

Herpetological Survey of Chickahominy Wildlife Management Area 1 May & 15 May, 2016

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Introduction

Chickahominy Wildlife Management Area (CWMA) is located in Charles City County. CWMA gains its name from the Chickahominy River, which forms its eastern boundary. To the south, Morris Creek flows through a portion of CWMA and then along its southern boundary. Other small tidal creeks and marshes cut into wooded forests to provide additional wetland diversity. The upland is mainly wooded, with mixed hardwood and pine stands but also features cultivated, mowed and old field openings. CWMA contains 2,111 hectares (5,217 acres) and is the only wildlife management area in the coastal plain that is managed primarily for upland species. Elevation ranges from 7 to 15 meters (25 to 50 feet).

The Virginia Herpetological Society (VHS) previously surveyed CWMA from 6 - 8 July, 2007 in combination with a survey of a Virginia Department of Forestry nursery located in New Kent County. The results of these earlier surveys were published in *Catesbeiana* Volume 28, Number 2 (Watson, 2008).

CWMA is of interest to the Conservation Committee as 12 herpetological species having a Virginia Department of Game and Inland Fisheries (VDGIF) conservation status of Tier I-IV have been documented for Charles City County. In addition, there are five other Tier I-IV species that have a potential range that would include Charles City County.

Due to the large area to be surveyed, two Sunday survey dates, 1 May and 15 May 2016 were selected. Sunday was the day chosen to avoid any safety concerns with spring turkey hunting season (Monday-Saturday). Thirteen participants surveyed CWMA on 1 May and nineteen participants surveyed on 15 May.

Survey Sites

The following is a general description of the survey sites. GPS coordinates were provided by the group leaders, except for Site-5. The GPS coordinates for Site 5 was provided by CWMA management at a later date.

Site-1-“Bubba’s Trail”/Morris Creek (37°318325N, -76°922987W) Site-1 is located off Wilcox Neck Road. Bubba’s Trail heads northeast from a parking area through mixed hardwoods and contains several metal sheets and a sawdust pile. Morris Creek and associated marshes are habitat located to the south and east of the parking area. This site was surveyed on 1 May and was briefly visited during the late afternoon of 14 May.

Site-2-Beaver Pond (37°.326271N, -76°.89907W) Site-2 is west of Eagles Nest Road and includes a beaver pond, its shoreline circumference, the marshes, and mixed hardwoods and pine stands that surround it. This site was surveyed on both 1 May and 15 May.

Site-3- Marshes/Woods (37°.336388N, -76°.914166W) Site-3 is south of the first parking area on Eagles Nest Road. It includes a trail through mixed hardwoods, marshes and shallow ponds. This site was surveyed on 1 May.

Site-4-Shooting Range/Trails (37°.29511N, -76°.888060W) Site-4 started at the shooting range and included two trails through mixed hardwood and pine stands and fields south and east toward bluffs overlooking the Chickahominy River. Site-4 was surveyed on 1 May.

