadow, I saw an animal that had apparently been hit by the mowing. Several photographs of the dead animal were taken and sent to the VHS Identification Web Page to determine what the animal was. I was informed it was an Eastern Slender Glass Lizard, and it had not been previously reported for James City County, although they have for York County to the east and New Kent to the west. The habitat was consistent with that reported for glass lizards, a grassy meadow. The weather was clear and sunny, so the lizard was probably out foraging in the meadow. Photos of the lizard were submitted to the VHS Archive (#497) as a voucher for this new county record.

Lisa Reagan
Toano, Virginia

Plestiodon fasciatus (Common Five-lined Skink) VA: Pittsylvania Co., 181 Samuel Court. (36°41'31.29"N, 79°25'32.03"W). 27 April 2018. Jason D. Gibson.

Diet: Basic natural history information, such as what an organism preys upon, is vital for understanding how it fits into the food web of an ecosystem. One would think that a list of prey organisms would be known for one of Virginia's most common species of lizards, the Common Five-lined Skink. A literature search reveals that this is not the case. Mitchell (1994. The Reptiles of Virginia. Smithsonian Institution Press, Washington, DC. 352 pp.) states that the diet for the Common Five-lined skink has not been studied in Virginia. To the south in North Carolina, Braswell and Palmer (1995. Reptiles of North Carolina. The University of North Carolina Press, Chapel Hill, North Carolina. 412 pp.) state that the diet of *Plestiodon fasciatus* has also not been studied. To the north in Maryland, McCauley (1939. Notes on the food habits of certain Maryland lizards. American Midland Naturalist. 22:150-163.) reported on the gut contents of 25 lizards. The most commonly consumed prey from these 25 lizards were the arthropod orders Orthoptera (crickets, grasshoppers, and katydids), Coleoptera (beetles), and Araneida (modern spiders). This report gives nominal information as no prey organism is classified to the species level. Regionally very little information exists on the diet of the Common Five-lined Skink.

The purpose of this note is to report an observation of a Common Five-lined Skink preying upon a *Polistes fuscatus* wasp. *Polistes fuscatus*, the Northern Paper Wasp, is abundant around human habitations. Its nests, which are found around houses and other buildings, are built from chewed and regurgitated woody material it collects in the local environment. On 27 April 2018 around 1340 h I was awakened from a nap by a thumping sound outside my bedroom window. Upon looking out the window I witnessed a male Common Five-lined Skink repeatedly slamming a female *Polistes fuscatus* wasp against the aluminum flashing around the window seal. The wasp's abdomen

was tightly clasped in the mouth of the lizard as the lizard swung its head laterally, violently crushing the wasp against the metal flashing. I quickly grabbed my cell phone and ran outside. As I approached the lizard, it dropped the wasp and stood still. I took a few pictures from a distant vantage point and then approached to get better pictures. As I did this the lizard ran away. I collected the wasp and placed it in a container of alcohol and took it to Kaloyan Ivanov, assistant curator of invertebrate zoology at the Virginia Museum of Natural History. He graciously provided a positive identification. Fitch (1954. Life history and ecology of the five-lined skink, Eumeces fasciatus. University of Kansas Publications, Museum of Natural History 8(1): 1-156.) recorded only 2 wasps from 738 diet items from five-lined skinks in Kansas. The genus and species of the wasps were not reported in his study. In a feeding study Fitch (op. cit) found that captive skinks ovoided *Polistes sp.* wasps when this species was offered as food items. McIlhenny (1937. Notes on the five-lined skink. Copeia, 1937: 232-233) observed a five lined skink in southern Louisiana killing and eating adult *Polistes pallipes* and *Polistes bellicosus* adult and larval wasps. This field note is worth reading as it records an interesting feeding strategy utilized by the skink where it would pull larvae out of the nest and drop them on the ground. After pulling several larvae out the skink would climb down and retrieve them. It appears from the diet studies listed above that wasps do not make up a significant proportion of the diet of *Plestiodon fasciatus*, however this prey will be eaten if the opportunity arises. Since no diet studies have been done for this species in Virginia, I encourage all observations of prey items to be published so we can begin to better understand one of the fundamental aspects of the Common Five-lined Skink's natural history.

