

Lake Accotink Park

Fairfax County, Virginia

WSSI #22647.01

Wood Turtle (*Glyptemys insculpta*) Survey and Habitat Evaluation

March 17, 2016

Prepared for:

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Wood Turtle (*Glyptemys insculpta*) Survey and Habitat Evaluation

Lake Accotink Park Fairfax County, Virginia (±53 acres) WSSI #22647.01

I. Executive Summary

Wetland Studies and Solutions, Inc. (WSSI) conducted a survey and supplemental habitat evaluation for the state-threatened wood turtle (*Glyptemys insculpta*) on the Lake Accotink Park study areas, located in Fairfax County, Virginia. The survey was performed in portions of Accotink Creek located immediately upstream and downstream of Lake Accotink at the request of Fairfax County staff. This survey and habitat evaluation was performed to determine the extent of suitable wood turtle habitat and whether this species occupies aquatic winter-phase habitat within the study areas.

On February 29, 2016, WSSI environmental scientists conducted a survey and supplemental habitat evaluation for wood turtles, focusing primarily on aquatic winter-phase habitat within Accotink Creek and the riparian zone habitats associated Accotink Creek within the study areas. No optimal winter-phase wood turtle habitat was present in either portion of Accotink Creek and no wood turtles were observed during this investigation. However, suitable terrestrial habitat is present within the portion of Accotink Creek located upstream of Lake Accotink. The absence of wood turtles is likely due to the lentic conditions of the upstream portion of Accotink Creek, the shallow and impacted nature of the downstream portion of Accotink Creek, and the high turbidity of the water throughout the study areas.

Based on the results of this study, the probability that the study area supports a viable population of wood turtles is low; and for the present, there is no conclusive evidence of wood turtles in this portion of the Accotink Creek watershed.

II. Introduction

Wetland Studies and Solutions, Inc. (WSSI) conducted a survey and supplemental habitat evaluation for the state-threatened wood turtle (*Glyptemys insculpta*) on the Lake Accotink Park study area to determine the extent of suitable wood turtle habitat and whether this species occupies aquatic winter-phase habitat within the study area. This study was conducted in response to a request from Fairfax County staff. The results of this survey and habitat evaluation are graphically depicted on the Wood Turtle (*Glyptemys insculpta*) Survey and Habitat Evaluation Map (Attachment I) and are described in detail below.

III. Wood Turtle Life History and Conservation Summary

Northern Virginia is at the southern boundary of the wood turtle's range, and according to Tom Akre (2002), the wood turtle occurs in Virginia almost exclusively in the upper Potomac and Shenandoah River watersheds, where it was known historically from nine

counties. It is most common in mountain tributaries of the Shenandoah River from Rockingham County north, becoming less common and more sparsely dispersed downstream along the Potomac River into northeastern Loudoun and northern/eastern Fairfax Counties. Due to its rarity, the wood turtle is listed as Threatened by the State of Virginia. The wood turtle is now considered secure from near-term local extirpation in only three counties in Virginia, all located west of the Blue Ridge Mountains (i.e., Frederick, Shenandoah and Rockingham).

Wood turtle habitat requirements include a relatively undisturbed floodplain, a free-flowing perennial stream, and adequate nesting and basking areas. Long-term persistence of wood turtles is dependent upon a clean aquatic environment, forested floodplains and associated habitats, and protection from humans (Mitchell *et al.*, 2004). Aquatic habitats are required for mating, feeding, and hibernation, while terrestrial habitats are used for egg laying, thermoregulation, and foraging. The wood turtle is also known to occupy forested wetlands and marshy fields along the stream systems it inhabits, and some individuals may spend considerable time in upland areas, including successional fields, pastures, and agricultural areas (Ernst *et al.*, 1994). However, these habitats must be moist enough not to create desiccation or dehydration stress (Mitchell, 1994).

From fall into spring, the wood turtle generally occurs along clear, moderate to fast-moving perennial streams (often within deciduous forests) where it hibernates in undercut stream banks, in burrows, under root masses, in thick leaf packs, occasionally in debris piles near water, or lying on the bottom. Aquatic habitat with pockets of deeper, but flowing water with overhanging banks and snags suitable for overwintering are features necessary for the wood turtle to survive the aquatic winter-phase of its life cycle. Wood turtles do not generally occur in lentic water bodies, and in winter, are almost exclusively found in and around clear, well oxygenated streams with short or no freeze-over periods (Akre, 2002).

In Virginia, wood turtles emerge from their overwintering stream hibernacula in March, when water temperatures reach 15°C (59°F). Upon emergence, they begin to forage, mate, and search for nesting sites. Their nesting season is from late May through early July. Wood turtles strongly prefer to nest in areas that are generally very sandy, bare, well exposed to solar radiation, and close to water, but elevated (Akre, 2002). The turtles remain active from April to October, even in cold weather, and return to streams to hibernate during late fall when stream temperature remains below 6°C (43°F). In summer, it is primarily terrestrial, and many individuals oversummer in the floodplains of their wintering streams, though some disperse much further overland and sometimes wander across different watersheds.