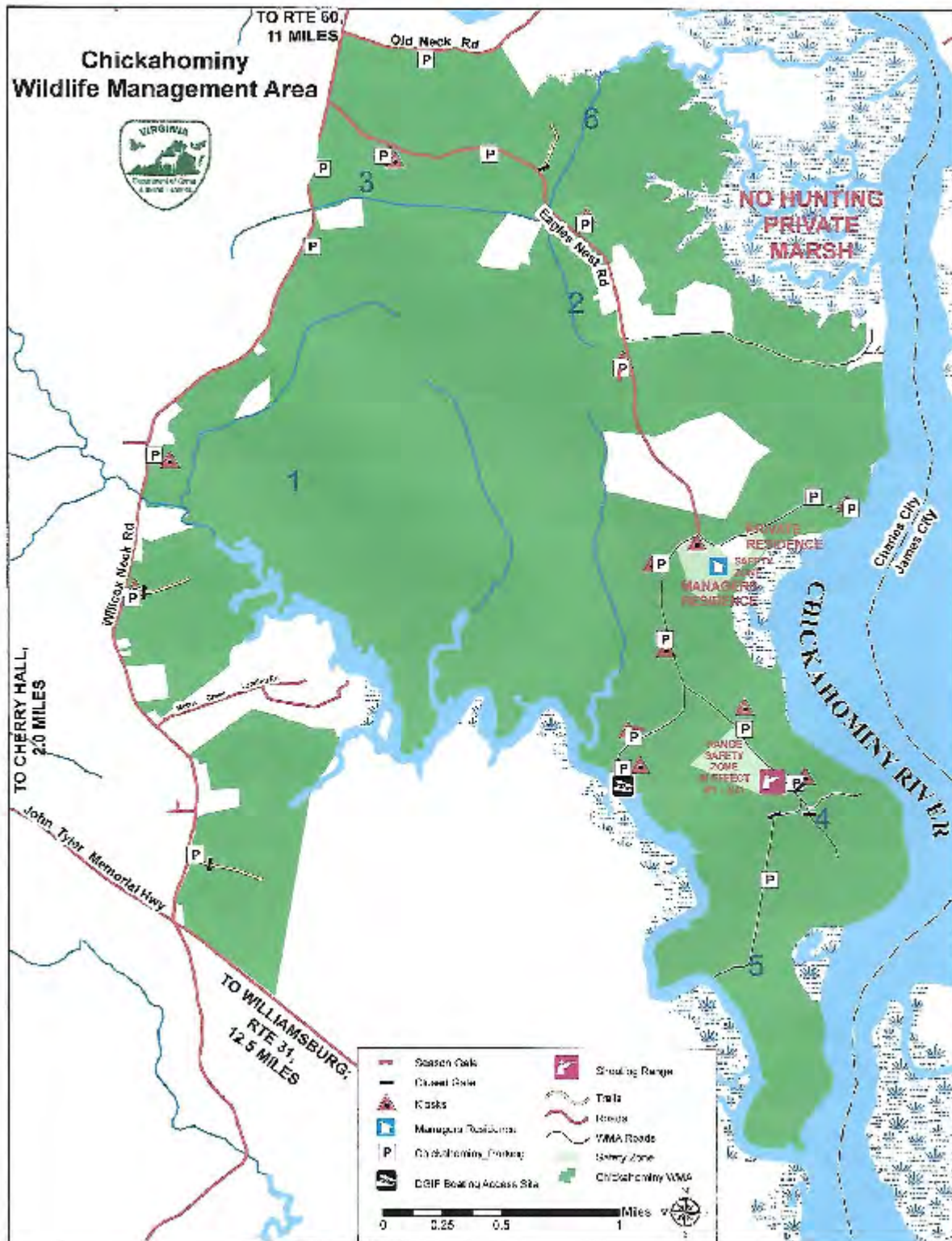
Site-5-Allen Tract (37°.289740 N, -76°.889199 W) Site-5 included the shooting range, the road south and west of the shooting range and surrounding fields and wet areas with some oak woods. Site 5 was surveyed on 15 May.

Site-6- Tributary to the Chickahominy River (37°.354722N, -76°.902501W) Site-6 includes a creek heading northeast from Eagles Nest Road and surrounding hillsides of mixed hardwoods with expanding marshes in the approach to the Chickahominy River. This site was surveyed on 15 May.



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Figure 1 Map showing the survey area. Survey sites are indicated by numbers.



Materials and Methods

Three hoop turtle traps, each baited with sardines, were positioned during the afternoon of Saturday 30 April in marshy areas within Site-3 (one) and Site-1 (two). These sites were selected because they appeared to be potential habitat for *Clemmys gutatta*, a species with VDGIF Tier III conservation status and known to be present within CWMA. Thirteen volunteers participated in the survey for approximately six hours (from 09:00 to 15:00h) in the field on Sunday 1 May for a total of about 55 man hours. Due to the large acreage and diverse habitat to be surveyed, two groups were organized to survey three sites within CWMA (Sites-1 through 3 as described above). Manpower and man hours for each of the survey groups, is recorded in Table 1.

