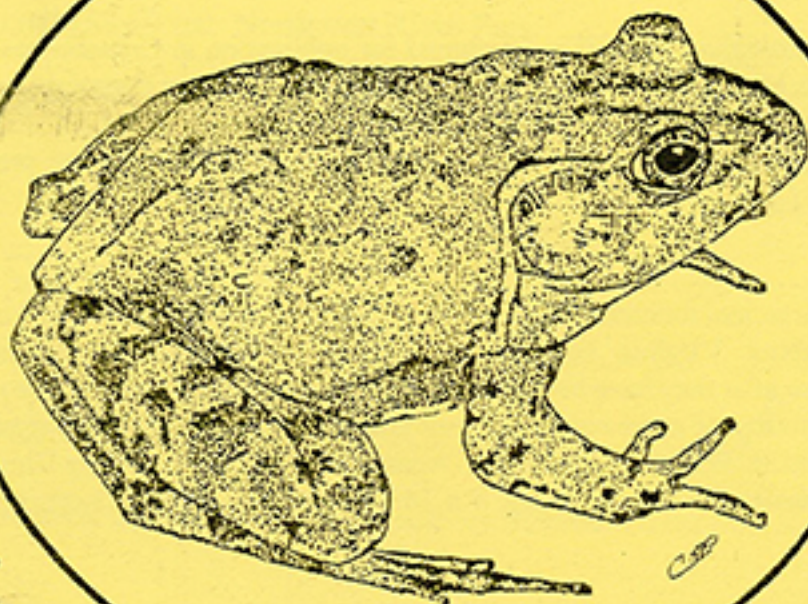


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BULLETIN INFORMATION

Catesbeiana is published twice a year by the Virginia Herpetological Society. Membership is open to all individuals interested in the study of amphibians and reptiles and includes a subscription to *Catesbeiana*, two newsletters, and admission to all meetings. Annual dues for regular membership are \$15.00 (see application form on last page for other membership categories). Payments received after September 1 of any given year will apply to membership for the following calendar year. See the last page of this issue for a membership application/renewal form.

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Manuscripts for consideration of publication in *Catesbeiana* should be double-spaced and submitted to the Editor electronically or typewritten on good quality 8½ by 11 inch paper, with adequate margins. Consult the style of articles in this issue for additional information, including the appropriate format for literature citations. The metric system should be used for reporting all types of measurement data. Computer diskettes or email attachments in Word or WordPerfect format are desired for all papers. Submissions concerning the herpetofauna of selected areas, such as a park, city or county, should be prepared in article rather than field note format. Articles will be refereed by the editor and one or more qualified reviewers. All changes must be approved by the author before publication; therefore, manuscripts must be received by the editor before **March 1** and **September 1** to be considered for publication in the spring and fall issue, respectively, of *Catesbeiana*. Reprints of articles are not available, but authors may reprint their own articles to meet professional needs.

(Editorial policy continued on inside back cover)

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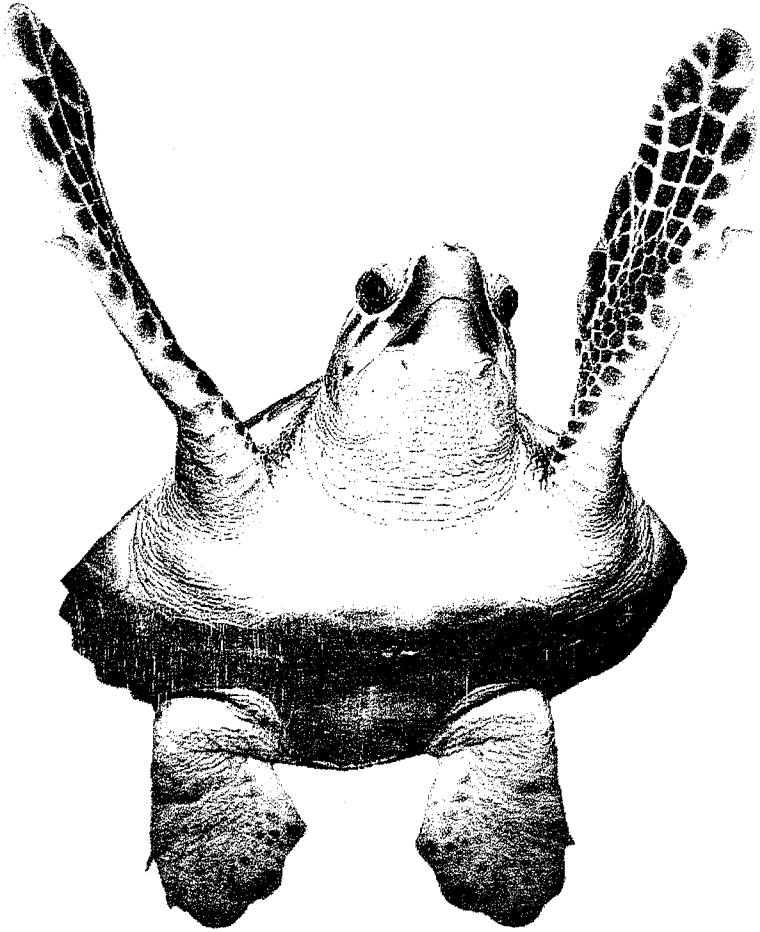
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Next Meeting

May 1-3, 2009

Occoneechee State Park

See Web page (<http://fwie.fw.vt.edu/VHS>) for details



Second Annual HerpBlitz: Northwest River Park

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Introduction

The second annual HerpBlitz was held on 8-10 June 2007 at Northwest River Park in the City of Chesapeake (see Fig.1 for survey site locations). In addition, during this HerpBlitz, one survey team visited Cavalier Wildlife Management Area, a newly established wildlife management area near the park (see Fig. 2. for survey site locations). The first annual HerpBlitz was held in the piedmont of Virginia and so this year a site in the coastal plain was selected. Northwest River Park is in the extreme southeast of Virginia and was selected because of the possibility of finding species with a more austral (southern) biogeographical range. The park is also known for containing all three species of venomous snakes found in Virginia. This region is not unknown to the VHS; several past surveys have been conducted at the Great Dismal Swamp and the Naval Security Group Activity Northwest (Pinder, 1998). Viewed from Google Earth, this park is an island of mature southeastern evergreen forest surrounded by farm land and the beginnings of suburban sprawl. It is obvious also that this park lies within the Northwest River corridor leading to the dismal swamp. Northwest River Park is located 20 km east of the Great Dismal Swamp and 2.3 km north of the North Carolina-Virginia border. The park is bordered on the north by Indian Creek Road, Smith Creek on the east, Indian Creek on the west, and the Northwest River on the south. NRP was opened to the public in 1976. The park contains 309 hectares and miles of hiking and bike trails. The natural history of this park has not been studied extensively. In 1981 Gissla Grimm produced a list of native and naturalized plants found in the park. In the 1990s Rebecca Bray, a botanist at Old Dominion University, did some botanical surveys associated with

a Timber Rattlesnake study conducted by Dr. Alan Savitsky. During this study, which ended abruptly due to misunderstanding with local landowners, some herp inventory work was conducted by Dr. Savitsky and his graduate student Chris Peterson. Gary Williamson, the chief ranger in the 1990s, was very involved with educating the public about snakes. He especially enjoyed Timber Rattlesnakes. At one time he held the record for finding the largest rattlesnake in Virginia. For the past 15 years Dr. Dean Bohon has conducted botanical and informal herpetological inventory work. Recently a fragrance garden was named in his honor for the years of service spent educating the public on the biodiversity of the park.

Study Sites

Site 1: Shuttle Trail to end of Marjorie Rein Memorial Walkway (36°34'50.50"N, 76° 9'7.26"W) (ST)

On the night of 8 June a small group of VHS members hiked down the shuttle trail to the end of Marjorie Rein Memorial Walkway. The shuttle trail is a rock gravel road leading from the park office to the Northwest River; it is approximately 2 km long. The trail is surrounded by mature forest with a lot of *Arundinaria gigantea* (Giant Cane) covering the forest floor to about waist high. The Marjorie Rein Memorial Walkway is a salt treated wooden walkway which extends out over a swamp terminating at the Northwest River. It is 0.4 km in length.

Site 2: Indian Creek Trail (36°34'48.62"N, 76° 9'49.29"W) (ICT)

Indian Creek Trail was surveyed on 9 June. This 4 km long trail is defined by a mature forest consisting of *Carya sp.* (Hickory), *Acer rubrum* (Red Maple), *Liriodendron tulipifera* (Tulip Poplar), *Ostrya virginiana* (Hophornbeam), *Carpinus caroliniana* (Ironwood), *Quercus michauxii* (Swamp Chesnut Oak), *Quercus alba* (White Oak), *Quercus pagoda* (Cherrybark Oak) and a shrub layer of *Arundinaria gigantea*. An ancient Bald Cypress swamp forest exists at the interface of this trail and Indian Creek. Many pits can be observed in this area, which are remnants for dugouts used in making illegal alcohol.

Northwest River Park HerpBlitz

Site 3: Molly Mitchell Trail (Saturday) (36°34'41.54"N, 76° 8'53.85"W) (MMT)

This trail was surveyed on Saturday 9 June. Molly Mitchell Trail is 2.4 km long. It snakes through a swampy area. The high parts consist of a hardwood forest dominated by species such as: *Carya* sp. (Hickory), *Acer rubrum* (Red Maple), *Liriodendron tulipifera* (Tulip Poplar), *Ostrya virginiana* (Hophornbeam), *Carpinus caroliniana* (Ironwood), *Quercus michuxii* (Swamp Chesnut Oak), *Quercus alba* (White Oak), *Quercus pagoda* (Cherrybark Oak) and a shrub layer of *Vaccinium corymbosum* (Highbush Blueberry), and *Stewartia malacodendron* (Silky Camellia). The swampy portions mainly support stands of *Taxodium distichum* (Bald Cypress) and *Smilax laurifolia* (Laurel Greenbrier).

Site 4: Deer Island Trail (36°34'53.34"N, 76° 9'18.59"W) (DIT)

The Deer Island Trail was surveyed briefly on 9 June. Only the portion of the trail from the campground to the bridge was searched. This trail is 1.2 km and crosses a 12 hectare lake. A large observation bridge was constructed by Dominion Power. The portion of the trail surveyed has a forest of mostly *Pinus taeda* (Loblolly Pine) and various oaks including *Quercus stellata* (Post Oak), *Quercus alba*, *Quercus pagoda*, and *Quercus michuxii*. The pine in this area are ridden with bark beetles and will be removed in the near future.

Site 5: Lake – Northwest River border – Indian Creek Border (36°34'25.50"N, 76° 9'29.25"W)

Site 5 was surveyed by a team of three canoes on 9 June. Canoes were launched at the park headquarters. This team canoed the length of the 12 hectare lake then carried the canoes a short distance to the Northwest River. The Northwest River was followed until Indian Creek was reached. A portion of Indian Creek was canoed. The lake is a man-made lake. *Salix caroliniana* (Carolina Willow), *Juniperus virginiana* (Easter Red Cedar), *Quercus alba*, and *Albizia julibrissin* (Mimosa) are the dominant species of trees along the bank of the lake. *Taxodium distichum* dominates the shore along the Northwest River and Indian Creek.

Site 6: Smith Creek (36°34'36.40"N, 76° 8'32.60"W) (SC)

One canoe team of three people paddled Smith Creek on Sunday 10 June. Along the banks of Smith Creek the dominant plants were: *Taxodium distichum*, *Nyssa aquatica* (Water Tulepo), *Nyssa sylvatica* (Black Gum), *Nyssa biflora* (Swamp Tulepo), *Peltandra virginica* (Arrow Arum), *Iris virginica* (Southern Blue Flag Iris), *Pontederia cordata* (Pickerel Weed), *Osmunda regalis* (Royal fern), *Toxicodendron radicans* (Poison Ivy), and *Viburnum nudum* (Southern Wild Raison).

Site 7: Molly Mitchell Meadow and pond (36°35'2.58"N, 76° 8'55.40"W)

Molly Mitchell Meadow is a grass field maintained by mowing, containing a picnic area, playground, and a large pond. *Salix caroliniana* is the dominant tree species at the margin of the pond. Three hoop turtle traps were set in the pond on the night of 8 June and checked on the morning of 9 June.

Site 8: Smith Creek adjacent to Otter Point Trail (36°34'27.49"N, 76° 9'8.26"W)

Two turtle traps were set on the night of 8 June in Smith Creek using Otter Point Trail as an access point. The traps were positioned by a nature observation deck. *Taxodium distichum* is the dominant tree species in the water and *Typha sp.* (Cattails) was very thick. The traps were checked on 9 June.

Site 9: Lake by Wood Duck Slough Trail and Otter Point Trail (36°34'30.54"N, 76° 9'12.02"W)

Three turtle traps were set in a section of the 12 hectare lake adjacent to the Wood Duck Slough Trail and Otter Point Trail. The traps were set on June 8 and checked on June 9.

Site 10: Molly Mitchell Trail (Sunday)

This trail was visited a second time on June 10. (See Site #3 for a description of this site)

Site 11: Cavalier Wildlife Management Area (36°35'47.49"N, 76°19'56.53"W) (CWMA)

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CWMA is one of Virginia's newest wildlife management areas. This property was once part of the Dismal Swamp, but was ditched and drained to create agricultural land. The Management Area is 1,538 hectares and mostly agricultural with several hundred acres of planted pine trees. The property hosts long drainage canals the entire length of the property.

Site 12: Lake Drummond Causeway Road – (36°36'34.31"N, 76°19'32.68"W) (LDCR)

While doing a preliminary investigation of the CWMA several surveyors explored the canals along LDCR. This site was explored during the day on June 8 and the road was cruised the same night. The property was additionally surveyed the night of 9 June. Several signs on trees on the west side of the road indicated that some of the land was owned by The Nature Conservancy.