IV. Project Area

Lake Accotink Park is located in southeastern Fairfax County, Virginia, at the terminus of Accotink Park Road. The study was conducted on portions of Accotink Creek upstream and downstream from Lake Accotink. Exhibit 1 is a vicinity map that depicts the approximate boundaries of the study area and its general location.

The study areas are gently sloping with various wetland systems and tributaries to Accotink Creek present throughout the study area and are generally bounded by steeper topography. The topography can be seen in the excerpt from the Annandale, VA 1994 topographical quadrangle map (Exhibit 2) as well as in the background topography on Attachment I.

The study areas consist of a mixture of hardwood forest, forested, scrub/shrub, and emergent wetlands, with some maintained areas and various paved walking paths. These features can be observed on the Spring 2015 Pictometry[®] natural color aerial photograph that serves as the base for Attachment I and is included as Exhibit 4.

The locations of wetlands and streams on the study areas are based upon Fairfax County digital data and are depicted on Attachment I. Photographs depicting habitat features, landmarks, and existing site conditions identified during the wood turtle survey are included in Exhibit 8.

V. Methodology

Prior to conducting field work, WSSI reviewed the following relevant background information to determine whether wood turtles are known or likely to occur within the study area:

- The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Panel 51059C0290E, effective 9/17/2010 (Exhibit 3), which depicts the FEMA-mapped floodplain associated with Lake Accotink and Accotink Creek on the study areas.
- Spring 2015 Pictometry[®] natural color aerial photograph (Exhibit 4)
- The Virginia Department of Conservation and Recreation (DCR) Natural Heritage Resources (NHR) Map (Exhibit 5), which indicates that NHRs have been mapped by the DCR on the study areas.
- The list of state and federal endangered and threatened species known or expected to occur within a 4-mile radius of the study area, obtained from the Virginia Fish and Wildlife Information Service (FWIS), a subscription on-line computer database provided by the VDGIF (Exhibit 6).¹ The wood turtle has not been confirmed within that radius.
- Species account by C. Ernst and J. McBreen, as contained in the 1991 publication, *Virginia's Endangered Species: Proceedings of a Symposium* (Terwilliger, 1991); and other applicable wood turtle literature, as cited.

¹ Source: <https://vafwis.dgif.virginia.gov/fwis/index.asp>

- Draft 2014 Virginia Department of Environmental Quality (DEQ) 305(b)/303(d) Water Quality Assessment Integrated Report, Monitoring Station List, Potomac and Shenandoah River Basin.² This reference was consulted to identify whether Accotink Creek was reportedly impaired for water quality, based on DEQ data sources (Exhibit 7).

On February 29, 2016, WSSI environmental scientists Benjamin Rosner, PWS, PWD, CT, CE³ and Alison Robinson, PWS, PWD, CT⁴ traversed portions of the study area, including aquatic and terrestrial habitats⁵. Aquatic and terrestrial areas were inspected to identify and map specific habitat features on and within 100 feet of the study area and to classify them according to quality categories. Only representative habitat features (or lack of) were photographed. For the purpose of this report, WSSI has defined the habitat quality categories as follows:

- **Optimal** - Aquatic winter-phase habitat is considered optimal when it contains in-stream habitat features such as undercut banks, debris jams, and root wads. Such features must be common, persistent and in areas deep enough not to completely freeze during the winter. Terrestrial habitat is considered optimal when it consists of a forested floodplain easily accessible to wood turtles, contains potential plant species for foraging, and contains areas suitable for nesting and basking. Areas suitable for nesting include (but are not limited to) sandy floodplain deposits, gravel roads, and easements. Areas suitable for basking include sand bars, accessible stream banks, and exposed substrate and woody debris within the stream.
- **Marginal** – Aquatic winter-phase habitat is considered marginal when habitat features are uncommon, not persistent or are in areas prone to freezing during the winter. Features that are non-persistent or shallow and prone to freezing are considered marginal. Terrestrial habitat is considered marginal when it consists of a sparsely-forested or early succession floodplain with limited accessibility to wood turtles, contains few potential plant species for foraging, and contains few areas suitable for nesting and basking.
- **Unsuitable** – Aquatic winter-phase habitat is considered unsuitable when it lacks optimal or marginal in-stream habitat features. Terrestrial habitat is

² Source:
[http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityAssessments/2014305\(b\)303\(d\)IntegratedReport.aspx](http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityAssessments/2014305(b)303(d)IntegratedReport.aspx)

³ Professional Wetland Scientist #1766, Society of Wetland Scientists Certification Program, Inc.; Virginia Certified Professional Wetland Delineator #3402-000080; Certified Level 1 Taxonomist: All Phyla, Society for Freshwater Science (SFS); Certified Ecologist, Ecological Society of America.