Weather conditions were unfavorable for most of the day on 1 May, with wind and drizzle in the morning hours. Temperatures ranged from about 14-17 °C. At approximately 12:15h the survey was interrupted by heavy rain. From approximately 13:30 to 15:00h the survey groups combined into one group to survey Site-4. The turtle traps were recovered and inspected by D. Perry after the survey and were all found to be empty.

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 overturning 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. The two survey group leaders summarized and submitted all relevant data on VHS survey group data sheets.

On Saturday 14 May, D. Perry visited Site-1 from approximately 16:00 to 16:30h to determine if any turtles were basking. Skies were clear and sunny although storm clouds were beginning to gather. The air temperature was approximately 26 °C.

Nineteen volunteers participated in the survey on Sunday 15 May. Due to the large area to be surveyed, the volunteer participants were again split into groups. One group surveyed Site-5 and the other returned to re-survey Site-2 and surveyed Site-6 in the afternoon. The survey was conducted between 09:00 and 15:00h. Skies were clear and sunny, although the air temperature remained unseasonably cool and ranged from 13-19 °C. Table 1 is a summary of the survey effort on 1 May 2016 and Table 2 is a summary of the survey effort on 15 May 2016.

Table 1. Survey Effort per Site 1 May

Survey Site	No. of Surveyors	Hours	Estimated Person Hours
1-Bubba's Trail/Morris Creek	9	1	9
2-BeaverPond	8	2	16
3-Marsh Woods	3	3	15
4-Shooting Range/Trails	10	1.5	15
Total			55

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Table 2. Survey Effort per Site 15 May

Survey Site	No. of Surveyors	Hours	Estimated Person Hours
1-Bubba's Trail/Morris Creek	1	0.5	0.5
2-Beaver Pond	8	3	24
5-Allen Tract	11	5.5	60.5
6-Tributary to Chickahominy River	6	2.5	15
Total			100

Results

During the two day survey a total of 31 species were captured or positively identified, including 13 Amphibians and 18 Reptiles. The survey produced a total of nine anuran, four salamander, nine snake, six turtle and three lizard species. A total of 208 animals were captured or positively identified. However, only two of a potential twelve Charles County species with VDGIF conservation status tier I-IV were found. One new Charles City County record was documented (*Plestiodon laticeps*). Anurans were the most prominent animals captured or observed with 122 animals positively identified. Snakes were the most prominent reptiles with 33 animals positively identified. Table 3 summarizes the results for both survey dates. There may be some redundancy in reporting for Site-2 as this site was surveyed on both days.

Table 3. Number of each species found, per Site CWMA.

Site/Species	1	2	2	3	4	5	6	Total
		5/1	5/15					
Class Amphibia								
Anuran Species								
<i>Acris crepitans & Acris gryllus</i>		23	20	12		2	5	62
<i>Anaryxus a. americanus</i>		1	1		14	1	2	5
<i>Anaryxus fowleri</i>	4	3				12	1	34
<i>Hyla chrysoscelis</i>					1			1
<i>Hyla cinerea</i>						7	1	8
<i>Lithobates clamitans</i>		1	1			4	2	8
<i>Lithobates sphenoccephalus</i>				2		1	1	4
<i>Pseudacris crucifer</i>					CM			CM
Total Anurans	4	28	22	14		27	12	122