Materials and Methods

The second annual HerpBlitz was conducted on 8-10 June 2007, with the ninth the main day for the survey. On 8 June several members scouted sites at LDCR, CWMA, and NRP. On 8 June a night hike took place on the ST at NRP. On 9 June VHS members met at a parking lot near the park headquarters at NRP then divided into groups and dispersed to various survey areas. One group went in canoes; other terrestrial teams went either to CWMA or stayed in NRP to survey various trails. On Saturday night several teams went out road cruising to different locations around Chesapeake. Table 1 documents the number of surveyors and amount of effort spent at each site. Collecting techniques included flipping logs and other cover objects, hand capture, visual encounters, baited hoop turtle traps, minnow traps, dipnetting, road cruising, and listening for calling anurans. All animals caught were inspected for injury, disease or deformity. Digital photos were taken of each species collected. Records of all observations were collected by each team leader then given to the authors for the final report.

Table 1: The amount of survey effort per research site.

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11
Number of hoop net sets							3	2	3		
Number of surveyors	18	9	8	11	7	3	3			8	7
Hours surveyed	2	4.5	3.5	1	4	2.3	.5			2	3
Person hours of survey effort	36	40.5	28	11	28	6.9	1.5			16	21

* Site 12 is not included because hours surveyed were not recorded.

Results

An amazing 40 species of reptiles and amphibians were found during the course of the three day survey. Of the 40 species, 11 were anurans, three were salamanders, eight were turtles, four were lizards, and 14 were snakes. No species found during the weekend were county records (Mitchell and Reay, 1999). *Trachemys scripta elegans* was the only introduced species found. Table 2 summarizes the species and number per species found at all 12 sites. An annotated checklist follows the table. Numbers in brackets indicated the survey sites where each species was found.

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Annotated Checklist

Amphibians

1. *Acris gryllus* (Southern Cricket Frog) - [12]
Southern Cricket frogs were heard calling on Friday and Saturday nights. Several were hand captured and photographed. Animals were caught in canal ditches along LDCR. Most animals were found on top of floating masses of vegetation.
2. *Anaxyrus fowleri* (Fowler's Toad) - [1,2,3]
Fowler's toads were found at three sites. Many metamorphs were observed at various locations.
3. *Anaxyrus terrestris* (Southern Toad) - [1,2,3,4,10,11]
This was the most commonly found anuran in NRP. It was found hiding under wood, foraging in leaf litter, and at night along the ST.
4. *Gastrophryne carolinensis* (Eastern Narrow-mouthed Toad) - [1,3]
Only one adult was hand captured during the survey. This adult was found hopping on MMT at a tree fall opening. Many calling males were heard along the Marjorie Rein Memorial Walkway on Friday night.
5. *Hyla chrysoscelis* (Cope's Gray Treefrog) - [1,2,3,4,6,7,11]
One adult was hand captured on a soda machine on Friday night. Bathrooms and soda machines are very productive places for many of the treefrogs. Calling males were heard at many locations.
6. *Hyla squirella* (Squirrel Treefrog) - [1,2,5,6,7,11]
Squirrel Treefrogs were found calling in multiple locations. Several males were found calling inside restrooms.
7. *Hyla cinerea* (Green Treefrog) - [1,12]
Calling males were found at only two sites during the survey weekend. Both sites had abundant water and *Typha sp.* (Cattails).
8. *Lithobates catesbeianus* (American Bullfrog) - [7,12]
The American Bullfrog was only heard calling at two sites. No live animals were hand captured.

9. *Lithobates clamitans* (Green Frog) – [1,2,3,4,5,6,7,10,11,12]

The most widely distributed Lithobatid frog species was the Green Frog. It was found at 10 of the 12 sites. This species was found in road rut puddles, by the shore of ponds, along the banks of the canal on the CWMA and canals along LDCR. Most animals discovered were heard calling.

10. *Lithobates sphenoccephalus* (Southern Leopard Frog) – [1,2,3,5,7,10,11,12]

Another commonly found frog was the Southern Leopard Frog. Many adult animals were hand captured and also heard calling.

11. *Pseudacris crucifer crucifer* (Northern Spring Peeper) – [2,10]

Metamorph spring peepers were found foraging in the woods along MMT. Four adults and one metamorph were found on ICT.

12. *Amphiuma means* (Two-toed Amphiuma) – [11]

A DOR Two-toed Amphiuma was discovered on the road in front of CWMA. With the many canals with road running parallel to them, road mortality may be a significant factor in the long-term survival of this species.

13. *Plethodon chlorobryonis* (Atlantic Coast Slimy Salamander) – [2,3,10]

Eleven total Slimy Salamanders were found during the weekend survey. All were found under logs in mature forested areas. One adult captured along MMT had a slightly truncated tail.

14. *Plethodon cinereus* (Red-backed Salamander) – [2]

Only one adult Red-backed Salamander was found at one site despite many hours of surveying during this HerpBlitz. It was discovered under a rotting log.

Reptiles

15. *Chelydra serpentina serpentina* (Eastern Snapping Turtle) – [7,9,11]

A total of five Eastern Snapping Turtles were captured in baited hoop turtle traps. One snapping turtle was observed swimming in a canal at CWMA on Friday.

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16. *Chrysemys picta picta* (Eastern Painted Turtle) – [5,6,7,9,11,12]
Twenty seven painted turtles were found at six sites during the survey weekend. Turtles were caught in traps and were observed either basking on logs or swimming.

17. *Kinosternon subrubrum subrubrum* (Eastern Mud Turtle) – [4]
One mud turtle was dipnetted in the main Lake at NRP at the intersection of DIT and the lake.

18. *Pseudemys rubriventris* (Northern Red-bellied Cooter) – [6,7,11]
Northern Red-bellied Cooters were observed swimming in Molly Mitchell Pond at site seven, basking on a log at site six and one female was observed nesting on CWMA on Friday.

19. *Sternotherus odoratus* (Eastern Musk Turtle) – [7]
Only one musk turtle was found during the whole weekend. It was caught in a baited hoop turtle trap at Site 7.

20. *Terrapene carolina carolina* (Eastern Box Turtle) – [2,3,10,11]
A total of nine Eastern Box Turtles were found. Of the nine, one shell was found (155 mm carapace length) along ICT and one male adult was found dead on MMT. Two females were found in the same form under logs on ICT (the carapace length for each female was 138 mm and 144 mm).

21. *Trachemys scripta scripta* (Slider) – [3,5,7,9,11,12]
Fifteen Sliders were observed basking, swimming, or caught in traps. Two turtles trapped in Molly Mitchell Meadow Pond were intergrades with the red-eared slider. One palpated female was found to be carrying eggs.

22. *Trachemys scripta elegans* (Red-eared Slider) – [12]
One Red-ear Slider was observed through binoculars at Site 12. It was basking on a log.

23. *Plestiodon fasciatus* (Five-lined Skink) – [2,3]
A total of seven Five-lined Skinks were caught at two sites. These animals were found under logs, on top of logs, and under pine bark.

24. *Plestiodon inexpectatus* (Southeastern Five-lined Skink) – [4]

One Southeastern Five-lined Skink was captured on a tree trunk on DIT.

25. *Plestiodon laticeps* (Broad-headed skink) – [3]

A single adult male was found in the hole of a rotted stump along MMT.

26. *Scincella lateralis* (Little Brown Skink) – [1,2,3,4,10]

The Little Brown Skink was the mostly commonly found species during the survey weekend. It was found under logs, in leaf litter while foraging, and under wood piles. One gravid female was observed and one adult had a truncated tail. In all, 56 animals were hand captured

27. *Agkistrodon contortrix mokasen* (Northern Copperhead) – [1]

One Northern Copperhead was found by hikers and shown to survey members. The animal was found coiled up beside the ST.

28. *Carphophis amoenus amoenus* (Eastern Wormsnake) – [2,4]

At two sites, a total of two Eastern Wormsnakes were found under logs.

29. *Coluber constrictor constrictor* (Northern Black Racer) – [2,3,11]

Adults of this species were observed basking in a tree fall opening along MMT, under logs piles, and on the road at CWMA. One skin was found draped over a log on MMT.

30. *Crotalus horridus horridus* (Timber Rattlesnake) -

NRP and CWMA are known to contain populations of Timber Rattlesnakes. None were found during the survey, highlighting either its excellent camouflage or bad timing on the part of the survey. One Timber Rattlesnake was found DOR 2.1 km east of the intersection of Bunch Walnut Road and Ballahack Road. Ballahack Road is a heavily trafficked road due to the presence of the Naval Security Group Activity Northwest.

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31. *Diadophis punctatus* (Ring-necked Snake) – [1,3,10]

Two adult Ring-necked Snakes were found under bark at Sites 3 and 10 and one adult was found during the night hike on the ST. One animal observed was recorded to have a broken neck band with spots on its venter.

32. *Heterodon platirhinos* (Eastern Hog-nosed Snake) -

One dead Eastern Hog-nosed Snake was found. The animal was found DOR, 5.16 km west of the entrance of NRP near railroad tracks.

33. *Lampropeltis getula* (Eastern Kingsnake) – [4]

One dead Eastern Kingsnake was found along DIT. Cause of death was not determined.

34. *Nerodia erythrogaster erythrogaster* (Red-bellied Watersnake) – [2,3,5,7]

In all six Red-bellied Watersnakes were found during the survey period. Snakes were found basking on the shore of the main Lake at NRP, swimming in Indian Creek, and foraging in the woods on ICT. One snake captured had the juvenile color pattern.

35. *Nerodia sipedon sipedon* (Northern Watersnake) – [1,11]

Nerodia sipedon were observed basking at Site 1 and along the canal at CWA.

36. *Nerodia taxispilota* (Brown Watersnake) – [5]

Two Brown Watersnakes were observed by the canoe teams surveying Site 5. Both animals were found basking in tree branches along the banks of Indian Creek. One was hand captured and photographed.

37. *Ophedryx aestivus* (Rough Greensnake) – [11]

Only one individual of this cryptic species was found. It was found DOR on the road in front of CWMA.

38. *Pantherophis alleghaniensis* (Eastern Ratsnake) – [1,3]

Two adult Eastern Ratsnakes were found at the official survey sites.

Both were found foraging. One DOR snake was found on Indian Creek Road, 0.96 km west of the intersection of Gallbush Raod and Indian Creek Road. Upon investigation, this snake was observed to have light longitudinal stripes extending the length of its body.

39. *Storeria dekayi dekayi* (Northern Brownsnake) -

The Northern Brownsnake was not found at any survey sites. One adult was found DOR 1.2 km east of the entrance of NRP on Indian Creek Road.

40. *Thamnophis sirtalis sirtalis* (Eastern Gartersnake) - [1,2,3,4]

Thamnophis sirtalis was the most numerous snake species found. In all seven individuals were hand captured. Most were found during the night hike along the ST.

Discussion

As stated by Hoffman (1987) a list of species for a given area is of nominal value. It is the ecological interpretation of the species composition which is most interesting. The VHS has been conducting surveys for many years and the purpose of these surveys is to be more than just species lists. Recently we have begun to document the relative abundance, number of survey hours spent at specific habitats with the number of individuals found, information about the sites surveyed (including habitat characteristics and specific GPS coordinates), and diseases/health status of the animals captured. It is the hope of the authors that these items continue to appear on future published survey reports. In addition, it is the hope that biogeographical interpretations will also be attempted. For this survey the authors will follow a modified form of Hoffman's biogeographical inferences outlined in his important work on Alleghany County (Hoffman, 1987). It is recommended that all future authors of species lists and surveys read and mimic Hoffman's four part series on the herpetofauna of Alleghany County (Hoffman 1985a; Hoffman 1985b; Hoffman 1986; Hoffman 1987). All surveys sites visited during the weekend lie within the Northwest River corridor extending to the Dismal Swamp. This area lies within the coastal physiographic plain and is 25 km from

Northwest River Park HerpBlitz

the ocean. These physical features of proximity to the ocean and type of soil sediments allow for a southeastern evergreen forest to flourish. Taken together the climate and unique flora allow for a fascinating mix of reptiles and amphibians to inhabit this area. When viewing physiographic maps and continental distribution maps of each species observed we have made some biogeographical inferences about the assemblage of species observed during this survey. All species were assigned to one of five groups. Species which have an austral orientation (southern orientation) but are not confined to the coastal plain included: *G. carolinensis*, *L. sphenoccephalus*, *K. subrubrum subrubrum*, *P. inexpectatus*, *P. laticeps*, *S. lateralis*, and *L. getula*. Species with distributions confined to the southern coastal plain were *A. gryllus*, *A. terrestris*, *H. cinerea*, *H. squirella*, *A. means*, *P. chlorobryonis*, *T. scripta* sp., *N. erythrogaster erythrogaster*, and *N. taxispilota*. *Pseudemys rubriventris* has a distribution only in the Mid-Atlantic region and in the coastal plain only and is placed in its own group. Many species have a wide distribution and are found statewide, including: *A. fowleri*, *P. crucifer crucifer*, *L. catesbeianus*, *L. clamitans*, *L. palustris*, *P. cinereus*, *C. serpentina serpentina*, *C. picta picta*, *S. odoratus*, *T. carolina carolina*, *P. fasciatus*, *A. contortrix mokasen*, *C. amoenus amoenus*, *C. constrictor constrictor*, *C. horridus*, *D. punctatus*, *H. platirrhinos*, *N. sipedon sipedon*, *O. aestivus*, *P. alleghaniensis*, *S. dekayi dekayi*, and *T. sirtalis sirtalis*. Two species, *H. chrysozelis* and *A. opacum*, do not have discernable biogeographic patterns the authors could infer and are put into a group of their own.