Jason D. Gibson
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STEM-HAP Division
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***Storeria dekayi* (Dekay's Brownsnake)** VA: Rockbridge Co., VA Highway 39, approximately 1.75 miles southeast of State Route 601 (37°, 56', 24.3" N, -79°, 27' 07.9" W). 14 July, 2018. Bryant Roqué.

County Record: On 14 July, 2016 at approximately 17:00h, Bryant Roqué observed a Northern or Dekay's Brownsnake swimming in the Maury river. The location was within the Goshen Pass section of the Maury river. The Brownsnake was observed and photographed both swimming in the river and cruising around on the river bank. Photographs were sent to me and I identified it as a Northern Brownsnake. VDGIF Herptologist J.D. Kleopfer verified the identification. This observation of the Northern Brownsnake is a new county record as this species has not been previously documented for Rockbridge County by Mitchell and Reay (1999. Atlas of Amphibians and Reptiles in Virginia. Special Publication Number 1, Virginia Department of Game and Inland Fisheries. Richmond, VA 122pp.) or the Virginia Herpetological Society website (http://www.Virginiaherpetologicalsociety.com/reptiles/snakes/northern-brownsnake/northern_brownsnake.php). A digital photograph of the specimen was submitted to the VHS archives (#494).

William Flint
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Harrisonburg, VA 22807

Tantilla coronata **(Southeastern Crowned Snake)** VA: 26-27 June 2018. Paul Sattler, Nathan Chandler and Caroline Williams.

Reproduction: On 23 June 2018 we were collecting snakes for a presentation to a children's group and found a *Tantilla coronata*, a *Diadophis puntatus* and a *Carphophis amoenus*. These three snakes were housed in a single large plastic container. On 26 June, a single egg was found in the container. On 27 June there were three eggs. Only the Tantilla coronata was noticeably reduced in width and thus likely the snake producing the eggs. To confirm this, DNA was extracted from an egg and embryo using a Qiagen DNeasy Blood and Tissue extraction kit. Primers for a 12S rRNA gene fragment were obtained from Integated DNA Technologies, and PCR was run on a BioRad C1000 Touch Thermal Cycler at 95^{o}C for 5 min, then 95^{o}C for 1 min, 50^{o}C for 1 min, and 72^{o}C for 1.5 min, for 34 cycles using Apex Red Master Mix. The sample was then cleaned using the standard conditions for a Genesee DNA Clean & Concentrator Kit. Finally, the sample was sequenced by Eurofins Genomics. The sequence was put into the "Blast" DNA database and a 93% similarity to an existing *Tantilla coronata* sequence was found. There was significantly lower sequence homology for *Diadophis* and *Carphophis*, confirming the egg originated from the Southeastern Crowned Snake.

Mitchell (1994. The Reptiles of Virginia. Smithsonian Institution Press, Washington DC. 352 pp) states that "nothing is known of reproduction in this species in Virginia". Gibbons and Dorcas (2005. Snakes of the Southeast, University of Georgia Press, Athens, GA 253pp.) report Southeastern Crowned Snakes lay 1-3 eggs in June to early July. This report appears to be the first on reproduction in this species for Virginia. The length, width and weight of the three eggs are given below (Table 1). The snake itself was 23.2 cm Total Length, 18.9 cm SVL and the tail was 4.3 cm in length.

Table 1. Length, width and weight of three *Tantilla coronata* eggs from Campbell County, VA.

Length (mm)	Width (mm)	Weight (g)
20.9	6.6	0.502
23.0	6.8	0.564
21.8	6.3	0.495

Paul Sattler, Nathan Chandler and Caroline Williams
Department of Biology
Liberty University
Lynchburg, VA

Trachemys scripta elegans (Red-eared Slider) VA: City of Danville, Anglers Park (36°33'37.02"N, 79°21'12.22"W and 36°33'44.12"N, 79°21'32.91"W). 16 April and 22 April 2017. Jason D. Gibson.