Salamander species								
<i>Ambystoma opacum</i>	1		1	2			1	5
<i>Notophthalmus v. virdescens</i>				1				1
<i>Plethodon chlorobryonis</i>		1						2
<i>Plethodon cylindraceus</i>							1	
Total Salamanders	1	1	1	3			2	8
Total Amphibians	5	29	23	17		27	14	130
Class Reptilia								
Snake Species								
<i>Agkistrodon contortrix mokasen</i>	3							3
<i>Carphopis a. amoenus</i>	2	2	1	1		1	2	9
<i>Coluber c. constrictor</i>	2					8	2	11
<i>Diadophis punctatus edwardsi</i>		1						1
<i>Heterdon platirhinos</i>						1		1
<i>Lampropeltis getula</i>	1							1
<i>Nerodia s. sipedon</i>							1	1
<i>Pantheraphis alleghaniensis</i>						3		3
<i>Storeria d. dekayi</i>						3		3
Total Snakes	8	3	1	1		16	4	33
Turtle species								
<i>Chelydra serpentina</i>			1					1
<i>Chrysemys p. picta</i>	1		1					2
<i>Kinosternon s. subrubrum</i>			2			1		3
<i>Pseudemys rubriventris</i>	1							1
<i>Sternotherus odoratus</i>		2						2
<i>Terrapene c. carolina</i>			4	2		9	2	19
Total Turtles	2	2	8	2		10	2	28
Lizard Species								
<i>Plestiodon fasciatus</i>	1	2	1	1		1		6
<i>Plestiodon laticeps</i>						1		1
<i>Scincella lateralis</i>	1	2				6	1	10
Total Lizards	2	4	1	1		8	1	17
Total Reptiles	12	9	10	4		34	7	78

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Key								
Site-1-“Bubba”s Trail”/Morris Creek								
Site-2-Beaver Pond (5/1 & 5/15).								
Site-3-Marsh/Woods								
Site-4-Shooting Range/Trails								
Site-5-Allen Tract								
Site-6-Tributary to Chickahominy River								

Annotated Checklist

Amphibians

1. *Acris crepitans* & *Acris gryllus* (Eastern Cricket Frog and Southern Cricket Frog) Sixty-two cricket frogs were observed throughout the survey. In addition, there were many calling males, especially within Sites-2 & 3. Eastern Cricket Frogs were positively identified within both Sites-2 & 3. Southern Cricket Frogs were heard calling near the beaver pond within Site-2 on 15 May. There is no previous record of Southern Cricket Frogs in Charles City County. However, a digital recording will be required for verification, which was not possible during the surveys. Forty-three cricket frogs were found in the vicinity of the beaver pond within Site-2. Most of the survey participants were unable to visually distinguish between *Acris crepitans* & *Acris gryllus*, hence a combined species count is reported in Table 3. Most of the cricket frogs were adults and were located in the leaf litter, hopping about or on the edge of the beaver pond. Twelve adult cricket frogs were found within leaf litter at Site-3. Two cricket frogs were observed in a moist grassy area within Site-5 and five adults were observed in reedy marshy habitats within Site-6. No injuries or deformations were reported.

2. *Anaxyrus a. americanus* (American Toad) Five American Toads were positively identified during the survey. An adult American Toad was captured on the pathway of “Bubba’s Trail” within Site-1. Another adult American Toad was found under a log near the beaver pond within Site-2. One adult American Toad was found near the road within Site-5. One adult and one juvenile American Toad were found hopping on the ground in the wooded section of Site-6. All of the specimens encountered appeared to be healthy.

3. *Anaxyrus fowleri* (Fowler’s Toad) Thirty-four Fowler’s Toads were observed during the survey. Four adult Fowler’s Toads were captured along “Bubba’s Trail” within Site-1. Three adult Fowler’s Toads were under and beside logs near the beaver pond within Site-2. After a period of heavy rain two adult Fowler’s Toads were found under boards behind the shooting range and twelve juvenile and sub-adult Fowler’s Toads were observed on the trails from the shooting range to the bluffs overlooking the Chickahominy River within Site-4. Ten of these toads were hopping on the trails and two were sitting at the base of trees. No injuries or deformations were reported.

4. *Hyla chrysoscelis* (Cope’s Gray Treefrog) An adult Cope’s Gray Treefrog was heard in the woods near the trail from the shooting range to the bluffs overlooking the Chickahominy River

within Site-4.

5. *Hyla cinerea* (Green Treefrog) Seven Green Treefrogs were heard calling or observed from a reedy/marshy area along the road within Site-5. One adult was captured and photographed. One sub-adult Green Treefrog was captured and photographed in a reedy and marshy habitat within Site-6.