The species list compiled by the second author over the past 15 years is not inclusive of what could exist at NRP. The VHS only added one species to his list (see Table 3). Some species, despite considerable effort, are cryptic or fossorial and therefore unlikely to be observed. Species which could possibly be added to the NRP list would include *Bufo quercicus*, *Lithobates virgatipes*, *Scaphiopus holbrookii*, *Ambystoma mabeei*, *Desmognathus auriculatus*, *Notophthalmus viridescens viridescens*, *Siren lacertina*, *Stereochilus marginatus*, *Kinosternon baurii*, *Cemophora coccinea copei*, *Farancia abacura abacura*, *Farancia erytrogramma*

erythrogramma, *Lampropeltis triangulum triangulum*, *Storeria occipitomaculata occipitomaculata*, *Thamnopsis sauritus sauritus*, *Virginia striatula*, and *Virginia valeriae*. Many of these species have been documented either at nearby sites in Chesapeake, or adjoining counties and cities.

Despite our collection of hundreds of animals, no diseases were documented. This is not to say that disease does not occur in the park. Larger samples sizes of animals and collecting at different times of the year might yield different results. It is in the interest of the park to have managers and other employees trained to detect outbreaks of disease or at least to properly preserve dead animals to send off to experts studying diseases. This area, being a stopping point for birds during migration, could be a location for the spread of infectious diseases including BD and Ranviral infections. The park is heavily fished and disease could be introduced via fishing tackle or bait. Dead amphibians or reptiles should be preserved in 95% alcohol and sent to VHS member Joy Ware (jlware@vcu.edu) or the state veterinarian for investigation.

NRP and CWMA are important locations for building a protected corridor along the Northwest River to the Dismal Swamp. Over the next decades, more survey work will be needed at CWMA to document the repopulation of species as ecological succession converts farm land back into woodland. TNC, the State of Virginia, and the City of Chesapeake have seen value in preserving wild spaces for recreation and biodiversity preservation, but most of all for watershed protection. The majority of drinking water for the citizens of Chesapeake comes from the Northwest River. It is nice when wild areas needed for utilitarian purposes are preserved because it preserves the area for wildlife too.

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Table 3. Summary of species found at each major area.

Species	DBL NRP	HB NRP	CWM A	LDCR
Amphibians				
<i>Acris gryllus</i>				x
<i>Anaxyrus fowleri</i>		x		
<i>Anaxyrus terrestris</i>	x	x	x	
<i>Gastrophryne carolinensis</i>	x	x		
<i>Hyla chrysoscelis</i>	x	x		
<i>Hyla cinerea</i>	x	x		x
<i>Hyla femoralis</i>	x			
<i>Hyla squirella</i>	x	x	x	
<i>Pseudacris brimleyi</i>	x			
<i>Pseudacris crucifer crucifer</i>	x	x	x	
<i>Pseudacris ocularis</i>	x			
<i>Lithobates catesbeianus</i>	x	x		x
<i>Lithobates clamitans</i>	x	x	x	x
<i>Lithobates palustris</i>	x			
<i>Lithobates sphenoccephalus</i>	x	x	x	x
<i>Ambystoma opacum</i>	x			
<i>Amphiuma means</i>	x		x	
<i>Plethodon chlorobryonis</i>	x	x		
<i>Plethodon cinereus</i>	x	x		

Reptiles				
<i>Chelydra 16ndulates16 serpentina</i>	x	x	x	
<i>Chrysemys picta picta</i>	x	x	x	x
<i>Clemmys guttata</i>	x			
<i>Kinosternon subrubrum subrubrum</i>	x	x		
<i>Pseudemys rubriventris</i>	x	x	x	
<i>Sternotherus odoratus</i>	x	x		
<i>Terrapene 16ndulate carolina</i>	x	x	x	
<i>Trachemys scripta scripta</i>	x	x	x	x
<i>Trachemys scripta elegans</i>				x
<i>Plestiodon fasciatus</i>	x	x		
<i>Plestiodon inexpectatus</i>	x	x		
<i>Plestiodon laticeps</i>		x		
<i>Scincella lateralis</i>	x	x		
<i>Sceloporus 16ndulates hyacinthinus</i>	x			
<i>Agkistrodon contortrix mokasen</i>	x	x		
<i>Agkistrodon piscivorus piscivorus</i>	x			
<i>Carphophis amoenus amoenus</i>	x	x		
<i>Coluber constrictor constrictor</i>	x	x	x	
<i>Crotalus horridus horridus</i>	x			
<i>Diadophis punctatus</i>	x	x		
<i>Heterodon platirhinos</i>	x			
<i>Lampropeltis getula</i>	x	x		
<i>Nerodia erythrogaster erythrogaster</i>	x	x		
<i>Nerodia sipedon sipedon</i>	x	x	x	
<i>Nerodia taxispilota</i>	x	x		
<i>Ophedryx aestivus</i>	x	x	x	
<i>Pantherophis alleghaniensis</i>	x	x		
<i>Storeria dekayi dekayi</i>	x			
<i>Thamnophis sirtalis sirtalis</i>	x	x		

DBL NRP = Dean Bohon's List, HB NRP = HerpBlitz records

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Northwest River Park HerpBlitz

Paul Sattler helped a great deal during the survey and also helped assess the sites before the survey. We also gratefully acknowledge the work done by reviewers to improve the manuscript.

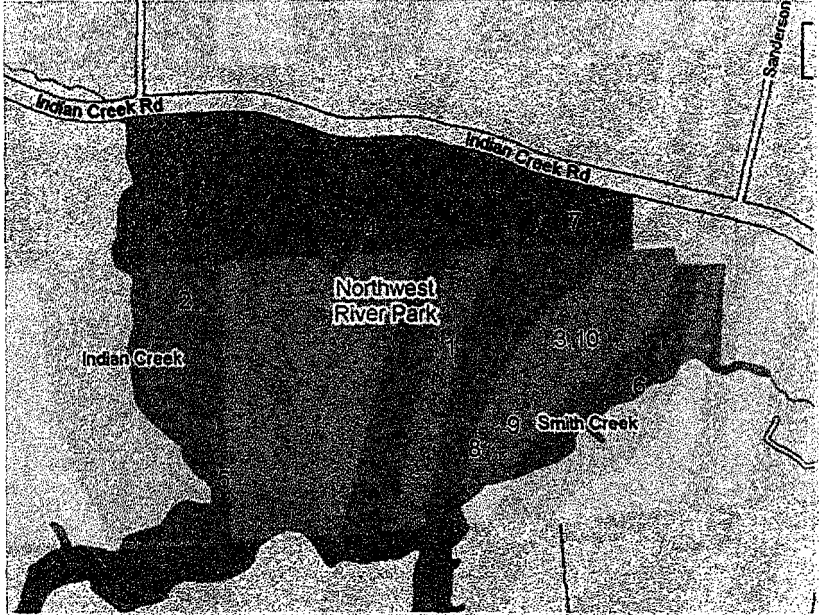


Figure 1. Survey site locations for Northwest River Park.

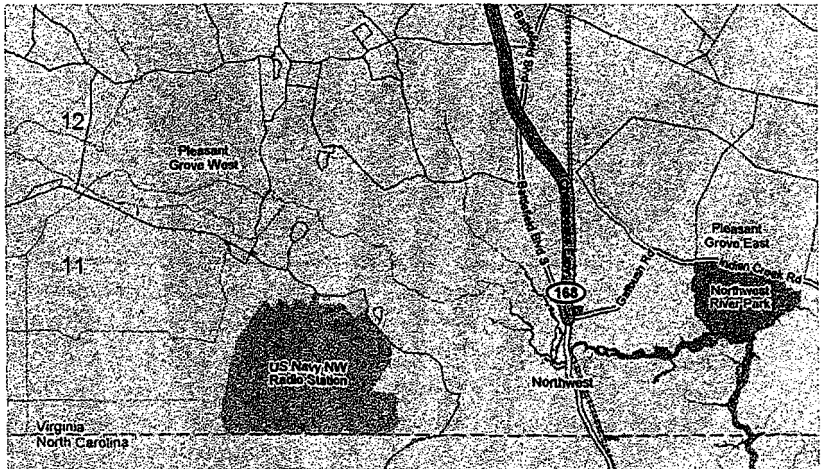
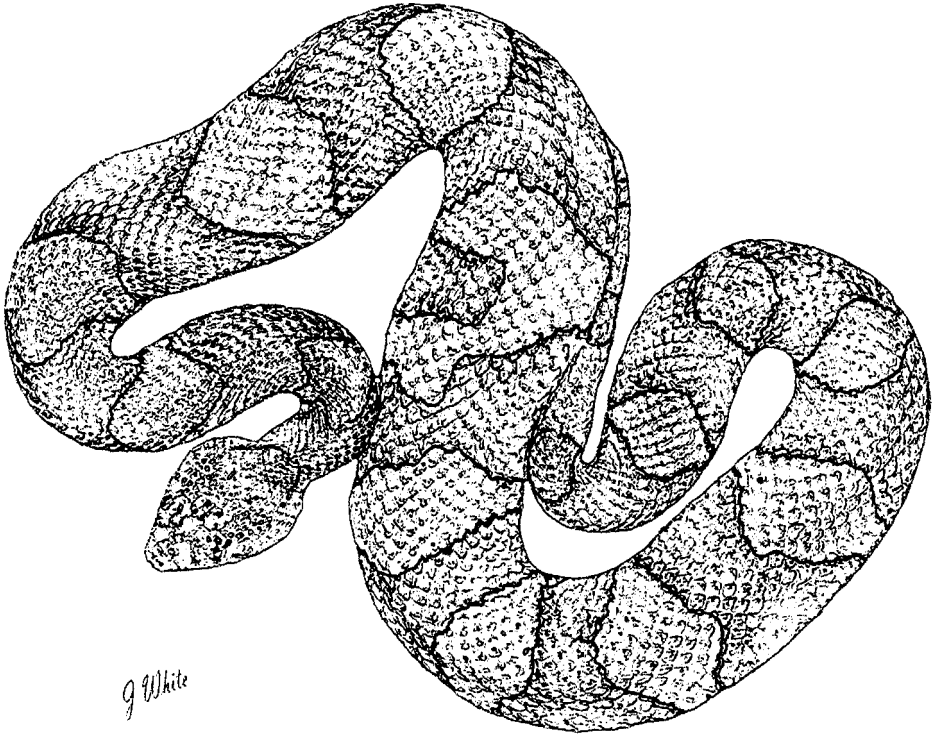


Figure 2. Survey site locations for CWMA (Site 11) and LDCR (Site 12).



**Results of the Spring 2008 Annual VHS Survey:
Colonial National Historic Park
Yorktown, Virginia**

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Introduction

Colonial National Historical Park (CNHP) was established for the purpose of preserving historic structures and consists of several major elements: Jamestown Island, Yorktown and the Yorktown Battlefield, and Colonial Parkway, as well as other non-contiguous properties such as the Green Spring parcels, Cape Henry and Swann's Point. Cumulatively, the CNHP comprises 3,820 ha on the lower York-James Peninsula of the Virginia Coastal Plain containing a significant number of natural areas with many habitat types. With CMHP's invitation, VHS members were provided with a memorable survey.

CNHP requested assistance from VHS with the overall goal to provide updated information about the Park's herpetofauna. In doing so, the following objectives were identified for the survey: 1. Inventory herpetofauna species with GPS locations to support existing information towards overall natural resources management. 2. Survey the Ringfield Plantation unit, for which little survey data existed. 3. Survey the Green Spring parcel obtained in 2002 for which no surveys had been conducted previously. 4. Determine whether state listed species, including Mabee's salamander (*Ambystoma mabeei*), is present in Yorktown area habitats where eggs were found previously and whether they occur at the Green Spring parcel obtained in 2002. 5. Determine whether the Eastern cottonmouth (*Akigistrodon piscovorus piscovorus*) occurs within the CNHP. 6. Determine whether two-toed amphiumas (*Amphiuma means*) still occur at the Jamestown Island site following relatively recent development in that area. 7. Identify new county records for York and James City counties.

Study Areas

The survey focused on four areas within CNHP that included the Jamestown Island site, Green Spring parcel, Ringfield Plantation, and the Yorktown Battlefield area. For survey control and management purposes, the Yorktown Battlefield area was subdivided into three contiguous sites referred to as the West Tour Road (Site 1), French Encampment Loop (Site 2), and Wormley Pond (Site 3). Figure 1 depicts a map of the survey area. The Yorktown Battlefield and Ringfield Plantation are located in York County while Jamestown Island and Green Spring parcel are located in James City County. Additionally, a portion of Newport News Park located in York County contains habitat contiguous to the West Tour Road site, and this area was included as part of the survey.

Yorktown Battlefield Area

The Yorktown Battlefield area comprises 1,345.6 ha that includes the three contiguous sites mentioned above. These sites contain historic tour roads and Cooke Road which is a heavily used public road that crosses part of the Wormley Pond site. All three sites contain a variety of habitat types including mixed upland forest, swamps, ephemeral pools, perennial and intermittent streams, and open fields. Many fallen trees and timber/brush piles exist particularly in the West Tour Road and French Encampment Loop sites as a result of storm events, such as Hurricane Isabel in 2003. Other microhabitats in the form of shallow depressions created by the uprooting of trees (commonly referred to as tree-tip pits or root balls) exist in all three sites. Many of these depressions contained standing water from precipitation. Deciduous tree species include oak (*Quercus sp.*), red maple (*Acer rubrum*), American holly (*Ilex opaca*), tulip poplar (*Liriodendron tulipifera*) and American beech (*Fagus grandifolia*). Loblolly Pine (*Pinus taeda*) is the dominant pine. The Yorktown Battlefield area contains a number of sinkhole ponds that are considered part of the large complex of Coastal Plain Depression Ponds referred to as the Grafton Ponds Complex (Van Alstine et al., 2001), which is known for its biological diversity. All

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three sites are used by joggers, hikers and cyclists and are open to vehicular transportation; however, all such activity is restricted to the improved historic tour road network. The general public does not have access to the natural areas beyond the tour roads for the most part.