City Record: The Red-eared Slider is a naturalized species which originates in the Mississippi River watershed. A naturalized species is an introduced species and as such should be of concern due to the negative impact they may have on native species. Several factors such as hybridization with closely related native species, spread of diseases, and competition make introduced species potentially damaging. The competitive exclusion principle states that two species cannot occupy the same niche without harm coming to the weaker competitor. Introduced species pose grave risks to native species and should be immediately reported

in the literature so that their populations can be monitored and perhaps removed.

On 16 April 2017 my family was hiking a trail in Anglers Park in the city of Danville. This trail parallels a small stream which empties into the Dan River. During this hike we noticed a large adult turtle in the woods beside the trail. Thinking it was a River Cooter laying eggs we stopped and observed it for a while and then took a photograph (VHS archives # 492). Upon closer inspection it was discovered to be a Red-eared Slider. This is the first time in seventeen years of coming to this area that this species had been observed. On a subsequent trip to this same park on 22 April 2017 I found a hatchling Red-eared Slider DOR on Northside Drive (VHS archives # 493). The site of the DOR turtle was adjacent to a parking lot and a constructed mitigations pond. The turtle measured PL = 31 mm and CL = 35 mm. These observations suggest that a population of Red-eared Sliders has been introduced to this area and that the population is successfully reproducing. On 3 June 2017 I searched upstream from the site of finding the Red-eared Sliders following a paved walking path along the Dan River. I traveled several miles and visually inspected with binoculars and a spotting scope every turtle basking on rocks or the shoreline of the Dan River. I made visual observations of 228 turtles. All of the turtles were Eastern River Cooters.

Jason D. Gibson
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The President's Corner

Greeting fellow herp enthusiasts,

We are heading into the doldrums of winter after having a very successful 2018. We had seven surveys throughout the year with 135 participants in attendance. A big thanks go out to all of the survey leaders and participants. A summary of the first six surveys were in the previous president's corner, but the one that had not occurred yet was the Fall Survey at Appomattox-Buckingham State Forest and Holliday Lake State Park. This survey was led by Vice President Travis Anthony in Appomattox and Buckingham counties. During that survey there were 23 volunteers that documented 12 amphibians and 11 reptiles. Seven new county records were found between Appomattox and Buckingham counties. The new records in Appomattox County were the Pickerel Frog, Three-lined Salamander, American Bullfrog, Common Five-lined Skink, Little Brown Skink, and Southeastern Mud Turtle. The new record in Buckingham County was the Eastern Smooth Earthsnake. Thanks Travis for leading that group.

We also just finished a successful fall meeting where we had over 50 people in attendance and 14 talks on Virginia's herpetofauna. Mike Clifford was awarded the 2018 Lifetime Achievement Award for his outstanding educational work and service to VHS. He's been a member for over 40 years! Thanks again Mike for everything you've done for the VHS over all of these decades and here's to another few. We also awarded the Salamander Savers group for their hard work of getting the Red Salamander named as Virginia's state salamander. Thanks for your hard work Jonah, Gabriel, Sam, and Anna Kim. We also had a productive meeting and you can peruse the meeting minutes from Secretary Dave Perry in this issue.

Keep an eye out for our VHS grants that we offer at the end of each year. Last year we funded two projects, the first being Courtney Check's Movement Ecology and Nonbreeding Habitat Usage of Two Anaxyrus Species. Ms. Check gave a talk on her findings at the Fall Meeting. We also funded Nathan Richendollar to survey Desmognathus auriculatus in Southeast Virginia. We are currently waiting for Mr. Richendollar to complete the survey.