6. *Lithobates clamitans* (Green Frog) Eight Green Frogs were observed during the survey. An adult Green Frog was captured under a log near the beaver pond and one adult male could be heard calling from the beaver pond within Site-2. Four adult Green Frogs were observed along the road and field edges within Site-5. One juvenile Green Frog (with a tail) was captured with a dip net from a puddle and one male could be heard calling from the marsh within Site-6. The captured animals appeared to be healthy.

7. *Lithobates sphenoccephalus* (Southern Leopard Frog) Four Southern Leopard Frogs were encountered during the survey. Two neonate Southern Leopard Frog tadpoles were observed and photographed in a vernal pool within Site-3. One Southern Leopard Frog was observed in a puddle within Site-5 and one adult Southern Leopard Frog was captured with a dip net from the creek in Site-6 and was photographed. The captured specimens appeared to be healthy.

8. *Pseudacris crucifer* (Spring Peeper) Male Spring Peepers could be heard calling from the wooded area, after a heavy rainstorm, east and southeast from the shooting range within Site-4.

9. *Ambystoma opacum* (Marbled Salamander) Five Marbled Salamanders were positively identified during the survey. One recently metamorphed specimen was found at Site-1 alongside an almost-dry puddle. One adult was observed in a log along a wooded trail south of the beaver pond within Site-2. One adult and one sub-adult were observed under logs along a wooded trail within Site-3. One sub-adult was found under a log on a dry wooded hillside within Site-6. All of the Marbled Salamanders appeared to be healthy and several were photographed.

10. *Notophthalmus v. viridescens* (Red-spotted Newt) One adult specimen was captured using a dip net from a large mud puddle alongside a wooded trail within Site-3. The Red-spotted Newt appeared to be healthy and was photographed.



11. *Plethodon chlorobryonis* (Atlantic Coast Slimy Salamander) One adult Atlantic Coast Slimy Salamander was observed during the survey. This adult was captured on the west side of the beaver pond within Site-2. It was photographed and appeared to be healthy.

12. *Plethodon cylindraceus* (White-spotted Slimy Salamander) One juvenile White-spotted Slimy Salamander was found under a log on a dry wooded hillside within Site-6 and was photographed. This specimen appeared to be healthy.

Reptiles

13. *Agkistrodon contortrix mokasen* (Northern Copperhead) Three adult Northern Copperheads, two females and one male, were encountered near Bubba's Trail within Site-1. All were found under tin metal sheets in the woods near a sawdust pile. One of the Northern Copperheads was under a tin metal sheet along with an Eastern Kingsnake and a Common Five-lined Skink. All of the Northern Copperheads appeared to be healthy.

14. *Carphophis a. amoneus* (Eastern Wormsnake) Nine adult Eastern Wormsnakes were found during the survey. Two adult Eastern Wormsnakes were captured from overturned logs along Bubba's Trail within Site-1. Three adult Eastern Wormsnakes were captured and photographed in the woods surrounding the beaver pond within Site-2. Two were under logs and one gravid female was under bark. One adult Eastern Wormsnake was captured under bark within Site-3. One adult Eastern Wormsnake was observed near the banks of the Chickahominy River within

Site-5 and two adult Eastern Wormsnakes were captured from under logs on hillsides within Site-6. All of the Eastern Wormsnakes appeared to be healthy.

15. *Coluber c. constrictor* (Northern Black Racer) Eleven Northern Black Racers were observed during the survey. Two adult Northern Black Racers were captured under tin metal sheets along Bubba's Trail within Site-1 and were photographed. Eight adult Northern Black Racers were observed in the fields and woods within Site-5. One of these eight observed individuals had some evident deformations. One large adult was captured in marsh grass alongside the creek within Site-6 and was photographed. All but the one aforementioned Northern Black Racer appeared to be healthy.

16. *Diadophis punctatus edwardsii* (Northern Ring-necked Snake) A healthy adult Northern Ring-necked Snake was captured under bark near the beaver pond within Site-2 and was photographed.