Site 1: West Tour Road

The West Tour Road site comprises primarily successional tulip poplar-loblolly pine forest. A relatively extensive swamp is associated with Baptiste Creek Run that connects to Beaver Dam Creek. Other vegetation within this swamp complex included arrow arum (*Peltandra virginica*), lizard's tail (*Saururus cornuus*) and pawpaw (*Asimina triloba*). Beaver Dam Creek flows southward eventually connecting to the Lee Hall Reservoir within Newport News Park. The wetlands associated with Beaver Dam Creek differ in relation to the West Tour Road. The area north of the road tends to have a more closed canopy. The area south of the bridge has a decreasing canopy as the creek flows further south to where some areas virtually lack a canopy. The invasive plant common reed (*Phragmites australis*) becomes more extensive further south. In some of these areas, water depths vary with some land mass existing within the center of the creek. Sedges (*Carex* sp.) are also found south of the bridge. Several ephemeral pools exist in the forest interior at the West Tour Road site. Additionally, several ephemeral pools exist within young stands of loblolly pine located in the open field located north of the West Tour Road. Greenbrier (*Smilax rotundifolia*) is extensive in some of these stands, and standing water existed in some of these pools at the time of the survey. The invasive plant Japanese stiltgrass (*Microstegium vimineum*) appears widespread throughout much of the Yorktown Battlefield area.

Site 2: French Encampment Loop

The French Encampment Loop site comprises the area immediately north of the West Tour Road site. It also contained extensive swamp habitat associated with the western branch of Baptiste Run and Great Run creeks as well as several ephemeral pools. Most of

Most of the site is characterized as successional tulip poplar-loblolly pine forest though a large portion on the western edge is coastal plain mesic forest. Decaying timber piles are found throughout the forested areas. The open fields at these sites are mowed periodically but had not been done so recently and contained approximately 0.4 to 1 m height herbaceous vegetation at the time of the survey. Newport News Park lies adjacent to the West Tour Road site to the south and contains similar habitat including swamp habitats at the interface with the reservoir.

Site 3: Wormley Pond Site

The Wormley Pond site also contained a variety of habitat types including upland successional tuliptree-loblolly pine forest, and open fields. Additionally, a 6.5 ha pond (Wormley Pond) and an adjacent tidal creek (Wormley Creek) comprise habitat types not found at the West Tour Road and French Encampment Loop sites. Coastal plain mesic calcareous ravine forest comprises the periphery of Wormley Pond. Various basking resources for turtles in the form of fallen trees and logs exist along the shoreline of the pond.

Site 4: Ringfield Plantation

The Ringfield Plantation is a 108. ha tract located along the Colonial Parkway within York County northwest of Yorktown. This site was originally an 18th Century plantation and was purchased by the National Park Service in the 1930s. A road, parking area and picnic areas were installed in the late 1950s through the early 1960s but the area was closed to the public in the early 1980s. Ringfield Plantation has not been developed nor received tourists/visitors since the closure. This site is immediately south of the tidal King Creek, which is a tributary of the York River. The habitat is predominantly young successional tuliptree-loblolly forest with tidally influenced creeks and associated emergent brackish wetlands. Large numbers of mature Loblolly pines had blown down from storms. Ringfield Plantation was included in a herpetofauna survey conducted from 2001-2003 (Mitchell, 2004); however, no data was available regarding results from this particular site.

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Site 5: Green Spring

Two Green Spring parcels are held by the National Park Service and lie adjacent to one another within James City County, northwest of Jamestown. For control and survey management purposes, these parcels are designated unofficially as Green Spring A and Green Spring B. Green Spring A was surveyed during 2001-2003 (Mitchell, 2004) while Green Spring B was acquired by the National Park Service in 2002. No surveys have been conducted for Green Spring B. The Green Spring B parcel is a 44.9 ha tract, and lies between two developed properties not associated with CNHP. The southern portion is predominantly non-riverine saturated forest while the northern portion is primarily mixed upland successional tuliptree-loblolly pine forest. A number of ephemeral pools exist. A utility Right of way cuts through the tract in an east to west fashion. The Right of way contained some herbaceous vegetation cover with some low areas still retaining water at the time of the survey. Other tree species include oaks (*Quercus sp.*), red maple (*Acer rubrum*), American sycamore (*Platanus occidentalis*), southern magnolia (*Magnolia grandiflora*) and understory species such as flowering dogwood (*Cornus florida*) and American holly (*Ilex opaca*). Ferns occurred in some areas and several lily leaved twayblade orchids (*Liparis lilifolia*) were observed. Currently, this area is not open to visitation, and the tract remains largely intact with the exception of the Right-of-way.

Site 6: Jamestown Island

Jamestown Island is located in James City County on the James River. The entire area comprises approximately 607 ha however, only a small portion of the area was surveyed for this event. The survey area consisted primarily of a tidal shrub swamp and a pond adjacent to a partially developed area where a new Visitor Center was completed in 2006. A parking lot was constructed originally in 1957 and then reconfigured in 2006 to accommodate the new Visitor Center. Marsh conditions surround the island, and riprap has been placed along certain areas at the interface with the river. A 0.61 ha forested wetland lies

immediately adjacent to the Visitors Center parking lot and is surrounded by a paved road. Two-toed amphiumas were found in this wetland during a survey performed from 2001-2003 (Mitchell, 2005). A small freshwater pond lies on the opposite side of the paved road immediately east of the forested wetland. The 0.2 ha pond contains thick woody vegetation on its periphery and is connected to the wetland via a 0.91 M diameter pipe. As expected, this site constitutes a heavily used area.

Materials and Methods

The survey was performed on 17-18 May 2008. On 17 May 2008, four teams of approximately ten members each surveyed the Ringfield Plantation, Wormley Pond, West Tour Road and French Encampment Loop sites beginning at approximately 0830 h and ending at approximately 1600 h. Placement of hoop turtle traps at Wormley Pond were attempted in the afternoon of 16 May 2008; however, only two hoop traps (unbaited) were successfully installed in Wormley Creek. Deep sediments of the pond prevented trap placements. Three teams surveyed the Jamestown Island, Green Spring B and Newport News Park, respectively on 18 May beginning at approximately 0830 h and ending at approximately 1200 h.

Weather conditions on 17 May 2008 comprised clear sunny skies for the duration of the day. Ambient temperatures were cool at the beginning of the survey at 11.1° C rising to 25° C by the afternoon. The weather conditions on 18 May 2008 also comprised clear sunny skies with slightly warmer temperatures in the morning at 14.4° C and rising to 27° C. No rainfall occurred during the survey nor on the night of 17-18 May. Rainfall occurred seven of the nine preceding days ranging from 0.1 to 2.9 cm.

Surveying methods included visual encounter observations and the capture of individuals by hand, including capture via tongs for some snake species and inspection of microhabitat materials (i.e., overturned logs, underneath bark and leaf litter). Dip netting of ephemeral pools/surface water, placement of two hoop traps (as

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described previously at Wormley Creek), and placement of three unbaited crayfish traps in the pond at the Jamestown Island site were utilized for aquatic species. The crayfish traps were placed at the Jamestown Island site at approximately 1530 h on 17 May. Binoculars/visual means were used for basking aquatic turtles at Wormley Pond. Any calling anurans were also noted.

When possible, digital photographs were taken of captured specimens, and in some cases, individuals were observed but eluded capture. Data collected included snout-to-vent length (SVL) and total length (TL) when possible, gender, GPS location (latitude and longitude), habitat and microhabitat, and the method of capture/identification. This data was not always obtained for all specimens/individuals due to variations in group leader recording methods.

The crayfish traps were large, bell-shaped funnel traps with three funnels located near the bottom. Funnels were conical with outside openings of ca. 20 cm, and an inside diameters of ca. 4.5 cm. The traps were 80 cm in height. A vertical column (ca. 14 cm tall) located on top of the traps allow captured animals to breathe air when the trap is fully submerged. The traps were constructed from 2.5 cm nylon-coated chicken wire.

The turtle traps were large hoop turtle traps made of netting held together and shaped by the large metal hoops. The traps had a funnel entrance leading to the inside on one end. A lead net was placed between the 2 traps. The lead net was a long stretch of similar netting, with small floats on the top edge and small weights on the bottom edge, and each end was tied to the funnel entrance ends of the turtle traps. The traps were not baited, rather reliance was placed on the 'lead net' to direct turtles into the traps.

Table 1: The amount of survey effort per research site.

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	NNP
Number of hoop net sets	---	---	2	---	---	---	---
Number of crayfish trap sets	---	---	---	---	---	3	---
Number of surveyors	11	6	12	11	8	7	4
Hours surveyed	7.5	7.5	8.5	7.5	3.5	4.5	3.5
Person hours of survey effort	82.5	45	102	82.5	28	31.5	14

Results

A total of 36 species were documented in this survey, of which 22 were reptiles and 14 were amphibians with 1 species being a new county record. A summary of species by site is presented in Table 2. *Pseudacris brimleyi* represents the new county record for James City County. *Plestiodon laticeps* was recorded at two sites in York County but could not be confirmed as county records because photographs were not taken.

Table 2. Summary of the number of animals observed at each site.

Site Number	1	2	3	4	5	6	NNP
Amphibians							
<i>Acris crepitans crepitans</i>							1
<i>Ambystoma maculatum</i>	1						
<i>Ambystoma opacum</i>		4			6		
<i>Amphiuma means</i>						1	
<i>Anaxyrus americanus</i>					2		

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<i>Anaxyrus fowleri</i>			4		3		2
<i>Eurycea cirrigera</i>			1				
<i>Eurycea guttolineata</i>	1						
<i>Hyla chrysoceles</i>	1	1			2		
<i>Lithobates catesbeianus</i>			1			2	
<i>Lithobates clamitans</i>	1	5	3			1	
<i>Lithobates sphenoccephalus</i>	3				3		1
<i>Notophthalmus viridescens</i> <i>viridescens</i>						1	
<i>Pseudacris brimleyi</i>					1		
Reptiles							
<i>Agkistrodon piscivorus</i> <i>piscivorus</i>	1						1
<i>Carphophis amoenus</i> <i>amoenus</i>	3	2	16	24	4		
<i>Chelydra serpentina</i> <i>serpentina</i>			4			2	
<i>Chrysemys picta picta</i>			6				
<i>Coluber constrictor</i> <i>constrictor</i>	1		1	2			2
<i>Diadophis punctatus</i>	5	1	2	8			
<i>Kinosternon subrubrum</i> <i>subrubrum</i>	1					1	
<i>Lampropeltis getula getula</i>			3				
<i>Nerodia erythrogaster</i> <i>erythrogaster</i>	1						
<i>Nerodia sipedon sipedon</i>	8		1				
<i>Opheodrys aestivus</i>			1	1			
<i>Pantherophis alleghaniensis</i>				4		1	1
<i>Plestiodon fasciatus</i>		7	7	3			
<i>Plestiodon inexpectatus</i>	2						
<i>Plestiodon laticeps</i>	1		1				
<i>Pseudemys rubriventris</i>			17				
<i>Scincella lateralis</i>		1	2	2	1		
<i>Storeria dekayi dekayi</i>			3	1	1		1

<i>Terrapene carolina carolina</i>	2	3	6	7			
<i>Thamnophis sauritus sauritus</i>	1						
<i>Thamnophis sirtalis sirtalis</i>	1						
<i>Virginia striatula</i>				1			
Total Number of animals by site	34	24	79	53	23	9	9

Annotated Checklist Amphibians

Anurans

1. *Acris crepitans crepitans* (Northern Cricket Frog) - [NNP].
According to Mitchell and Reay (1999) *Acris crepitans crepitans* and *A. gryllus gryllus* occur in York County and James City County. One *A.c.crepitans* adult was observed in York County (Newport News Park). One adult *Acris spp.* was found in the leaf litter of upland forest habitat at Green Spring B; however, the actual species could not be confirmed. Tadpoles found in a rut of a dirt road at Green Spring B were speculated to be *Acris spp.* Mitchell (2004) reported *A.gryllus* (Southern cricket frog) as expected but none were encountered. Six *A.crepitans* (Northern cricket frog) were encountered at the Yorktown Battlefield between 2001 and 2003 (Mitchell, 2005).

2. *Anaxyrus americanus* (American Toad) - [5].
Two adults were observed at the Green Spring B site in the leaf litter of forested areas.

3. *Anaxyrus fowleri* (Fowler's Toad) - [3, 5, NNP].
Four individuals were found at the Wormley Pond site on leaf litter in upland forest. Two individuals were found at the Green Spring B site, and two were observed along Beaver Dam Creek in Newport News Park. Additionally, four juveniles of the genus *Anaxyrus*

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were observed at Green Spring B but the species could not be confirmed.

4. *Hyla chrysoscelis* (Cope's Gray Treefrog) - [1, 2, 5].

This was the only confirmed hylid observed during the survey. No adults were visually observed; however, males were heard calling. One individual was heard at the forested area of the French Encampment Loop site and one was heard along Beaver Dam Creek near the bridge in the West Tour Road site. Two individuals were heard calling from the bottomland forest at Green Spring B. Hylid tadpoles were found in the same depression as a *L. clamitans* tadpole (6 below) in the French Encampment Loop but the species could not be definitively determined.

5. *Lithobates catesbeianus* (American Bullfrog) - [3, 6].

No adults or larva were visually observed; however, males were heard calling from the pond at the Jamestown Island and Wormley Pond sites.