A few weeks ago we announced our logo contest to change our logo and we need your help! In 2016 the Eastern Gartersnake was officially named Virginia's State Snake and in 2018 the Red Salamander was named Virginia's State Salamander. We would like to incorporate these official animals into a new logo. The winner will be awarded $150 and a free annual membership. A finished logo should be emailed to Matt Neff: president@vaherpsociety.com before March 31. Checkout out website for more details about the logo contest: www.vaherpsociety.com We are already thinking about our Annual Spring Survey for 2019. Last week I met with the park manager at Sky Meadows State Park and it looks like a great spot for us to conduct a survey. There is a mix of habitats: mountain ridge, mixed forest, and open meadows with many vernal pools. Sky Meadows sits on the border of two counties: Fauquier and Clarke, both of which the VHS has yet to survey. There is also the potential for a couple of new county records. Details will be forthcoming, keep an eye on our news page for updates.

Thanks again and I look forward to see you in the field next year,

Matt Neff
VHS President

Virginia Herpetological Society
Annual Fall Business Meeting
Minutes 10/27/2018

Matt Neff, President of the Virginia Herpetological Society (VHS), opened the meeting at approximately16:55 hr. EDT and provided the agenda for the meeting. VHS and VHS Executive Committee Members (Ex-Com), Travis Anthony, Matt Becker, Erin Chapman, Matt Close, Jason Gibson, Bonnie Keller, Larry Mendoza, John Orr, Dave Perry, Paul Sattler, Emily Steele, Kory Steele, David Van Gelder, Susan Watson, Charise White and John White also participated in the meeting.

1. Surveys

Matt Neff solicited some ideas for potential survey sites for 2019. Some of the counties that have not been previously surveyed by VHS were suggested as potential candidates for 2019 including Albermarle, Craig, Giles, Greene, Fauquier, Orange and Stafford counties. Several members mentioned there are many potential survey sites in northern Virginia. Bonnie Keller, VHS Newsletter Editor, suggested that Suffolk County and the Great Dismal Swamp could be a candidate. Jason Gibson, VHS Survey Committee Chair, indicated that no decision had been made yet for the 2019 HerpBlitz. VHS has been contacted by personnel from Langley Air Force base for a potential field survey. The base is located between Hampton, Newport News and York County. Kory Steele, VHS Grants Committee Chair, offered to coordinate the VHS response and potential survey effort with the base and Matt Neff agreed to provide Kory with the Langley contact information. Dave Perry, VHS Secretary, indicated that Amelia Wildlife Management Area in Amelia County was a potential site for the Conservation Committee survey next year. Larry Mendoza, VHS Regulatory Committee Chair, suggested that the VCU Rice River Center in Charles City County and Emory and Henry College in Washington County near the South Holston River might be good candidates for a survey. VHS previously surveyed the Rice River Center in 2004. Travis Anthony, VHS Vice President, indicated that Appomattox State Forest would welcome another VHS survey in either the spring or the fall. The discussion turned to the Annual Spring Survey and it was recommended that the site selection should include attractions for children and families. Shenandoah National Park was suggested as a possibility. Paul Sattler, VHS Journal Editor, wanted to assure that the date selected for the Spring Survey did not conflict with University graduation weekends. Jason Gibson suggested that if a portion of Shenandoah National Park is selected for the 2019 Spring Survey, it could be pushed back to June due to cooler temperatures at the higher elevations in the park and to avoid a potential conflict with graduation weekend. He further suggested that it would be good to first focus on proposed survey dates to avoid potential conflicts. Dave Perry indicated that the Conservation Committee survey would probably be scheduled for the last Sunday in April and the first Sunday in May as in the past. Matt Neff displayed a preliminary map of past VHS survey sites which will be updated to help VHS make future survey site decisions. Matt plans to find a way to refine the map and distribute a copy to the Ex-Com. There was some discussion about acquiring turtle traps and other equipment for VHS surveys. Matt Neff requested ideas on this topic via email from the Ex-Com. Updates were provided on the status of not yet completed survey reports. Matt Neff indicated that the Lake Anna 2018 Spring Survey report should be completed in time

for the spring 2019 issue of Catesbeiana. Likewise, Kory Steele indicated that the Newport News 2017 Spring Survey report would be completed in time for that issue. Travis Anthony is working on the report for the September 30, 2018 survey in Appomattox State Forest. The status of the Natural Bridge 2016 Spring Survey report was unclear, as Mike Salotti, VHS Community Outreach Chair, and the survey sponsor was unable to attend the meeting. Matt Neff agreed to contact Mike to determine the status of this report and whether Mike would like some assistance to complete the report.