17. *Heterodon platyrhinos* (Eastern Hog-nosed Snake) A brightly patterned adult Eastern Hog-nosed Snake was captured crossing the road within Site-5. The snake was photographed and appeared to be healthy.



18. *Lampropeltis getula* (Eastern Kingsnake) An Eastern Kingsnake was found under a metal tin sheet near Bubba's Trail within Site-1. This specimen was captured and photographed and had some possible minor head scale issues. A Northern Copperhead and Common Five-lined Skink were also present under the same metal sheet.

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19. *Nerodia s. sipedon* (Northern Watersnake) A juvenile Northern Watersnake was observed basking on a branch alongside the creek within Site-6. The snake was captured, photographed and appeared to be healthy.

20. *Pantherophis alleghaniensis* (Eastern Ratsnake) Three adult Eastern Ratsnakes were observed along a wet field edge within Site-5. Two were captured and there was a small scar on one of the specimens. The third Eastern Ratsnake was photographed constricting and consuming an Eastern Cottontail Rabbit.



21.

21. *Storeria d. dekayi* (Northern Brownsnake) Three adult Northern Brownsnakes were found under logs in a wooded area within Site-5. All were captured, photographed and appeared to be healthy.

22. *Chelydra serpentina* (Snapping Turtle). The carapace of a deceased sub-adult Snapping Turtle was found at the base of hollowed-out section of a hardwood tree near the east end of the beaver pond within Site-2.

23. *Chrysemis p. picta* (Eastern Painted Turtle) Two adult Eastern Painted Turtles were observed basking. One was observed during the late afternoon of 14 May (~16:15 hr) on an angular log/tree stump in the middle of Morris Creek within Site-1. Skies were clear and sunny and the temperature was about 26°C. Another adult Eastern Painted Turtle was observed basking on a log in the beaver pond within Site-2.

24. *Kinosternon s. subrubrum* (Eastern Mud Turtle) Two adult Eastern Mud Turtles and the shell remnants of a juvenile Eastern Mud Turtle were found during the survey. One of the healthy adults was found on the trail south of the beaver pond within Site-2 and was captured and photographed. The complete shell of the deceased juvenile was found under a log on the east side of the beaver pond and the hinge on the plastron was still functional. The other adult Eastern Mud Turtle was observed within Site-5 alongside the Chickahominy River.

25. *Pseudemys rubriventris* (Northern Red-bellied Cooter). An adult Northern Red-bellied Cooter was observed basking on the same angular log/tree stump in the middle of Morris Creek within Site-1 at the same time as the Eastern Painted Turtle noted above.

26. *Sternotherus odoratus* (Eastern Musk Turtle). Two adult Eastern Musk Turtles were captured on the ground and next to logs near the beaver pond within Site-2. Each specimen appeared healthy and one was photographed.

27. *Terrapene c. carolina* (Woodland Box Turtle) A total of nineteen box turtle observations, including adults, a juvenile and the remnants of deceased turtles, were made during the survey. Two healthy adult Woodland Box Turtles were found in leaf litter on the north side of the beaver pond and two faded carapace remnants of deceased Woodland Box Turtles were found on the east side edge of the beaver pond within Site- 2. Within Site-3, one healthy juvenile Woodland Box Turtle was captured on the forest floor and was photographed. The carapace remains of a deceased adult Woodland Box was found in muck near the marsh. Two healthy adult Woodland Box Turtles were captured on a trail and in the woods just south of the shooting range within Site-4. Nine adult Woodland Box Turtles, four females and five males, were captured in the fields along the road within Site-5. Almost all were healthy, except for one that had some shell damage. One healthy adult male Woodland Box turtle was captured and photographed in the leaf litter on a mixed hardwood hillside and the faded carapace of a deceased adult was located nearby within Site-6.

28. *Plestiodon fasciatus* (Common Five-lined Skink) Six Common Five-lined Skinks were encountered during the survey. One adult Common Five-lined Skink was observed under a tin metal sheet (along with a Northern Copperhead and an Eastern Kingsnake) near Bubba's Trail within Site-1. Three juvenile Common Five-lined Skinks were captured and photographed within Site-2. These were found on a log, under bark and at the swamp edge. One juvenile Common Five-lined Skink was observed under bark within Site-3 and one juvenile was found in the fields within Site-5.