6. *Lithobates clamitans* (Green Frog) - [1, 2, 3, 6].

Several males were heard calling at three locations. Three were heard at Wormley Pond, one near the Beaver Dam Creek bridge at the West Tour Road site, and several were heard calling from the pond on the morning of May 18 at Jamestown Island (actual number was not recorded). Three tadpoles were collected by dipnet from a depression of a tree-tip pit, and one tadpole was observed in a stream at the French Encampment Loop site. One adult was also observed in the depression.

7. *Lithobates sphenoccephalus* (Southern Leopard Frog) - [1, 5, NNP].

A total of seven individuals were observed during the survey. Three were observed along Beaver Dam Creek within CNHP, and one was observed along the same water course in Newport News Park. Three others were observed at the Green Spring B site. Two of these individuals were found under separate logs within the forested bottomland but only a few meters apart. Their coloration was strikingly different from each other. One was very dark green color;

its dorsal spots were difficult to see and the typical white spot seen on the tympanum of this species was indistinguishable. The other individual was much lighter brown color. A third individual was a sub-adult found in the open area of the Right-of-way.

8. *Pseudacris brimleyi* (Brimley's Chorus Frog) – [5].
One juvenile was captured at Green Spring B in a forested area.

Salamanders

9. *Ambystoma maculatum* (Spotted Salamander) – [1].
Mitchell (2004) did not encounter *A. maculatum* at the Yorktown Battlefield but did observe this species at Jamestown Island during a 2001-2003 survey. No adult individuals were observed during the VHS survey; however, several larvae were found in an ephemeral pool at the West Tour Road site.

10. *Ambystoma opacum* (Marbled Salamander) – [2, 5].
Five adults and one juvenile were found underneath logs at the Green Spring B site. Most were located north of the Right-of-way towards the interior with one individual found at the edge of the forested area. Three individuals were speculated to be females. The juvenile measured 3.81 cm SVL. Four larvae were found in an ephemeral pool at the French Encampment Loop site.

11. *Amphiuma means* (Two-toed Amphiuma) – [6].
One adult was captured in a crayfish trap placed in the pond at the Jamestown Island site. This individual had a TL of 58 cm.

12. *Eurycea cirrigera* (Southern Two-lined Salamander) – [3].
One adult measuring 3.5 cm SVL was found beneath a log in a swampy area at the Wormley Pond site.

13. *Eurycea guttolineata* (Three-lined Salamander) – [1].
One adult with a 4 cm SVL was captured in a small stream near the George Washington Headquarters area of the West Tour Road site.

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14. *Notophthalmus viridescens viridescens* (Red-Spotted Newt) - [6].

One adult male was captured in a crayfish trap placed in the pond at the Jamestown Island site. It had a 4 cm SVL and 8 cm TL.

Reptiles

Snakes

15. *Agkistrodon piscivorus piscivorus* (Eastern Cottonmouth) - [1, NNP].

This was the only venomous species observed during the survey. One adult male was found approximately 200 meters south of the West Tour Road along Beaver Dam Creek (TL of 117 cm). It was found near a fallen log amongst emergent vegetation towards the center of the creek. This location was within the CNHP boundaries. A juvenile female was found in a bottomland creek at Newport News Park with a TL of 57 cm.

16. *Carphophis amoenus amoenus* (Eastern Wormsnake) - [1, 2, 3, 4, 5].

Eastern Wormsnakes were the most frequently observed species during this survey. Forty-five were found in York County and four at the Green Spring B site. All were found under rotting logs in upland forests. One gravid female was observed at the French Encampment Loop site. One individual was found with a Rough Earthsnake under the same log, and in another instance, one was found under the same log with a Ring-necked Snake.

17. *Coluber constrictor constrictor* (Northern Black Racer) - [1, 3, 4, NNP].

Six adults were observed in York County. An individual observed basking on a log at the Wormley Pond site had a TL of 110 cm, and the head and one eye had some damage. A large adult was captured in Newport News Park along a bottomland creek with a TL of 230 cm.

18. *Diadophis punctatus* (Ring-necked Snake) - [1, 2, 3, 4].

This species is documented over most of Virginia and is described as two subspecies *Diadophis punctatus punctatus* and *D.p. edwardsii* (Mitchell, 1994). Mitchell (1994) describes *D.p.edwardsii* as usually having a complete collar or ring, and the venter as either lacking a pattern or having several to numerous small black spots on the midventral line while *D.p.punctatus* is characterized by a broken collar and a single row of large half-moon dots on the ventral line. Mitchell and Reay (1999) document *D.p.punctatus* in York County but also show an intergrade zone that includes approximately half of York County and all of James City County. No individuals were observed in James City County; however, 16 individuals were found in York County, specifically at Ringfield (8 adults and 1 juvenile), the Wormley Pond site (1 adult), French Encampment Loop (1 juvenile) and the West Tour Road site (5 adults). In the case of the 5 individuals at the West Tour Road site, all individuals were found underneath loose bark of the same fallen tree in immediate proximity to each other. The collars were not examined and the venter was examined for two individuals. One individual appeared to have a venter characteristic of *Dp punctatus* while a second individual contained a row of very small spots. Subsequently, the 5 individuals from the West Tour Road site could not be documented as to a specific subspecies. The single individual from Wormley Pond appeared to be characteristic of *Dp punctatus*. The individuals from Ringfield had a wide variation in ventral markings including individuals lacking spots, having a few spots, midventral rows of small spots, midventral rows of larger half-moon spots as well as a wide variation in the neck rings being complete, constricted or broken.

19. *Lampropeltis getula getula* (Eastern Kingsnake) - [3].

Three individuals were found at the Wormley Pond site. One adult and two juveniles were observed. The adult and one juvenile were measured having TL of 100 and 38 cm, respectively. These two individuals were in the process of shedding when found.

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20. *Nerodia erythrogaster erythrogaster* (Red-bellied Water Snake) - [1].

One adult was observed along Beaver Dam Creek south of the West Tour Road within the CNHP boundary. It was observed amongst the emergent vegetation and exposed soil towards the center of the creek but escaped capture.

21. *Nerodia sipedon sipedon* (Northern Watersnake) - [1, 3].

All individuals were found at the Yorktown Battlefield area, namely the Wormley Pond and West Tour Road sites. One individual was observed basking on the rocks in the vicinity of the spillway at Wormley Pond and was noted as having one damaged eye. Four juveniles were observed in an intermittent stream near the George Washington Headquarters landmark. One individual attempted to elude capture by immersing itself in the sediment of the stream bed. Four individuals were found in the swamp habitat of Beaver Dam Creek north of the West Tour Road. Of these four individuals, two were observed in the tree-tip pits/rootballs of fallen trees, one was observed in the creek, and the other was basking at the edge of the water. The largest specimen captured was 75 cm TL.

22. *Ophiodrys aestivus* (Rough Greensnake) - [3, 4].

A young adult with a TL of 29 cm was observed in a stand of paw paw (*Asimina triloba*) at the Ringfield site. A larger individual with a TL of 72 cm was observed basking on cattails (*Typha sp.*) along Wormley Creek approximately 2 meters from shore.

23. *Pantherophis alleghaniensis* (Eastern Ratsnake) - [4, 6, NNP].

Two large specimens were observed in York County. The larger specimen was found at the Ringfield site with a TL of 149.86 cm. The smaller specimen had a TL of 127 cm and was found in a bottomland creek in Newport News Park. Three other adults were observed at Ringfield but escaped capture. An individual was found underneath a barrel on a gravel area adjacent to a parking lot at Jamestown Island (TL of 72.5 cm).

24. *Storeria dekayi dekayi* (Northern Brownsnake) - [3, 4, 5, NNP].

Five individuals were found in York County (Ringfield, Yorktown

Battlefield and Newport News Park). Most were observed underneath bark or logs on the ground. One roadkill specimen was on the edge of a parking lot at the Wormley Pond site. Two individuals were measured with TL of 26.04 cm and 33 cm. One individual was observed along the forest edge at the utility Right-of-way at the Green Spring B site but escaped capture.

25. *Thamnophis sauritus sauritus* (Common Ribbonsnake) - [1]. One individual was observed during the survey. A juvenile male (TL 56 cm) was found along the bank of an intermittent stream near the General Washington Headquarters landmark.

26. *Thamnophis sirtalis sirtalis* (Eastern Gartersnake) - [1]. One individual was observed during the survey. A juvenile male (TL of 38 cm) was basking in grassy area containing a small pile of limb debris along the forest edge at an open field at the West Tour Road site.

27. *Virginia striatula* (Rough Earthsnake) - [4]. Only one individual was found during the survey. An adult measuring 17.78 cm TL was observed at the Ringfield site under a rotting log.

Lizards

28. *Plestiodon fasciatus* (Common Five-lined Skink) - [2, 3, 4]. Several individuals were documented at the Ringfield site (3 individuals), Wormley Pond (7 individuals) and the French Encampment Loop (7 individuals) sites. The largest recorded individuals were two females each 7.5 SVL cm at Wormley Pond. Upon capture, one individual regurgitated an earthworm. Two other individuals from Wormley Pond had ticks attached. Several skinks of the genus *Plestiodon* were observed but could not be captured and subsequently the species could not be identified. This was reported as 1 individual at Jamestown Island, 1 individual at Green Spring B, 6 at the West Tour Road site and 2 at the Wormley Pond site.

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29. *Plestiodon inexpectatus* (Southeastern Five-lined Skink) - [1].

Two individuals were captured at the West Tour Road site with TL measurements of 5 cm and 6 cm. Ticks were attached to the larger individual.

30. *Plestiodon laticeps* (Broad-headed Skink) - [1, 3].

Three broad-headed skinks were encountered during the survey. One individual was observed basking on rocks in the vicinity of the dam at Wormley Pond but was not captured. Two individuals were captured at the West Tour Road site. One individual was found on a fallen log in mixed forest habitat and measured 11 cm TL and 7 cm SVL. The other individual was found along the edge of the swamp near the Beaver Dam Creek bridge and measured 19 cm TL and 8 cm SVL.

31. *Scincella lateralis* (Little Brown Skink) - [2, 3, 4, 5].

Six confirmed individuals were observed at the French Encampment Loop, Ringfield, Wormley Pond and Green Spring B sites.

Turtles

32. *Chelydra serpentina serpentina* (Common Snapping Turtle) - [3, 6].

Six individuals were observed. Four adults with CL of 34 cm, 32 cm, 21 cm and an estimated 22.5 cm were captured in the two hoop traps placed in Wormley Creek. Two individuals were encountered at a small pond at the Jamestown Island site while placing crayfish traps at approximately 1630 h on May 17. One individual was a young adult basking on two parallel logs completely above the surface of the water. The second individual was a juvenile located in shallow water but it escaped capture.

33. *Chrysemys picta picta* (Eastern Painted Turtle) - [3].

Six adults were observed basking at Wormley Pond. Capture was not attempted.

34. *Kinosternum subrubrum subrubrum* (Eastern mud turtle) - [1, 6].

Two individuals were observed. A male with a CL of 8 cm was

found at the Jamestown Island site in a forested ephemeral pool. The other individual was observed near an ephemeral pool at the West Tour Road site.

35. *Pseudemys rubriventris* (Northern Red-bellied Cooter) - [3]. Seventeen adults were observed basking on logs at approximately 0930 h May 17 in Wormley Pond. Capture was not attempted.

36. *Terrapene carolina carolina* (Eastern box turtle) - [1, 2, 3, 4]. A total of fifteen live individuals were observed at the three Yorktown Battlefield sites and Ringfield Plantation. One carapace was found in the Beaver Dam Creek north of the West Tour Road. Six individuals at Wormley Pond included two males, two females and one juvenile (7.1 cm carapace length [CL]) for which the gender could not be ascertained. This juvenile was found in the horse trailer parking area located just north of Surrender Road underneath a tin sheet. The gender of a sixth adult was not recorded. Ringfield Plantation contained the largest number of observations with six males and one juvenile (6.99 cm CL). Two males and one female were found at the French Encampment Loop site, and one female was found at the West Tour Road site. The largest individual was a male with a CL of 15.24 cm found at the Ringfield site. Other microhabitats included leaf litter of forested areas and one individual was found in Japanese stiltgrass (*Microstegium vimineum*).

Discussion

Survey Objectives

Most of the objectives of the survey were met. GPS locations were included for most observations and annotated on the data sheets that were provided to the National Park Service. This information will aid CNHP in monitoring occurrences of various species. Additionally, one county record was obtained.

Summary of observations at the Ringfield Plantation. The Ringfield Plantation unit was of particular interest since little

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previous survey data existed. Interestingly, no amphibians were found at this site during the survey. It had the highest number of snake species observed including *Diadophis punctatus*, *Carphophis amoenus amoenus*, *Pantherophis alleghaniensis*, *Coluber constrictor constrictor*, *Opheodrys aestivus*, *Virginia striatula*, and *Storeria dekayi dekayi*. Twenty four wormsnares were found at this site alone. Box turtles were the only turtle species observed at this site. *Scincella lateralis* and *Plestiodon fasciatus* comprised the lizards observed.

Determination of whether the Eastern cottonmouth (*Akgistrodon piscovorus piscovorus*) occurs within CNHP. Informal inquiries as to whether Eastern cottonmouths exist within CNHP were received from the public and Park Service employees. Mitchell (2004) noted *Ap piscovorus* as expected to occur at CNHP but none were documented during the 2001-2003 survey. Existence of this species in CNHP would seem plausible based on the West Tour Road portion of the Yorktown Battlefield being adjacent to a swamp environment associated with the Lee Hall Reservoir where the species had been documented in Newport News Park (Passaro, 2008). Furthermore, swamp conditions along Beaver Dam Creek north and south of the West Historic Tour Road provides potential habitat. One individual was found south of the Beaver Dam Creek bridge within the CNHP boundary at N037°12.064 latitude, W076°31.214 longitude. The second individual was found technically within Newport News Park but near the boundary between the two parks.