2. License Plates

Travis Anthony indicated that VDGIF was holding off on the submission of an application for an elk license plate, which might provide an earlier opportunity for a VHS Northern Red Salamander (state salamander) license plate application. Susan Watson, VHS Permits Chair, informed the Ex-Com that a letter on VHS letterhead would need to be sent to VDMV providing background and justification for a Northern Red Salamander license plate. Bonnie Keller questioned whether VHS should not also include the Eastern Garter Snake (state snake) as previously discussed. An up-charge of $25 per license plate would be required with at least 450 applicants for VDMV to proceed. Travis Anthony will continue to lead the license plate project.

3. Giving Tuesday-Tuesday after Thanksgiving

On the Tuesday after Thanksgiving, FaceBook plans to match donations to charitable and not for profit organizations. It is possible that contributions to VHS on its FaceBook page on that day could be matched in kind by FaceBook. Matt Neff agreed to get and provide more information to the Ex-Com for VHS to capitalize on this potential unique opportunity.

4. VHS logo

Susan Watson displayed the proposed logo artwork developed by Ruth Boettcher of VDGIF for the Eastern Gartersnake .Although thankful for the effort, there was some Ex-Com criticism about a pointy snout and the location of part of the tail behind the Virginia state outline. A picture of the Northern Red Salamander was also displayed but the artwork quality appeared like it was lifted from a photograph. Mike Clifford, VHS Education Chair, was unable to attend the Business Meting but indicated prior to the meeting that VHS by-laws would have to be changed before a new logo could be adopted. There was consensus agreement that the new logo should be voted-in prior to changing the VHS by-laws. There was much discussion about how to proceed. Finally, a consensus evolved around a logo artwork contest with submissions to be made prior to March 31. A financial reward of $100-150 and a free annual membership would be awarded to the contest winner, provided copyright ownership is assigned to VHS. Matt Neff agreed to develop and circulate to the Ex-Com artwork contest criteria for review at the earliest possible date. The open artwork competition announcement will be targeted for inclusion in the President's Corner section of the next issue of Catesbeiana. Bonnie Keller and Travis Anthony will also circulate the contest criteria to their students and to some high schools in the Richmond area. The final vote on finalist entries is planned for the Spring Survey Business Meeting. It was also decided to provide the Kim family free annual membership as a reward for their work in getting legislative approval of the Northern Red Salamander as the state salamander.

5. Website/Social Media

John White, VHS Webmaster, mentioned that improved graphics for some frog species and the Eastern Hog-nosed Snake had been added to the website as well as Joe Mitchell's Book. John also

indicated that the herp identification program is going well. The possibility of using photos, from the Fall Meeting photo contest for the VHS calendar was discussed. In the past calendar photos have been largely sourced from three contributors: Jason Gibson, Paul Sattler and John White. No decision was made.

6. Newsletter updates

Bonnie Keller explained the delay in publication of the Fall Newsletter was due to recent computer issues and expects future issues to be timely. Bonnie raised the topic of including Café Press items for sale at the Annual Meeting. Individual Café Press items tend to be expensive unless ordered in large quantities. This makes it hard for VHS to make money selling these items. Café Press quality is also sometimes questionable. Bonnie Keller volunteered to evaluate alternatives to Café Press and is prepared to help with management of Café Press.