29. *Plestiodon laticeps* (Broad-headed Skink) An adult female Broad-headed Skink was captured on a tree near the road within Site-5. The skink appeared healthy and was photographed. This is first Broad-headed Skink documented for Charles City County.



30. *Scincella lateralis* (Little Brown Skink) Ten Little Brown Skinks were found during the survey. An adult Little Brown Skink was captured from under a tin metal sheet near Bubba's Trail within Site-1 and was photographed. Two adult Little Brown Skinks were captured under logs near the beaver pond within Site-2. Three adult Little Brown Skinks were observed in the woods and three juvenile Little Brown Skinks were observed near the Chickahominy River within Site-5. One adult Little Brown Skink was observed in pine needles within Site-6.

Discussion

During the two day survey of CWMA, the VHS survey groups positively identified 208 specimens representing thirty one species (Table 3). There were thirteen species of amphibians (nine frogs and four salamanders) and eighteen species of reptiles (nine snakes, six turtles and three lizards). Twenty nine of the thirty one species encountered had been previously documented for Charles City County. One new county record, *Plestiodon laticeps* (Broad-headed Skink) was documented. *Plestiodon laticeps* had previously been documented in counties to the east, south and west of Charles City County. Males of a second undocumented species, *Acris gryllus*, were heard calling from within Site-2, near the beaver pond but the calls were not recorded, so no voucher is available.

There were two tiered species captured and photographed; *Heterodon platirhinos* (Eastern Hog-nosed Snake) and *Terapene c. carolina* (Woodland Box Turtle). *Heterodon platirhinos* has a VDGIF Tier IV status, meaning moderate conservation need. This species may be rare in parts of its range, particularly on the periphery. Populations of this species have demonstrated a significantly declining trend or one is suspected which is likely to qualify this species for a higher tier in the foreseeable future. Long term planning is necessary to stabilize or increase

populations. During the survey one brightly patterned specimen was captured and photographed. Populations of *Heterodon platirhinos* were previously known to be present in CWMA, although most sightings by CWMA management are of the black color phase. *Terapene c. carolina* has a VDGIF Tier III status, meaning high conservation need. VDGIF has identified habitat loss and fragmentation, highway mortality and illegal collection for the pet trade as the primary threats to this species. Disease may be an emerging threat, particularly in suburban areas. Despite its Tier III status, *Terapene c. carolina* was the most frequently observed reptile during the survey. Fifteen living individuals were captured during the survey and were found at all survey sites except Site-1. The carapace remains of four adults were found at Site-2 (two), Site-3 (one) and Site-6 (one). All carapace remains were substantially faded, indicative that mortality was not recent.

Nine other species with VDGIF conservation status Tier IV –II had previously been documented for Charles City County, but were not observed during the survey. These are *Cemophora coccinea copei* (Northern Scarletsnake), *Clemmys guttata* (Spotted Turtle), *Farancia a. abacura* (Eastern Mudsnake), *Farancia e. erytrogamma* (Common Rainbow Snake), *Malaclemys t. terrapin* (Northern Diamond-backed Terrapin), *Pseudotriton m. montanus* (Eastern Mud Salamander), *Scaphiopus holbrookii* (Eastern Spadefoot), *Siren lacertina* (Greater Siren) and *Thamnophis s. sauritus* (Common Ribbonsnake). At least one of these species *Clemmys guttata* is known to be present within CWMA. A substantial effort was made to locate *Clemmys guttata*. Three hoop turtle traps, baited with sardines, were positioned in marsh habitat within Site-1 (two) and Site-3 (one) that appeared suitable for *Clemmys guttata*. In addition, 15 person hours were spent at Site-3, which is not far from where CWMA management observed *Clemmys guttata* in the past. However, no specimens were found during the survey.