Determination of whether Mabee's salamander (*Ambystoma mabeei*) occurs at the Green Spring B parcel. Since the two Green Spring parcels are partially adjacent and contiguous, it was important to review the findings for the survey conducted at Green Spring A during the 2001-2003 time frame. According to Mitchell (2004) *Ambystoma mabeei* was observed at Jamestown Island and the Yorktown Battlefield but none were documented at Green Spring A when that area was surveyed in 2001-2003. This source attributes the lack of observations to wetland depressions being dry at that time. During the VHS survey at Green Spring B, wetland

depressions tended to contain water and much of the soils in the survey area were moist; however, no individuals were observed. Instead, five adult and one juvenile *Ambystoma opacum* were found underneath logs at various locations. *A. opacum* had been documented at Green Spring A during the 2001-2003 survey (Mitchell, 2004). *A. opacum* breeds earlier (with metamorphosis occurring earlier) than other ambystomids, usually between September and November (Lannoo, 2005). Walters (1975) reports that *A. opacum* feeds on larvae and eggs of other ambystomid where they co-occur. According to Colburn (2004), *A. opacum* larva are opportunistic predators and are considered important predators of *A. maculatum* larva and may influence the reproduction of other ambystomids that utilize the same ephemeral pools. No reference to predation on *A. mabeei* larva could be obtained; however, further study of the relationship between the species is suggested if co-occurrence exists. Additional survey efforts might therefore be warranted. *A. mabeei* was not observed at the Yorktown Battlefield sites nor at the Jamestown Island site during the VHS survey.

Determination of whether two-toed amphiumas (*Amphiuma means*) still occur at the Jamestown Island site. Mitchell (2004) noted that 6 individuals were documented in 2001 at Jamestown Island though this was an unexpected discovery due to brackish water conditions associated with Jamestown Island. As part of the survey planning process, a site visit to CNHP that included the Jamestown Island site was conducted on March 8, 2008. At that time the small forested wetland supposedly once serving as habitat for *A. means* contained significant surface water; however, VHS members found most of the site to be dried up upon arrival to place crayfish traps on May 17, 2008. Crayfish traps were placed in the pond located on the opposite side of the road dividing the pond from the wetland. One individual *A. means* was captured in a crayfish trap when the traps were checked on the morning of 18 May. It is uncertain whether other individuals perished when the wetland dried up, whether individuals were able to relocate to the pond or if some individuals previously existed in the pond. This observation is encouraging in that a small population still exists despite development in the form of a large parking lot, roads and Visitor

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Center for the Historic Jamestown Island. Additional surveys and monitoring may yield more information on this species at this particular site. Potential threats to this species would include additional development at this location as well as petroleum products potentially leaking from visitor vehicles that could enter the pond/wetlands with stormwater runoff.

During the survey at Jamestown Island, a cistern was identified that could pose a pitfall trap for herpetofauna. It consists of a cement-walled hole of an estimated 2.5 m by 1.8 m with straight sides and water at the bottom. It is recommended that some measure be taken to prevent herpetofauna from entering and becoming trapped.

CNHP contains a relatively large number of ephemeral pools. Myers and Erdle (2005) evaluated 12 season ponds located in the Yorktown Battlefield area (these are located in the West Tour Road and French Encampment Loop sites); however, several smaller ponds exist. These habitats have adjacent upland forested areas that provide resources for ambystomid salamanders. Green Spring B unit also contains several ephemeral pools as observed during the survey; however, there was insufficient time to characterize and GPS all of these habitats or their sizes. According to Patterson (2008) the non-riverine saturated forest habitat at Green Spring are restricted to extensive, flat terraces and wide ancient floodplains and that such undisturbed habitats of this type are rare. Based on the presence of various amphibian species, it may be useful to map the pools in a manner to what has been performed for the season ponds at the Yorktown Battlefield (Myers and Erdle, 2005).

Mitchell (2004) reported 55 *Plethodon cinereus* at the Yorktown Battlefield during a survey in 2001 and 2003. Interestingly, no salamanders of the genus *Plethodon* were encountered at any of the sites during the VHS survey in 2008.

Considerable variety of ventral and ring neck markings of *Diadophis punctatus* were noted during the survey particularly those individuals encountered at the Ringfield site. Based on discussion with team members, the subspecies is classified a *Diadophis*.

punctatus intergrade population. Some individuals appeared to Southern ringnecked snakes (*D. p. punctatus*) while others appeared to be Northern (*D. p. edwardsii*) while most individuals appeared to be mixed. However, additional surveys to make a definitive determination would be in order.

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Table 2. Summary of the number of animals observed at each site.

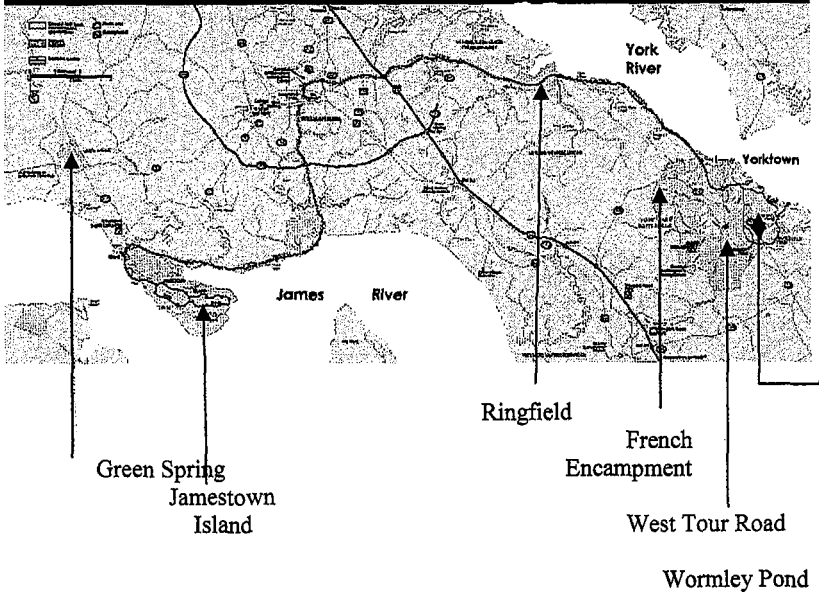
Sites	1	2	3	4	5	6	7	8	9	10	11	12
Species												
Amphibians												
<i>Acris gryllus</i>												nd
<i>Anaxyrus fowleri</i>	2	4	2									
<i>Anaxyrus terrestris</i>	5	20	3	1						1	1	
<i>Gastrophryne carolinensis</i>	2		1									
<i>Hyla chrysoscelis</i>	1	1	1	1		1	1				2	
<i>Hyla cinerea</i>	2											nd
<i>Hyla squirella</i>	1	1			1	1	1				*1	
<i>Pseudacris crucifer crucifer</i>		5								1		
<i>Lithobates catesbeianus</i>							1					nd
<i>Lithobates clamitans</i>	5	6	1	2	3	2	1			2	1	nd
<i>Lithobates sphenoccephalus</i>	3	4	2		1		1			2	4	nd
<i>Amphiuma means</i>											*1	
<i>Plethodon chlorobryonis</i>		8	2							1		
<i>Plethodon cinereus</i>		1										
Reptiles												
<i>Chelydra serpentina serpentina</i>							3		2		*1	
<i>Chrysemys picta picta</i>					3	4	6		1		8	5
<i>Kinosternon subrubrum subrubrum</i>				1								

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<i>Pseudemys rubriventris</i>						1	1				*1	
<i>Sternotherus odoratus</i>							1					
<i>Terrapene carolina carolina</i>		3	2							2	2	
<i>Trachemys scripta scripta</i>			1		6		2		1		*1	4
<i>Trachemys scripta elegans</i>												1
<i>Plestiodon fasciatus</i>		6	1									
<i>Plestiodon inexpectatus</i>				1								
<i>Plestiodon laticeps</i>			1				1					
<i>Scincella lateralis</i>	2	33	7	7						7		
<i>Agkistrodon contortrix mokasen</i>	1											
<i>Carphophis amoenus amoenus</i>		1		1								
<i>Coluber constrictor constrictor</i>		1	1								*1	
<i>Diadophis punctatus</i>	1		1							1		
<i>Lampropeltis getula</i>				1								
<i>Nerodia erythrogaster erythrogaster</i>		2	1		2		1					
<i>Nerodia sipedon sipedon</i>	1										1	
<i>Nerodia taxispilota</i>					2							
<i>Opheodrys aestivus</i>											*1	
<i>Pantherophis alleghaniensis</i>	1		1									
<i>Thamnophis sirtalis sirtalis</i>	3	2	1	1								
Total Number of animals by site	30	98	29	16	18	9	20	0	4	17	26	10

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*Species recorded on 8 June during a site visit by the organizing team. nd = not documented.



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Pseudemys rubriventris (Red-bellied Cooter). VA: New Kent County, 3.2 km SW Lanexa (37° 24' 32.45" N, 76° 56' 16.11" W, NAD 83). 10 April 2008. Susan M. Johnson and William H. Johnson III.

Reproduction: Several species of freshwater turtles in Virginia are known to exhibit overwintering in the nest where eggs that are deposited in the previous spring hatch by the end of summer but hatchlings remain in the nest over winter and emerge in the following spring (Mitchell, J.C. 1994. *The Reptiles of Virginia*. Smithsonian Institution Press, Washington, DC. 352 pp.). These include Painted Turtles (*Chrysemys picta*) and Red-bellied Cooters (*Pseudemys rubriventris*). In addition, eggs from some females of these species will hatch and the hatchlings emerge and disperse in 60-120 days without overwintering (Ernst, C.H., J.E. Lovich, and R.W. Barbour 1994. *Turtles of the United States and Canada*. Smithsonian Institution Press, Washington, DC. 578 pp.; Mitchell, J.C., S.M. Johnson, and W.H. Johnson III. 2005. Field notes: *Pseudemys rubriventris*. *Catesbeiana* 25:85-86). All of the available information on fall and spring nest emergence in Virginia turtles is based on information accumulated from several populations in different parts of the state. Confirmation of fall and spring emergence strategies used by freshwater turtles in the same population has been lacking.

On 10 April 2008, two of us SMJ and WHJ III, observed nest emergence of hatchling *P. rubriventris* adjacent to Chickahominy Lake, New Kent County, Virginia. Ten hatchlings emerged between 1400 and 2115 EDT, two days after the most recent rainfall totaling about 4 cm. Construction of this nest by the female parent occurred on 28 May 2007. We monitored the nest for predation over the next several months but none occurred. Total length of time from egg deposition to nest emergence was 317 days, confirming that hatchlings in this population overwinter in the nest. Interestingly, a female *P. rubriventris* from the same population laid eggs in the same location in the second week of June 2005 and the hatchlings emerged on 7-8 October in the same year; they did not overwinter (Mitchell, op. cit. 2005). Our observations confirm that both fall

and spring emergence strategies are used by *P. rubriventris* in the Chickahominy Lake population. Indeed, these strategies are used by turtles that nest in the same small area (portion of a suburban yard) in the same microhabitat, suggesting that habitat, vegetation cover, or thermal differences do not influence which nesting strategy is used each year. Additionally, because the 2005 and 2007 nests were deposited within two weeks of each other, there appears to be no correlation between nesting time and fall and overwintering emergence time. The suggestion by Mitchell et al. (2005. op. cit.) that rainfall patterns may influence nest emergence times may be a fruitful avenue to explore to explain why both strategies occur in the same population of *P. rubriventris*.

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Ambystoma opacum (Marbled Salamander) VA: Bath Co., Tuscarora Pond, Douthat State Park (N 37° 53' 11.1" W 79° 49' 17.2"). 20 December 2008. J. Gibson and P. Sattler.

Reproduction: On 20 December 2008 the authors went to Tuscarora Pond at Douthat State Park to search for and mark Jefferson Salamanders as part of an ongoing study. We arrived at the pond after the 1.5 kilometer hike only to discover the pond was dry. As is our usual habit we began to turn over rocks and logs within the pool basin and periphery. We discovered some nests of *Ambystoma opacum*. As to not waste an opportunity we decided to uncover all the nests we could find and count the eggs. Little did we know that it would take five hours to discover and count all the nests that were deposited within and at the perimeter of the vernal pool.

Tuscarora Pond is a true forest vernal pool. In the past two years water was present only during the spring and early summer due to

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the prolonged drought that Virginia has experienced. The surrounding forest is a mature hardwood forest with a shrub layer of blueberry. No trees grow in the pond but many grow at the periphery. There are few logs within the pond and only a small scattering of rocks. The substrate of the pool bottom is a gray clay covered by a thin layer of leaf litter and some herbaceous plants. Many mud cracks were visible in the clay due to the dry conditions. The pool limits are delineated by a low blueberry shrub layer. It is at the perimeter of the pool that the leaf litter is thickest.

We began to survey the pool by turning all the logs and rocks within the basin of the pool, then we searched the surrounding leaf litter at the outer edges of the pool. We got on hands and knees and carefully pushed the leaf litter out of the way until a nest was uncovered. A flag was placed at each nest. Nests were then photographed and the eggs counted. We tried to determine if the nest was communal or deposited by a single female both from the number and placement of eggs within the nest. Upon completion of our counts some general patterns began to emerge. By December, no female salamanders were found still caring for the nests. *Ambystoma opacum* is the only Ambystomatid that gives parental care. Secondly, the thicker the leaf litter, the more nests were discovered. The thicker leaf litter was at the periphery of the vernal pool where more trees were depositing leaves and where runoff from the surrounding ring of low hills would be greatest. Salamander nests were observed most frequently in mud cracks that females had excavated to make smoother and larger. Most nests were observed at the periphery of the pool with only six nests being located in the vernal pool basin. Only six nests were found under cover objects such as logs and rocks, the rest of the nests were essentially mud crack depressions or excavated nest cavities with only leaf litter covering them.