⁴ Professional Wetland Scientist # 2532, Society of Wetland Scientists Certification Program, Inc.; Virginia Certified Professional Wetland Delineator #3402-000147; Certified Level 1 Taxonomist: All Phyla, Society for Freshwater Science (SFS); ISA Certified Arborist MA-5179A.

⁵ All survey participants are authorized by VDGIF to collect wood turtles through inventory, assessment and distributional studies under TEND permit #053202 as sub-permittees.

considered unsuitable when it consists of a mowed, maintained, actively grazed, or recently disturbed floodplain with no accessibility to wood turtles, lacks potential plant species for foraging, and lacks areas suitable for nesting and basking.

In addition to the habitat evaluation, an exhaustive systematic search for the wood turtle was conducted within Accotink Creek. WSSI scientists systematically searched for wood turtles and recorded any observations of reptiles, amphibians, and other aquatic wildlife, including freshwater mussels and fish. A total of 10 contact hours of searching was performed within the study areas.

The aquatic search method involved a combination of techniques authorized by the TEND permit, including physical examination of aquatic substrates; observation using waterscoping; probing of habitat features with nets, sticks, and hands; and observation of stream banks. Surveys were performed during late morning and early afternoons (during highest daily air/water temperature). While conducting the search, WSSI also recorded physical data such as air temperature, water temperature, relative humidity, and wind speed.

VI. Field Evaluation Results and Discussion

During the time of the survey, water temperatures ranged from 7-8.5 °C, which were favorable for locating wood turtles in the streams since wood turtles emerge from their hibernacula at water temperatures of 15 °C. Air temperature ranged from 10-17 °C. The wind speed was estimated at 5-15 miles per hour. The average relative humidity was 44%⁶.

Based on our habitat evaluation, much of Accotink Creek, on and within 100 feet of the study areas, contained unsuitable winter-phase habitat for wood turtles (Attachment I). Optimal terrestrial wood turtle habitat was present in the upstream portion of Accotink Creek and includes an accessible mature forested floodplain, various wetland types (Photos #6) and a potential basking area (Photo #9). Although the portion of Accotink Creek above the lake is deep enough not to completely freeze during the winter, the water was slow moving (ie, low-oxygen) with high turbidity (Photos #7-10).

The downstream portion of Accotink Creek has been heavily altered with the construction of an asphalt footpath (Photo #4) and the placement of riprap in the majority of the creek for stabilization purposes (Photos #2-3). One undercut bank was observed (Photo #1); however, the area was shallow (<2 feet) and very turbid with high siltation and thus was not considered optimal habitat for the wood turtle.

Although water temperatures were favorable for locating wood turtles in the streams and optimal terrestrial wood turtle habitat is present within the study area, no wood turtles were observed during this investigation. However, one eastern painted turtle (*Chrysemys picta*) was observed in Accotink Creek above the lake.

⁶ Source: Measurements at the NOAA website (for relative humidity) at < www.weather.gov/climate > at Dulles International Airport.

The turbid water of the water within the study area is likely due to development within the watershed and the location of Lake Accotink, which has been documented to be filling in with sediment. Flow into the lake is likely disturbing the sediment that has settled on the bottom of the lake, resulting in turbid conditions both upstream and downstream of the lake.

Also, nutrients, pesticides, and other chemical pollutants that enter this stream through runoff can have a negative effect on wood turtles, which are a pollution intolerant species (Harding and Bloomer, 1979 and Mitchell, 1994). Evidence of nutrient pollution input into these streams can be found in the DEQ Draft 2014 305(b)/303(d) Water Quality Assessment Integrated Report (DEQ 2014). In this report, Accotink Creek and Lake Accotink are listed as an impaired waterway by the DEQ. In 2014, Accotink Creek from Lake Accotink to the tidal waters of Accotink Bay was listed in Category 5A for aquatic life because of poor benthic-macroinvertebrate bioassessment condition and polychlorinated biphenyl (PCB) contamination in fish tissue. The upstream portion of Accotink Creek, from its confluence with Crook Branch to the start of Lake Accotink was listed under Category 4A for high levels of *Escherichia coli* and under 5A for aquatic life because of poor benthic-macroinvertebrate bioassessment condition.

In addition to poor water quality, another factor affecting our findings is proximity to a viable wood turtle population. Northern Virginia is at the southern boundary of the wood turtle's range, and the nearest wood turtle record is over 4 miles away from the study area in the Dogue Creek watershed. Based on the results of this study, and the lack of conclusive evidence of wood turtles in this portion of the Accotink Creek watershed, it is WSSI's opinion that the probability that the study area supports wood turtles is low.