7. Catesbeiana

Paul Sattler indicated that there will be two surveys published in the next edition of Catesbeiana, which he anticipates will be issued in late November/early December. The President's Corner section should be submitted by Matt Neff no later than the third week of November to meet the publication deadline. There is no lack of material for the spring 2019 edition. Future survey publications will have an author's abstract of 200-250 words and half a dozen key words. Jason Gibson mentioned that it is difficult to reference past issues of Catesbeiana, especially individual species accounts with Google Scholar. John White agreed to investigate potential improvements in search ability with Google Scholar. Erin Chapman inquired whether Catesbeiana was included in the Biodiversity Heritage Library and agreed to follow-up to investigate its possible inclusion.

8. Grants update

Kory Steele indicated he is comfortable with the current level of grant applications and does not believe any additional marketing, such as emailing to universities, is needed. There is a potential downside to applications that are rejected. There is no limit to the number of grant applications that can be approved. Erin Chapman has agreed to assist Kory with grant applications receipt and review. Erin will also help Kory update the VHS survey map and Matt Neff agreed to send the detailed county survey list. Kory will work with ArcGIS software to improve map quality. Matt Neff invited Erin Chapmen to join the Ex-Com and Erin accepted the invitation.

9. Regulatory Affairs

Larry Mendoza reported that he is working with Fairfax County on relaxation of rules regarding exotic species. Meanwhile it appears that Richmond's ordinance efforts have lost momentum and might be dead. Larry has been very involved in table exhibits and the number of these exhibitions is increasing. Jason Gibson offered to assist Larry at an upcoming event in southwest Virginia. Larry has been using the events to increase VHS membership. He did offer a free annual membership to some participants at one of the events. Matt Neff suggested that free membership is not fair to paying members but other incentives should be encouraged. Larry has recently used free VDGIF publications as an incentive for paid membership instead. Other items such as pens, bumper stickers etc. can also provide membership incentives. Larry suggested that the VHS table top exhibit needs to be upgraded with new photos and information. Larry indicated that the PayPal recorder had been very helpful getting members to sign-up at the exhibits. Live animals and a small TV with a frog quiz or looping presentation are good exhibit draws. Larry agreed to follow-up with new pictures and

materials. Bonnie Keller suggested four sets of new photos/frames etc so that materials could be distributed for use by VHS members in various regions (i.e. northern and southwest VA, Richmond and the tidewater area).

10. Outreach

Mike Salotti, VHS Community Outreach Committee Chair, was unable to attend the meeting. However, Mike reported the Community Outreach Committee effort to remind annual VHS members to renew their membership appears to be paying off as VHS currently has 247 annual members. Total membership, which includes 55 lifetime members, is now 302, which may be an all time record.

11. Treasurer

Matt Close, VHS Treasurer, provided an updated Treasurer's Report. The current unencumbered balance is $13,955.32. Matt indicated that VHS is having difficulty finding projects to fund. Matt suggested that VHS open an 11 month certificate of deposit paying a 1.77% interest rate for at least half of the unencumbered balance. It was agreed that he should move $7,000 to that CD. Matt also reported that approximately 10 new VHS memberships were obtained during the meeting today.

12. Education Committee

Mike Clifford submitted the detailed annual Education Committee Report for the period October 2017- October 2018. Led by Travis Anthony, Mike Clifford, Bonnie Keller, Larry Mendoza and Susan Watson at least 21 live presentations and educational events were conducted over the last twelve months. Most of these included live animal exhibits. Educational presentations were given to several Virginia Master Naturalist chapters, elementary, high school and university classes. Other noteworthy events included snake safety training for Dominion Energy personnel and exhibits for the 4-H Natural Resource Weekend, Adventure Day for the Girl Scouts at Fauquier County Fairgrounds, the Earth Day event in Fort Eustis and Riverfest in Dinwiddie County. An estimated 2,900 people made contact with VHS through these programs. Over 500 herp identification requests were handled over the past year. Alonso Abugattas, Mike Clifford, Bonnie Keller, Mark Khosravi, Kory Steele and John White handled most of the requests. Website educational materials developed by John White include Eastern Milksnake identification characteristics with a photo provided by Paul Sattler, Eastern Painted Turtle vs. Red-eared Slider graphics and Red-bellied Cooter vs. Red-eared Slider graphics. Collectively, these website educational materials were accessed 16,750 times. The full Education Committee Report will be available in the VHS archives.