The VHS previously surveyed CWMA from 6 to 8 July 2007. Weather conditions were hot and dry on those survey dates with maximum temperatures of 32°C, 35°C and 36°C on each successive day. This compares with the 2016 surveys where the maximum temperatures were 17°C on 1 May, amid overcast skies and a period of heavy rain, 19°C on 15 May under dry and sunny conditions and 26°C at 16:00h on 14 May under sunny skies. There was substantial overlap in the areas surveyed with exceptions of 2007 Site-C2, the area south and southwest of Morris Creek, which was not surveyed in 2016 and the 2016 Site-6, the tributary and marsh flowing northeast to the Chickahominy River was not surveyed in 2007.

Despite the contrast in weather conditions seventeen species were found in both the CWMA portion of the 2007 survey and the 2016 surveys. These include among amphibians: *Acris crepitans*, *Anaxyrus a. americanus*, *Anaxyrus fowleri*, *Hyla chrysoscelis*, *Lithobates clamitans*, *Lithobates sphenoccephalus*, *Pseudacris crucifer* and *Plethodon chlorobryonis* and among reptiles: *Carphophis a. amoenus*, *Coluber c. constrictor*, *Nerodia s. sipedon*, *Pantherophis alleghaniensis*, *Storeria d. dekayi*, *Pseudemys rubriventris*, *Sternotherus odoratus*, *Terapene c. carolina* and *Plestiodon fasciatus*.

Six species were observed in 2007 that were not found in 2016. These include among amphibians: *Gastrophryne carolinensis* (Eastern Narrow-mouthed Toad), *Lithobates catesbeianus* (American Bullfrog), *Eurycea cirrigera* (Southern Two-lined Salamander) and *Hemidactylium scutatum* (Four-toed Salamander) and among reptiles: *Pseudemys concinna* (Eastern River Cooter) and *Sceloporus undulates* (Eastern Fence Lizard).

Fourteen species were observed in 2016 that were not found in 2007. These include among amphibians: *Acris gryllus*, *Hyla cinerea*, *Ambystoma opacum*, *Notophthalmus v. viridescens*

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and *Plethodon cylindraceus* and among reptiles: *Agkistrodon contortrix mokasen*, *Diadophis punctatus edwardsii*, *Heterodon platirhinos*, *Lampropeltis getula*, *Chelydra serpentina*, *Chrysemys p. picta*, *Kinosternon s. subrubrum*, *Plestiodon laciteps* and *Scincella lateralis*.

The combined results of the 2007 and 2016 documented thirty seven species within CWMA, including seventeen species of amphibians and twenty species of reptiles.

On the morning of 1 May, one of the survey teams discovered *Agkistrodon contortrix mokasen*, *Lampropeltis getula* (specimen depicted below) and *Plestiodon fasciatus* under the same tin metal sheet in close proximity to each other. It is not known if species proximity is habitual among potential prey and predators. Linzey and Mitchell (1981) published a report of two *Diadophis punctatus edwardsii* and one *Thamnophis s. sirtalis* (Eastern Garter Snake) under the same rock as a *Lampropeltis t. triangulum* (Eastern Milksnake) in Shenandoah National Park.



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Acknowledgements

1 May Survey Participants: Craig Abbott, Travis Anthony, Robert Frezza, Rosemary Frezza, David Garst, Mark Khosravi, Brian Kim, Mitchell Kim, Dave Perry Jason Rose, Yohn Sutton, David Van Gelder and Susan Watson.



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15 May Survey Participants: Travis Anthony, Justin Apfel, Tim Bova, Maddy Dunn, David Garst, Caleb Gowin, Jacob Hinton, Julie Hinton, Wyatt Jamerson, Frank Knott IV, Karl Kratzer, Catey Lavagnino, Greg McGovern, Jade Mellor, Dave Perry, Ned Rose, Yohn Sutton, David Van Gelder and Susan Watson.



Special thanks to David Garst, Supervisor of CWMA and VADGIF for permitting these surveys, to the editorial reviewers of this document, and to David Garst for assistance with the creation of Figure 1.