VII. Conclusions

Based on our habitat evaluation, the portion of Accotink Creek located within the study areas was not considered suitable winter-phase habitat for the wood turtle. The floodplain associated with the upstream portion of Accotink Creek provided optimal terrestrial habitat for wood turtles. Although water temperatures were favorable for locating wood turtles in the streams and optimal terrestrial wood turtle habitat is present within the study area, no wood turtles were observed during this investigation. The absence of wood turtles is likely due to the lentic conditions of the upstream portion of Accotink Creek, the shallow and impacted nature of the downstream portion of Accotink Creek, and the high turbidity of the water throughout the study area. Therefore, based on the results of this study, the probability that the study area supports a viable population of wood turtles is low; and for the present, there is no conclusive evidence of wood turtles in this portion of the Accotink Creek watershed.

IX. Limitations

This study is based on examination of the conditions on the study site as described herein at the time of our review, as represented in prior WSSI documentation, and does not address future conditions, which change over time. Therefore, our conclusions may vary from future observations. Our wood turtle habitat evaluation and report have been prepared in

accordance with generally accepted guidelines for the preparation of such evaluations. We make no other warranties, either expressed or implied, and our report is not a recommendation to buy, sell, manage, broker, or develop the property.

We offer no opinion and do not purport to opine on the possible application of various building codes, zoning ordinances, other land use or platting regulations, environmental or health laws and other similar statutes, laws, ordinances, code and regulations affecting the possible use and occupancy of the property for the purpose for which it is being used, except as specifically provided above. The opinions set forth herein are rendered only and exclusively for the benefit of the addressees and no other parties, successors or assigns. The foregoing opinions are based on applicable laws, ordinances, and regulations in effect as of the date hereof and should not be construed to be an opinion as to the matters set out herein should such laws, ordinances or regulations be modified, repealed or amended.

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WETLAND STUDIES AND SOLUTIONS, INC.



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IX. Literature Cited

Akre, T. 2002. Growth, Maturity, and Reproduction of the Wood Turtle, *Clemmys insculpta* (LeConte, 1930) in Virginia. Unpublished Ph.D. Dissertation, George Mason University, Fairfax, VA.

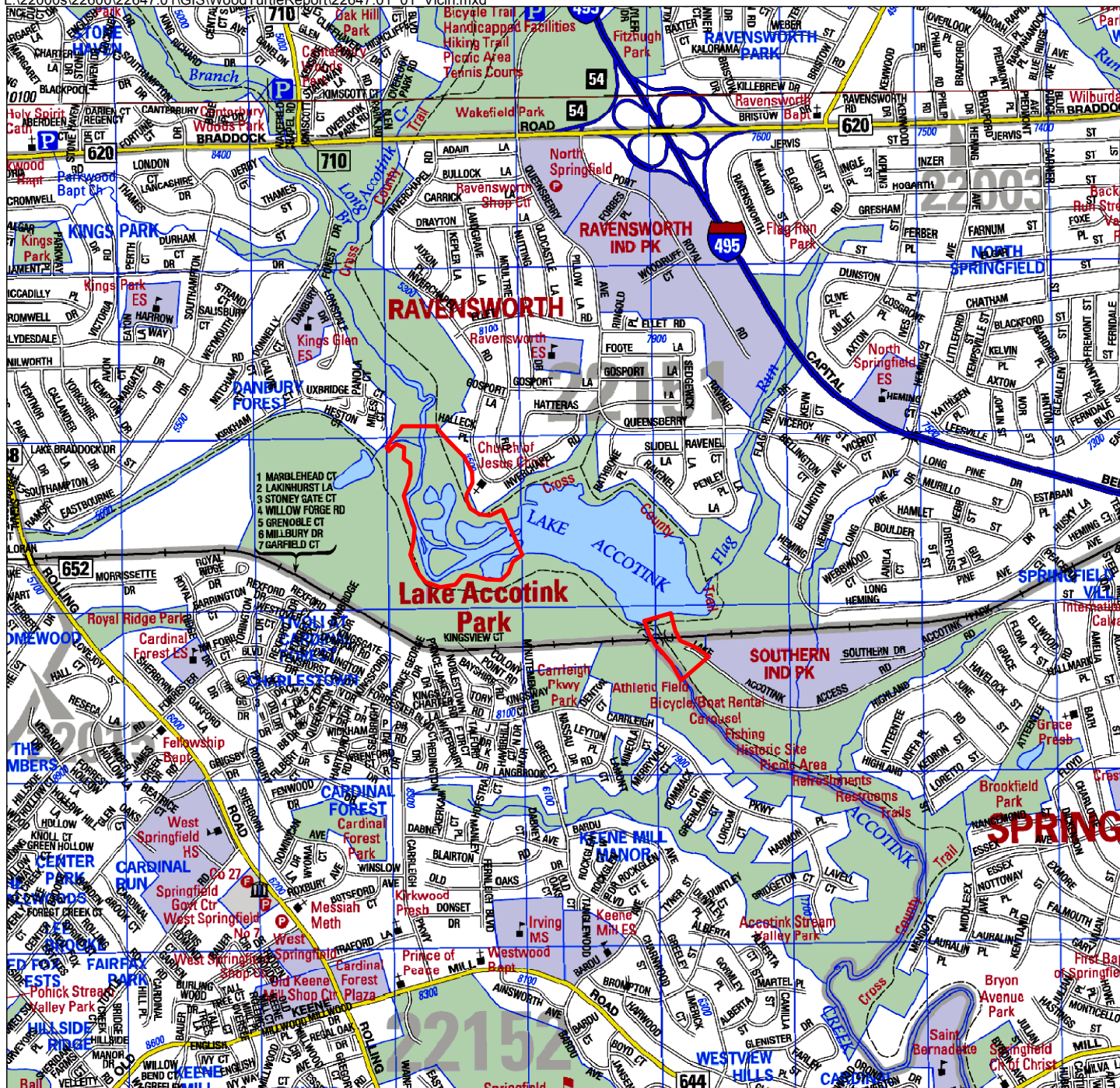
DEQ. 2014. DEQ Draft 2014 305(b)/303(d) Water Quality Assessment Integrated Report (Integrated Report). Released on December 15, 2014