13. Follow-up from Spring Meeting

Jason Gibson reported that Joe Mitchell is not interested in providing frog species accounts and the MOU was not signed. Unfortunately, the frog species accounts project is dead.

With no additional topics to discuss, the meeting was adjourned by Matt Neff at approximately 18:05 hr EDT.

David A. Perry
VHS Secretary

Virginia Herpetological Society
Treasurer's Report
Oct 27, 2018

Previous Balance (not reported) – May 20, 2018	$	14,243.15
Net Receipts (excludes PayPal Fees)		
Membership Dues	$	1788.00
Donations	$	100.00
Amazon Smile	$	39.42
Café Press	$	27.88
Expenses		
2018 VHS Grants Awarded	$	794.00
Event Tabling Supplies and Equipment	$	907.45
VHS Logo Pens	$	139.15
Awards/Honoraria	$	111.37
Donations/Contributions-Primer Amph. Rep. Book	$	280.00
Postage	$	42.32
Current Total Balance (unencumbered)	**$**	**13,955.32**

VHS Memberships (dues current)	
Regular:	215
Student:	30
Lifetime:	55
Total	**300**

Matthew Close
VHS Treasurer

Field Notes

The field notes section of *Catesbeiana* provides a means for publishing natural history information on Virginia's amphibians and reptiles that does not lend itself to full-length articles. Observations on geographic distribution, ecology, reproduction, phenology, behavior, and other topics are welcomed. Field Notes will usually concern a single species. The format of the reports is: scientific name (followed by common name in parentheses), state abbreviation (VA), county and location, date(s) of observation, observer(s), data and observations. The name(s) and address(es) of the author(s) should appear one line below the report. Consult the editor if your information does not readily fit this format. **All field notes must include a brief statement explaining the significance of the record** (e.g., new county record) **or observation** (e.g., unusual or rarely observed behavior, extremely early or late seasonal record, abnormal coloration, etc.). Submissions that fail to include this information are subject to rejection. Relevant literature should be cited in the body of the text (see Field Notes in this issue for proper format). All submissions will be reviewed by the editor (and one other person if deemed necessary) and revised as needed pending consultation with the author(s).

If the field note contains information on a **new county (or state) record**, **verification is required in the form of a voucher specimen** deposited in a permanent museum (e.g., Virginia Museum of Natural History) or a **photograph** (print, slide, or digital image) **or recording** (cassette tape or digital recording of anuran calls) deposited in the archives of the Virginia Herpetological Society. Photographs and recordings should be sent to the editor for verification and archiving purposes; the identity of voucher specimens must be confirmed by a museum curator or other qualified person. Include the specimen number if it has been catalogued. Prospective authors of distribution reports should consult Mitchell and Reay (1999. *Atlas of Amphibians and Reptiles in Virginia*), Mitchell (1994. *The Reptiles of Virginia*), and Tobey (1985. *Virginia's Amphibians and Reptiles: A Distributional Survey*) [**both atlases are available on-line on the VHS website**] as well as other recent literature to determine if they may have a new county record. New distribution records from large cities that formerly constituted counties (Chesapeake, Hampton, Newport News, Suffolk, and Virginia Beach) are acceptable, but records from smaller cities located within the boundaries of an adjoining county will only be published if the species has not been recorded from that county. Species identification for observational records (e.g., behavior) should be verified by a second person whenever possible.

PHOTOGRAPHS

High contrast photographs (prints, slides, or digital images) of amphibians and reptiles will be considered for publication if they are of good quality and are relevant to an accompanying article or field note. Digital images are preferred. Prints should be on glossy paper and no larger than 5 x 7 inches. Published photographs will be deposited in the Virginia Herpetological Society archives.

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