The strategy of digging a nest a few centimeters below the surface coupled with thick leaf litter seems to be protective from desiccation and freezing temperatures. Only a few nests had eggs in an advanced state of decomposition. Fungal hyphae were observed covering some of the eggs in some nests. A few eggs had hatched

with larvae sitting on top of the eggs or in small moist depressions at the bottom. Larvae in stage 43 (Harrison, R.G. 1969. Harrison stages and description of the normal development of the spotted salamander, *Amblystoma punctatum* (Linn). In *Organization of the Embryo* S. Willens, ed. Yale University Press, pp. 44-66.) were observed in some nests. Astonishingly most of the larvae discovered were alive and moving despite occupying only a moist nest cavity.

We found a total of 7209 eggs arranged in 69 clusters or nests. The average number of eggs per nest was 104.5 (range 7-399, SD=72.8). These numbers do not include a large communal nest found under a large rock which contained 400-600 eggs in an advanced state of decomposition such that they could not be accurately counted. While it was difficult to determine which nests were laid by a single female and which were communal, we estimated that at least 14 nests were communal or deposited by more than one female, in addition to this largest nest of up to 600 eggs. Petranka (J. W. 1998. *Salamanders of the United States and Canada*. Smithsonian Institution Press, Washington D.C. 587 pp.) hypothesizes that communal nesting in the marbled salamander may be due to the lack of suitable nest sites under logs, rocks and leaf litter. Tuscarora pond lacks large numbers of rocks and logs in the pond basin, but has abundant leaf litter around the margin of the pond. The largest communal net was under the largest rock which was towards the basin of the pond.

This find raises several conservation concerns. During the fall, one must be very careful where one steps around vernal pools. Marbled Salamanders don't always lay eggs under the protection of cover objects. Multi year droughts can have multiple adverse effects on Marbled Salamander reproduction. Late filling of the vernal pool, lower leaf production, and lack of moisture call all be detrimental to the eggs and larvae. A last conservation concern is the plan to build a lodge on or near the location of this unique vernal pond. State parks are being forced to balance the needs of wildlife with the desire of humans to utilize more of the parks resources for their entertainment and comfort. Tuscarora is the only vernal pool in the

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whole of Douthat State Park. It harbors an assemblage of obligate vernal pool species (*Lithobates sylvatica*, *Ambystoma opacum*, *A. jeffersonianum*, *A. maculatum*, and fairy shrimp) like nothing else in the park. Hopefully "improvements" such as this proposed lodge will remain unrealized ideas.

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***Trachemys scripta scripta* (Yellow-bellied Slider).** VA: Chesterfield County, Petersburg (Virginia State University, Randolph Farm), 4415 River Road. 37°13'43.47" N, 77°26'12.60" W. 18 October 2008. Christian A. d'Orgeix and Edward N. Sismour

Chesterfield County Record: The range of the Yellow-bellied Slider in Virginia is primarily the Coastal Plain region east of the fall line extending northwards to New Kent Co., with only three counties of the extreme southern Piedmont region represented (Mitchell, J. C. 1994. *The Reptiles of Virginia*. Smithsonian Institution Press, Washington, DC. 352 pp.; Mitchell, J. C., and K. K. Reay. 1999. *Atlas of Amphibians and Reptiles in Virginia*. Special Publication Number 1, Virginia Department of Game and Inland Fisheries, Richmond, Virginia. 122 pp.; Mitchell, J. C. 2004. *Field Notes: Trachemys scripta scripta. Catesbeiana* 74,26(2); Kleopfer, J. D. 2006).

Here we report a new county record of an adult male Yellow-bellied Slider (195 mm carapace length, 1071 g body mass) found just west of the fall line in Chesterfield County. This extends their range approximately 25 km northwest of Sussex County and 45 km southwest of New Kent County. The turtle was caught in a hoop

trap in a 0.10 hectare artificial pond located at the Virginia State University Randolph Farm approximately 430 m north of the Appomattox River. It is presumed that this individual immigrated from the Appomattox River into the pond. Digital images have been deposited in the VHS archives #115-116.

Acknowledgments: We thank Dr. Scott Newton for supporting this project and Madeline Crowell, Shawn Elliott, Stedman Elliott, Shelley Nellis and Daron Scott for their assistance in the field. This project was completed using supplies purchased to support research by Dr. Newton (Evans-Allen program, USDA/CSREES, P.L. 95-113, Sec. 1445) and through Virginia General Assembly appropriations for the Virginia State University Agricultural Research Station.

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Trachemys scripta elegans, (Red-eared Slider) VA: Chesterfield County, Petersburg, Virginia State University, Randolph Farm, 4415 River Road, 37°13'43.47" N, 77°26'12.60" W. 22 September 2008. Christian A. d'Orgeix^{1,2}, Edward N. Sismour

Chesterfield County Record: Red-eared sliders are increasingly cosmopolitan as a consequence of the release of turtles acquired from the pet trade, followed by natural range extensions after their introduction (Ernst, C.H., J.E. Lovich, and R.W. Barbour. 1994.

Field Notes

Turtles of the United States and Canada. Smithsonian Institution Press, Washington, DC. 578 pp.; Iverson, J. B. 1992. A Revised Checklist with Distribution Maps of Turtles of the World. Privately printed, Richmond, IN. 363 pp.; Bringsoe, H. 2006. NOBANIS-Invasive Alien Species Fact Sheet-*Trachemys scripta*-From Online Database of the North European and Baltic Network on Invasive Alien Species.). Although they are not native to Virginia, red-eared sliders have been recorded from a number of counties in the state (Mitchell, J. C. 1994. The Reptiles of Virginia. Smithsonian Institution Press, Washington, DC. 352 pp.; Mitchell, J. C., and K. K. Reay. 1999. Atlas of Amphibians and Reptiles in Virginia. Special Publication Number 1, Virginia Department of Game and Inland Fisheries, Richmond, Virginia. 122 pp.; Mitchell, J. C. 2004. Field Notes: *Trachemys scripta elegans*. *Catesbeiana* 24: 23.; Mitchell, J. C. 2005. Field Notes: *Trachemys scripta elegans*. *Catesbeiana* 25: 88-89.

Here we report a new county record for Chesterfield County. Six red-eared sliders ranging in mass from 39-2,288 g were captured in floating, (1.2 m L x 1.2 m W x 1.2 m H), 0.6 cm mesh, black polyethylene fish aquaculture cages in 0.10 hectare artificial ponds located at the Randolph Farm aquaculture complex of Virginia State University on September 22-October 18th, 2008. The aquaculture pond complex consists of 17, 0.10 and 40, 0.05-hectare ponds located approximately 430 m north of the Appomattox River. We have trapped over 40 red-eared sliders from these ponds between June 2007 and October 2008. They range in age from hatchlings to adults, indicating that red-eared sliders are well established in these ponds and potentially the adjacent Appomattox River. To the best of our knowledge red-eared sliders have not been intentionally released into the ponds. Presumably, turtles migrate between the ponds and the Appomattox River. Observations of turtle egg shells and hatchlings indicate that *in situ* reproduction occurs. However, establishment of a resident red-eared slider population through introduction(s) associated with fish deliveries for aquaculture activities cannot be ruled out. Future research is planned to more.

accurately map their distribution and assess their impact through interbreeding on the native *T. s. scripta*. Although our specimens appear phenotypically to be *T. s. elegans*, it may be impossible to separate some *T. s. elegans* from intergrades (*T. s. scripta* x *T. s. elegans*) except through genetic testing. Digital images have been deposited in the VHS archives #110-114.

Acknowledgments: We thank Dr. Scott Newton for supporting this project and Madeline Crowell, Shawn Elliott, Stedman Elliott, Shelley Nellis and Daron Scott for their assistance in the field. This project was completed using supplies purchased to support research by Dr. Newton (Evans-Allen program, USDA/CSREES, P.L. 95-113, Sec. 1445) and through Virginia General Assembly appropriations for the Virginia State University Agricultural Research Station.

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Chelydra serpentina serpentina (Eastern Snapping Turtle). VA: Nottoway Co., Fort Pickett. (77 deg 56' 36" W, 37 deg 0' 41" N). 29 June 2008. Verified by Robert Wheeler.

Size Record: The largest Eastern Snapping Turtle recorded had a maximum straight-line carapace length of 494 mm (Conant, R. and J.T. Collins. 1991. A Field Guide to the Reptiles and Amphibians of Eastern and Central North America. Third Edition. Houghton Mifflin Co. Boston. 616 pp.). In Virginia, the largest Eastern

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Snapping Turtle recorded weighed 16.0 kg (35 lb) and had a maximum straight-line carapace length of 415 mm (16.3 in) (Mitchell, J.C.1994. The Reptiles of Virginia. Smithsonian Institute Press, Washington, DC. 352 pp.).

On 29 June 2008, Russel Prue captured an Eastern Snapping Turtle weighing 23.1 kg (51 lb) with a maximum straight-line carapace length of 464 mm (18.3 in). Measurement of the carapace was taken with a 65 cm (24 in) Haglof tree caliper. The turtle was caught in Hurricane Branch on Fort Pickett. The shell is currently in possession of the Virginia Department of Game and Inland Fisheries.

John (J.D.) Kleopfer
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Robert Wheeler
Natural Resources Administrator
ARNG-MTC
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Blackstone, VA 23824

PLESTIODON FASCIATUS (Common Five-lined Skink). VA: Henrico County, 4.7 km W City of Richmond (37° 35' 2.3" N, 77° 35' 47.5" W, NAD 83), 10 July 2008. Wendy H. Robertson.

Reproduction: *Plestiodon* (formerly *Eumeces*) *fasciatus* occupies a wide variety of habitats throughout its range and in Virginia (Mitchell, 1994. The Reptiles of Virginia. Smithsonian Inst. Press, Washington, DC). Its life history is generally well known (Fitch, 1954. Life history and ecology of the five-lined skink, *Eumeces fasciatus*. Univ. Kansas Publ. Mus. Nat. Hist. 8:1-156) but understudied in the Commonwealth despite its being relatively abundant in many areas and commonly encountered (JCM, pers. obs.). Females lay 2-15 eggs in May and June in moist

microhabitats such as under bark of decaying logs and usually remain with them until they hatch in late June to early September (Fitch, 1970. Reproductive cycles in lizards and snakes. Univ. Kansas Mus. Nat. Hist. Misc. Publ. 52:1-247; Palmer and Braswell, 1995. Reptiles of North Carolina. Univ. North Carolina Press, Chapel Hill, NC). The known period for gravid females Virginia *P. fasciatus* is 12-24 June with females bearing 5-14 eggs (Mitchell, *op. cit.*). This information is based on dissections of museum specimens and observations of gravid females in nature. Here I describe a female with eggs more than two weeks later than has been reported in the published Virginia herpetological literature.

On 10 July 2008, Wendy Robertson found a dead female *P. fasciatus* (62 mm SVL, discarded) lying on an asphalt driveway in a suburb of Richmond in western Henrico County bearing 9 oviductal eggs. There was one puncture wound in the upper left thorax, suggesting that she had been killed by an avian or mammalian predator. The skink had been dead no more than one day based on the degree of desiccation. This observation extends the known occurrence date for females with oviductal eggs an additional 15 days into the first half of July. Clutch size for this female is well within the range reported in the Virginia literature (Mitchell, *op. cit.*). Two hypotheses may explain the late date for the occurrence of oviductal eggs. One is that this is a case of egg retention based on an unknown set of causes. Egg retention is well known in reptiles (e.g., Warner and Andrews, 2003. Consequences of extended egg retention in the eastern fence lizard (*Sceloporus undulatus*). J. Herpetol. 37:309-316), thus making this one additional example of this phenomenon. However, could the altered environment in cities and suburbs (e.g., Kim, 1992. Urban heat island. Int. J. Remote Sensing 13:2319-2336; Summers, C.H. 2005. Chronic low humidity-stress in the lizard *Anolis carolinensis*: Effects on ovarian and oviductal recrudescence. J. Exp. Zool. 248: 192 – 198) affect timing of ovulation, egg shell deposition, or egg retention in skinks? A suite of stressors may have affected hormonal cycles or levels that may have caused egg retention by this female. A study of skink reproduction in suburban areas may reveal that these populations exhibit phenological patterns different from those in natural

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environments. An analysis of hormonal patterns in urban versus natural populations of skinks and other reptiles tolerant of urban environments may also lead to a better understanding of the life history consequences of stress in these reptiles.

Joseph C. Mitchell

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President's Corner

Another busy year, our 51st year, is underway for VHS! Already VHS has participated in two events this year. First, we had some good visitation at the VHS display at the Virginia Living Museum's annual "Reptiles: Bizarre and Beautiful" weekend event, on February 14-16. Then, we assisted with the Virginia Science Olympiad, which was held at Randolph-Macon College in Ashland, on March 21. For this event we helped develop sets of questions and answers about reptiles and amphibians for both middle and high school student participants. (Thank you, Mike Clifford!) I helped provide live specimens, skins, and shells from VDGIF and worked the event's middle school session on reptiles and amphibians and the high school session on herpetology, where the students answered the questions in teams, similar to taking tests. I hope to coordinate with the event organizer more for next year's Virginia Science Olympiad.