Ernst, C., J. Lovich, and R. Barbour. 1994. Turtles of the United States and Canada. Smithsonian Press, Washington, DC.


Harding, J. and T. Bloomer 1979. The Wood Turtle, *Clemmys insculpta*. A Natural History. Bulletin of the N.Y. Herpetological Society. 15(1): 9-26.

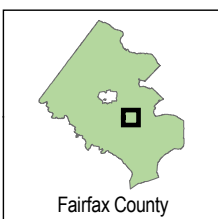
Mitchell, J. C. 1994. The Reptiles of Virginia. Smithsonian Institution Press, Washington, DC and London.

Mitchell, J., C. Ernst, J. McBreen, M. Pinder, S. Roble, and D. Schwab. 2004. *Clemmys insculpta*, Wood Turtle, Recovery Plan (Draft). Virginia Department of Game and Inland Fisheries, Wildlife Diversity Division, Richmond, Virginia. 32 pages.

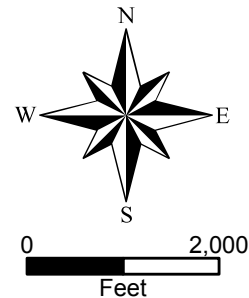


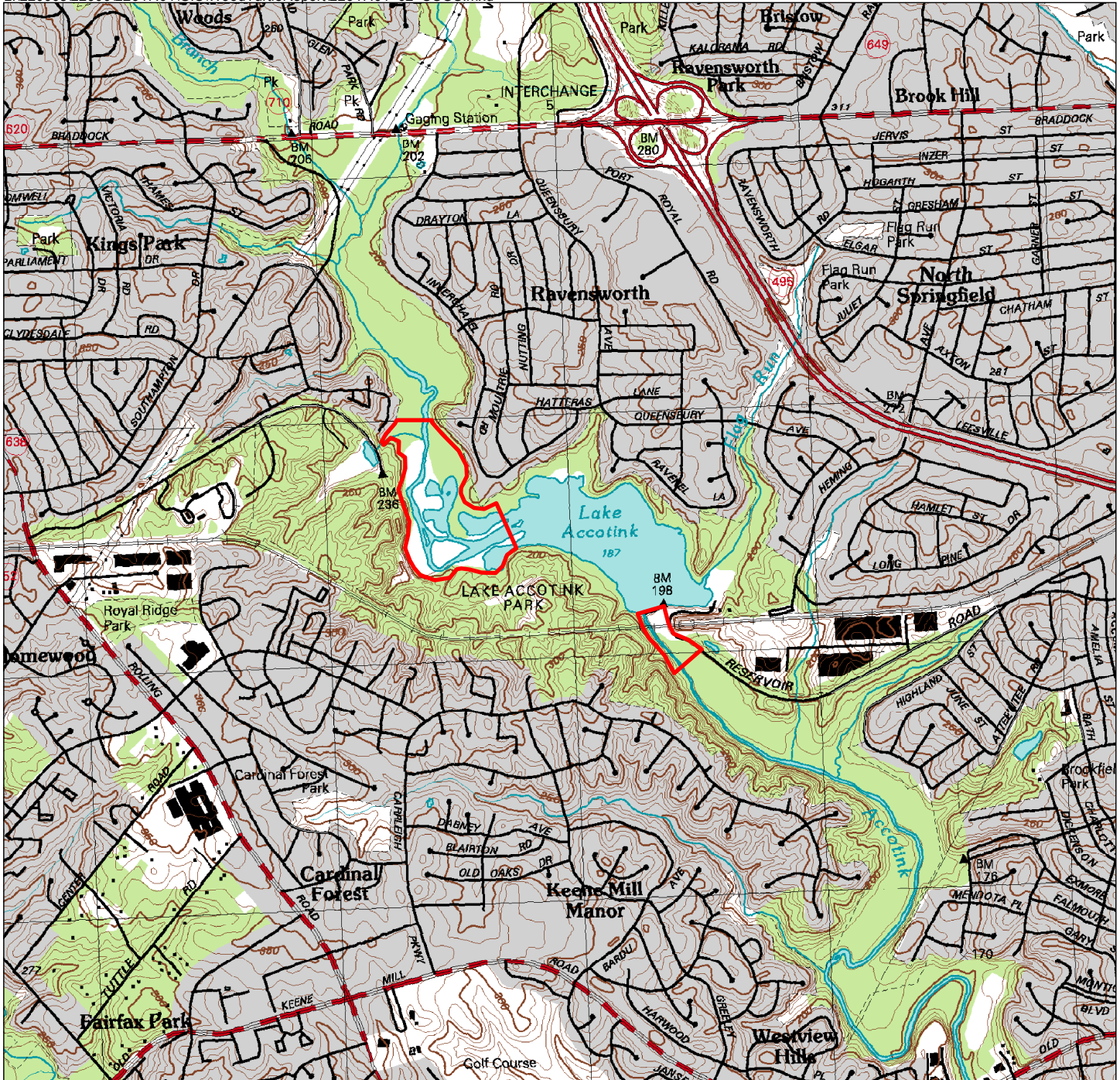
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 Study Area



Vicinity Map
 Lake Accotink Park
 Lake Sustainability Plan Ecological Survey
 WSSI #22647.01
 Original Scale: 1" = 2000'

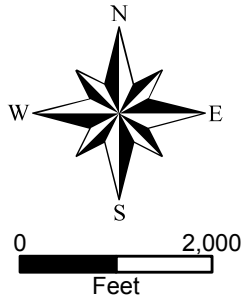


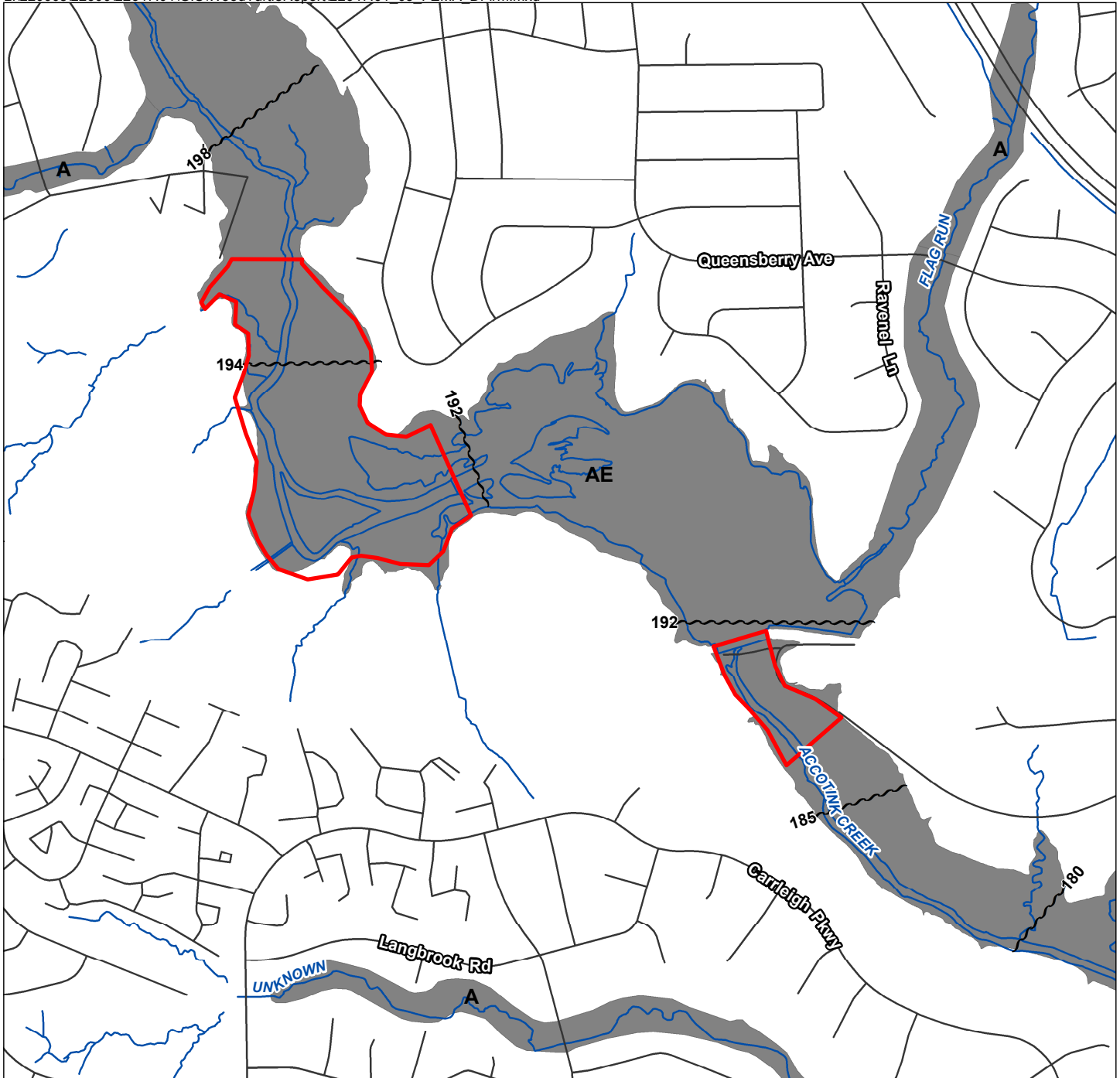






 Study Area

USGS Quad Map
Annandale, VA 1994
Lake Accotink Park
Lake Sustainability Plan Ecological Survey
WSSI #22647.01
Original Scale: 1" = 2000'

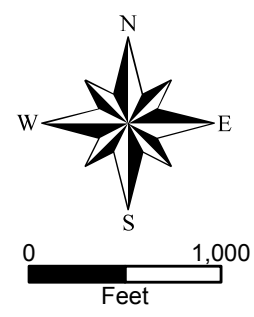
Latitude: 38°47'45" N
 Longitude: 77°13'17" W
 Hydrologic Unit Code (HUC): 020700100402
 Stream Class: III
 Name of Watershed: Accotink Creek
 COE Region: Eastern Mountains and Piedmont






-  Study Area
-  Base Flood Elevation