Coming up this year in survey work, I'm looking forward to the VHS Annual Spring Meeting and Survey at Occoneechee State Park, in Mecklenburg County, on May 1-3. See details about this event in the Annual Spring Meeting and Survey Announcement. The next survey planned is the Scarlet Kingsnake Blitz at Smith Mountain Lake State Park, in Bedford County, on June 13-14. I also look very forward to the Fourth Annual HerpBlitz, which is being held at Breaks Interstate Park, in Dickenson County, on July 10-12. Finally, for the third year in a row, VHS will participate in the "Resource Ramble III", a bioblitz event, at the Blue Ridge Scout Reservation, in Pulaski County, on August 29.

Other upcoming events include the third annual Reptile Day Festival at the Virginia Museum of Natural History, on July 25, and of course, the VHS Annual Fall Symposium, which will be held at Three Lakes Nature Center, in Henrico County (just north of Richmond), on October 24. Further details will be available soon for the Fall Symposium. Please keep checking the VHS website for information on all of the mentioned events (www.vaherpsociety.com).

Speaking of the website, I would also like to take this opportunity to inform everyone about the wonderful new online tool for VHS, the VHS

Forum. The link to this is available on the front page of our website. (Thank you, John White, for developing this great new tool!)

Of course all of the VHS officers deserve multitudes of thanks for all the hard work they do in keeping the VHS going and going strong!

Susan Watson
VHS President

Virginia Herpetological Society
Minutes of Fall Meeting
Virginia Commonwealth University
Trani Life Science Building
Richmond, VA
October 4 , 2008

The Fall Meeting was called to order by President Susan Watson at 4:30pm. There was no old business, so new business was covered. The VHS status as a non-profit organization is currently a work in progress. Susan has been completing forms and making many phone calls to obtain this designation. She will keep everyone abreast of our status. As the VHS president, she has been invited to attend "Conserving Virginia's Fish and Wildlife for the Future: Preparing for Climate Change Workshop" on October 30, 2008, at Airfield 4-H Center in Wakefield, VA (Sussex Co.). The workshop will cover climate change issues of concern, identify potential unacceptable outcomes, identify observed and predicted impacts, and what actions/strategies need to be developed and implemented to avoid, minimize, or mitigate the impacts. She will be attending part 2 of this workshop sometime in March 2009. The meeting was then turned over to our committee chairs for reports.

Treasurer and Cafe Press: Pattie Crane reports that she is still in the process of obtaining Paypal access for our members as an easy method of payment for memberships. Due to updated "terms of service", the process of establishing an account has been quite time consuming, but she is still working on it. She hopes to have this up and running over the next couple months. The balance on hand is about the same as our last meeting, \$5,588.86. As before, our largest disbursements have gone towards the VHS Grants. The VHS Store, also known as Cafe Press, is doing well. There is need for new material, illustrations being the most desirable print.

Newsletter editor and Yahoo Groups: Kory Steele reports a delay in this year's newsletters due to problems with current addresses and emails. The issue should be resolved in time for the next newsletter. His employer has continued to provide free printing privileges and

this is much appreciated. Scott Duncan, has offered assistance with the newsletter in providing editing and material to publish. A possible co-editor position could arise due to his help. Revision of the format of the newsletter is in the works. Although no complaints have been received from members regarding the current format, a change may spice things up a bit. Yahoo Groups is still a great means of keeping VHS members and non-members in touch. Although it's not in preferred forum-form, it still provides the 118 members with the choice of receiving individual emails, a daily digest, or nothing at all. It allows everyone to keep up-to-date on herps in the news and local herp surveys.

Catesbeiana editor: Paul Sattler reported that 160 copies were printed and 148 were mailed for a total of \$427.64. He currently has one field note and one artwork, so more material is needed. The journal is usually sent out one month prior to a meeting, so material should be sent in two months prior for review and then submission into the journal.

Education Committee: Mike Clifford reported participation in the ExxonMobil Bernard Harris Summer Science Camp on behalf of the VHS. This is an academic program that educates 6th – 8th grade students in the areas of science, technology, engineering, and mathematics. His presentation focused on the diversity of Virginia's amphibians and reptiles, with special emphasis on the unique mix of species that inhabit the southwestern portion of our state. It also covered the identification and lifestyles of notable species, including the three venomous snakes of concern that inhabit Virginia. He would like to remind everyone to submit reports to him which show their educational efforts on behalf of the VHS. He strives to provide an annual report showing all efforts of education. If interested in doing more and serving on this committee, members should contact Mike, mjc4h@vt.edu -or- frogholler@hughes.net.

Conservation Committee: Tim Christensen reports the following tasks and statuses:

1.) "Conservation of Reptiles and Amphibians in Virginia" presentation.

(a) The final draft of the initial version has been completed. Feedback was received from VA Department of Game and Inland Fisheries (VDGIF). This presentation was given to two master naturalist (VMN) chapters (Historic Rivers on February 7, 2008 and Tidewater on March 20, 2008) as a preview to solicit initial input. Both chapters concur that it would be useful and that members would be interested in participating. Additionally, it was presented to 2 members of the Loudoun County Amphibian Monitoring Program (LAMP) on March 29, 2008. Reception by LAMP participants was equally positive. Members of the Banshee Reeks Chapter of the VMN/LAMP, along with VHS members, conducted a thorough and professional critique/evaluation of the presentation on August 23, 2008. Feedback was received on September 13 and has been integrated into the final draft.

(b) Initially targeted audiences for this version include master naturalist chapters and school teachers. Other possible forums include cooperative extensions, Reptile Weekend at the VLM, VDGIF Outdoor Education Program, corporate, landowners, homeowner associations, and neighborhoods. Specially tailored programs could be developed for students, 4-H, Boy Scouts, and Girl Scouts.

(c) The goal is to design a "Train the Trainer" program whereby interested VHS members could train interested VMN Chapters on conducting the presentation. The program could include use of copywritten materials, designation of instructors, preparation of trainer information packets, documenting the presentation (audience, date, location) and reporting feedback, evaluating opportunities for expansion, developing information packets and periodically reviewing and updating the presentation and other materials. Much of this work is still under development.

2.) Promoting and participating in the Wildlife Mapping Program. Participation helps to improve data on herpetofauna in biological databases. A link to this VDGIF program has been included on the VHS website. Wildlife Mapping workshops were given by Tim Christensen to VHS members, master naturalists (Tidewater and

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Historic Rivers Chapters) and LAMP participants at Banshee Reeks Nature Preserve in Leesburg on March 29, 2008. A workshop has been scheduled at the Rice Center as part of the 2008 fall meeting. More VHS members are encouraged to participate.

3.) Partnering with other non-profit natural resources focused groups.

The Committee proposed partnering with other non-profit natural resources focused groups. Initial coordination was made with the Virginia Chapter of The Wildlife Society (VTWS). An exchange of website links between VHS and VTWS was completed. The VTWS at one time was planning a "Virginia Fish and Wildlife Summit" conference in 2009 with the primary goal to centralize fish and wildlife professionals in Virginia in order to improve coordination, information sharing, and professional development. This could be a good opportunity to develop conservation efforts. They indicated they would welcome VHS's participation in the conference. No other details have been provided, but Tim is serving as a VHS point of contact as plans progress.

4.) Threats to Herpetofauna Poster.

The Committee proposed designing charts/posters that illustrate threats to herpetofauna. The suggestion is to have separate materials, making anurans/amphibians as one group and turtles and snakes/reptiles as another group. This could potentially be made available for sale through the VHS Store and provided to schools, etc. Proceeds could go towards specific conservation-related projects. No further action has taken place since its proposal.

5.) Federal Duck Stamp Promotion.

Thanks to a great idea by Joy Ware, VHS is promoting the purchase of Federal Duck Stamps. Joy displayed a Duck Stamp poster (borrowed from the Rappahannock River Valley National Wildlife Refuge) during Reptile Weekend at the Virginia Living Museum in February 2008. She recommended more effort by VHS in promoting Duck Stamp purchases to help support the Refuge System. Ninety eight cents of every dollar generated by the sale of Federal Duck Stamps goes toward purchase or lease of wetlands

within the National Wildlife Refuge System. This supports efforts towards habitat for herpetofauna. Information about Federal Duck Stamps (along with an excellent graphic by John White) was incorporated into the VHS website. This information was also included in the August 2008 VHS Newsletters (Volume 18, Number 2). Opportunities to partner with organizations such as Ducks Unlimited represent another means of promoting duck stamp sales. VHS may want to consider selling T-shirts with John's graphics (pending authorization) and sending proceeds to support the Refuge System.

6.) Loudoun County Amphibian Monitoring Program (LAMP).

Tim met with LAMP participants David McCarthy and Nicole Hamilton on March 29, 2008. LAMP is a community effort to monitor amphibians in that county. LAMP may serve as a template/standard by which other counties/municipalities could create similar programs. It is recommended that LAMP representatives provide a presentation about their program at a future VHS meeting.

Research committee: Joy Ware reports that the research committee has been working on a basic disease/abnormality information sheet that will be available for use at the next spring survey. Each survey group will have someone responsible for recording any externally observable disease data or malformations. Prior to the survey Joy Ware will meet with each of the people carrying the disease sheet to answer any questions about the content, etc. This data will be in addition to the species data sheet currently used.

VHS Webmaster: John White reports the website is still a great success. He has seen an increase in hits to over 1,300 per month. Our most recent addition to the website is the copperhead and cottonmouth look-a-likes page. This section helps to point out identifying characteristics between the venomous snake and it's harmless misidentified counterpart.

The meeting ended in open discussion regarding survey dates for 2009, possible locations, including those surveyed previously vs.

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those not surveyed at all, and changing the Symposium to mid-October to avoid scheduling conflicts encountered this year and previous years.

Emily C Steele
VHS Secretary

Lifetime Achievement Award

At the Fall 2008 meeting, the VHS recognized Dr. Paul Sattler, Professor of Biology at Liberty University, as the fourth recipient of a Lifetime Achievement Award. Mr. Franklin J. Tobey, Dr. Richard Hoffman, and Dr. Joseph Mitchell are all previous winners of this award. Paul Sattler has been a member of the VHS since 1986 some 22 years. Over the past 22 years he has served as president (1996 - 1997), president-elect (1994-1995), secretary/treasurer (2000-2007), and *Catebeiana* editor (1990-1998, 2008 and continuing). During his tenure as editor he produced Volume 10 number 1 through Volume 18 number 1; this equates to 17 issues. As current editor he has published Volume 28 no 1 and 2). Paul has been instrumental in the success of the VHS. He has hosted six fall meetings at Liberty University and has participated in 26 VHS sponsored herpetological surveys. Paul is known by all who participate in surveys as a member who shares food, his tent, and any supply which another person might need. To his credit he has published 18 papers in regional and national journals which relate directly to Virginia reptiles and amphibians. Paul would state that his greatest accomplishment is his long time marriage to his wife Nancy and raising four wonderful children.

**Virginia Herpetological Society
Treasurer's Report**

Balance on Hand September 2008 \$5,697.92

Receipts:

October Dues:	\$195
Fall Silent Auction:	\$254.50
Fall Live Auction:	\$465
Book Sales:	\$531
November Dues:	\$120
December Dues:	\$111
January Dues:	\$475
February Dues:	\$269
March Dues:	\$150
Paypal Back Payment	\$214.90
Total Receipts	\$ 2785.40

Disbursements:

Catesbeiana 28(2)	\$427.64
Turtles of the Southeast order	\$581.44
Presenter Lunches	\$58.25
Fall Meeting Food	\$220.35
✦ VHS Awards	\$173.87
→ Student Paper Awards	\$150
Honorarium	\$250
↘ VHS 2009 Grant	\$500
Spring Meeting Space	\$55.65
Total Disbursements	\$ 2417.20

Balance on hand April 7, 2009 \$6066.12

Patricia Crane
VHS Treasurer

VHS 2009 Annual Spring Meeting and Survey
Occonechee State Park
Mecklenburg County
May 1-3

For the annual survey, we will investigate the herpetofaunal assemblage of Occonechee State Park, in Mecklenburg County, Virginia. This part of the state is often lacking in official documented records of many species, common or not. VHS surveyed this site approximately 26 years ago, so it is good to see if we can confirm the species recorded then and hopefully confirm even more species in 2009. The records from the older survey are about to be considered historical, so we want to be sure this area is up-to-date on its records of existing resident herpetofaunal species.

For more details about the park, see its webpage under the Virginia Department of Conservation and Recreation's website:
http://www.dcr.virginia.gov/state_parks/occ.shtml

Pre-registration: If you are not staying overnight at Occonechee State Park, please email me (susan.watson@dgif.virginia.gov) by the end of the day on April 30th so I can send you a VHS-Occonechee Park Pass to print out for when you arrive to the park. VHS Survey participants will be waived the park fee that is normally charged for entrance.

VHS 2009 Annual Spring Meeting and Survey Schedule:

Friday, May 1 Occonechee State Park – Picnic Shelter #1

6pm VHS Business Meeting, at Picnic Shelter #1
Slide Show of expected species
Survey planning and coordination

**Saturday, May 2 Occonechee State Park – Boat Ramp #2
Parking Lot** (large lot almost across the park
road from the Visitor Center, visible from the
Visitor Center)

8am Assemble at the Boat Ramp #2 Parking Lot
to divide into groups, get maps and info, and
determine areas each group will survey.

12 noon Lunch in the field, continue survey

5pm Assemble back at the Boat Ramp #2 Parking
Lot to tabulate and analyze survey results for
the day. Also, provide opportunity to take
photos of specimens and/or get assistance
with identification of specimens.

**Saturday, May 3 Occonechee State Park – Boat Ramp #2
Parking Lot**

8am Assemble at the Boat Ramp #2 Parking Lot
to divide into groups to determine areas each
group will survey.

12 noon Assemble back at the Boat Ramp #2 Parking
Lot to tabulate, analyze, and finalize survey
results. As well, take final opportunities to
take any photos of specimens and/or get
assistance with identification of specimens.

12:30 to 1pm Depart

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.