-  Special Flood Hazard Areas Subject to Inundation by the 1% Annual Chance Flood Event
 - Zone A - No base flood elevations determined.
 - Zone AE - Base flood elevations determined.
-  Other Areas
 - Zone X - Areas determined to be outside the 0.2% annual chance floodplain

FEMA Digital Flood Insurance Rate Map
Panel 51059C0290E Effective 9/17/2010
Lake Accotink Park
Lake Sustainability Plan Ecological Survey
WSSI #22647.01
Original Scale: 1" = 1000'





 Study Area

**Spring 2015 Natural Color Imagery
Lake Accotink Park
Lake Sustainability Plan Ecological Survey
WSSI #22647.01
Original Scale: 1" = 600'**

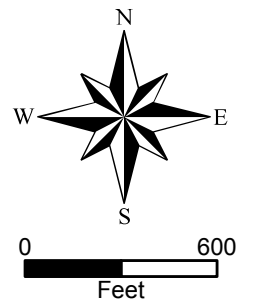
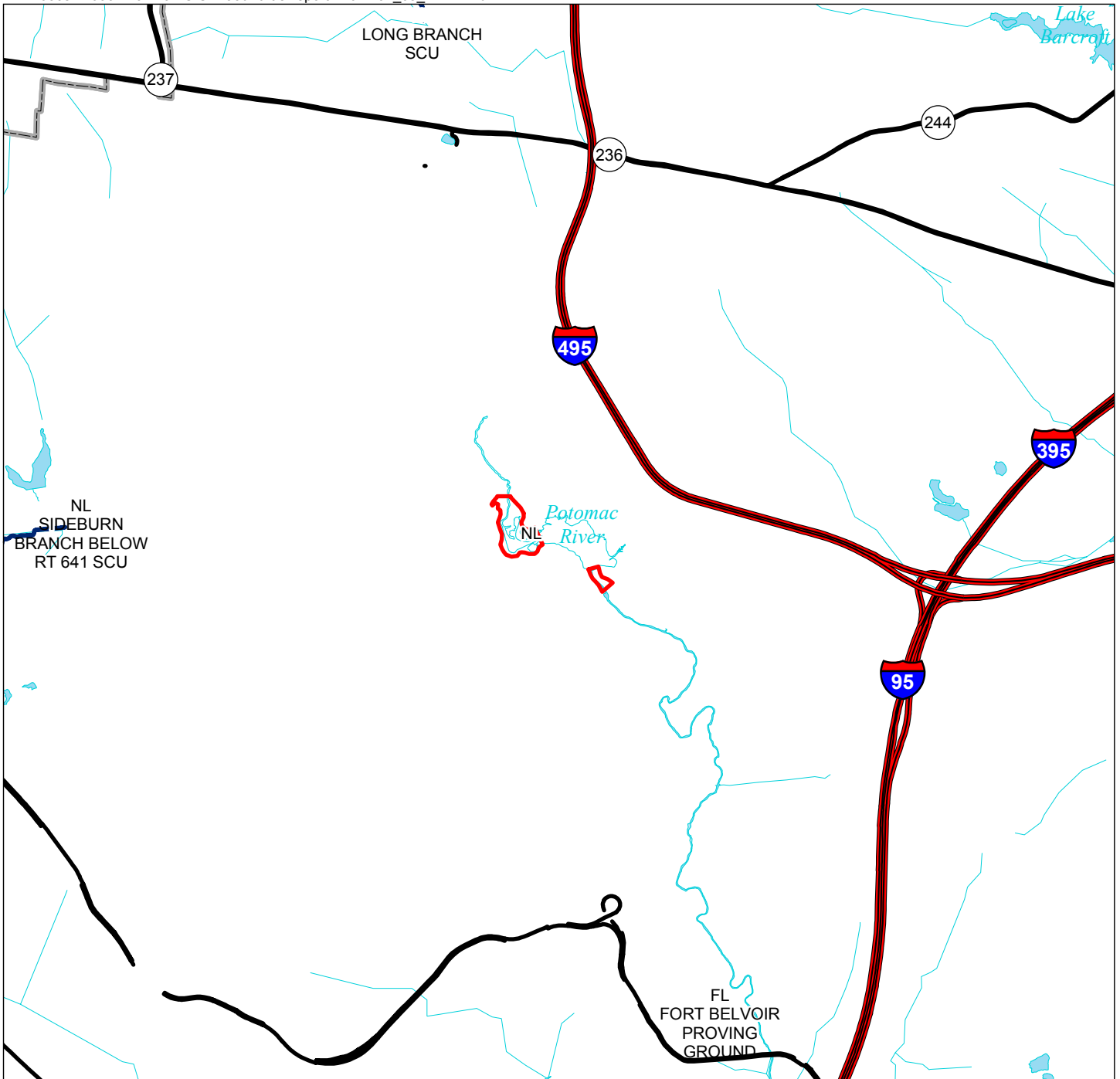


Photo Source: Pictometry®

Wetland Studies and Solutions, Inc.
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Exhibit 4







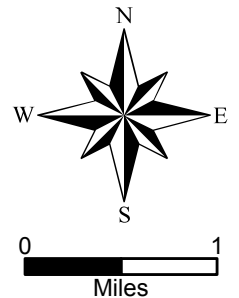
Source: Virginia Department of Conservation and Recreation, Natural Heritage Program - August, 2013

DCR - Natural Heritage Resources Map
Lake Accotink Park
Lake Sustainability Plan Ecological Survey
WSSI #22647.01

Original Scale: 1" = 1 mile

 Study Area

-  Conservation Site
-  General Location of Natural Heritage Resource
-  Karst Feature
-  Stream Conservation Unit (SCU)
- NL No state/federally listed species present
- SL State listed species present
- FL Federally listed species present



VaFWIS Initial Project Assessment Report

Compiled on 3/16/2016, 7:54:53 AM

[Help](#)

Known or likely to occur within a 4 mile radius around point 38.7958200 77.2230200
in 059 Fairfax County, VA

[View Map of Site Location](#)

700 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 35) (35 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
010032	FESE	II	Sturgeon, Atlantic	Acipenser oxyrinchus		BOVA
050022	FT		Bat, northern long-eared	Myotis septentrionalis		BOVA
060006	SE	II	Floater, brook	Alasmidonta varicosa		BOVA
030062	ST	I	Turtle, wood	Glyptemys insculpta		BOVA
040096	ST	I	Falcon, peregrine	Falco peregrinus		BOVA
040129	ST	I	Sandpiper, upland	Bartramia longicauda		BOVA
040293	ST	I	Shrike, loggerhead	Lanius ludovicianus		BOVA
040379	ST	I	Sparrow, Henslow's	Ammodramus henslowii		BOVA
100155	FSST	I	Skipper, Appalachian grizzled	Pyrgus wyandot		BOVA
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
100248	FS	I	Fritillary, regal	Speyeria idalia idalia		BOVA
040093	FS	II	Eagle, bald	Haliaeetus leucocephalus		BOVA
080336	FS	II	Beetle, Gammon's stenelmis riffle	Stenelmis gammoni	Yes	SppObs
100154	FS	II	Butterfly, Persius duskywing	Erynnis persius persius		BOVA
060029	FS	III	Lance, yellow	Elliptio lanceolata		BOVA

010038	FS	IV	Alewife	Alosa pseudoharengus	Yes	BOVA,SppObs
010045	FS		Herring, blueback	Alosa aestivalis	Yes	BOVA,SppObs
080340	FS		Caddisfly, Buffalo Springs	Ceratopsyche etnieri		BOVA
080344	FS		Caddisfly, hydropsychid	Hydropsyche rotosa	Yes	SppObs
030063	CC	III	Turtle, spotted	Clemmys guttata	Yes	BOVA,SppObs
010077		I	Shiner, bridle	Notropis bifrenatus	Yes	BOVA,Habitat,SppObs
040372		I	Crossbill, red	Loxia curvirostra		BOVA
040225		I	Sapsucker, yellow-bellied	Sphyrapicus varius		BOVA
040319		I	Warbler, black-throated green	Setophaga virens		BOVA
040306		I	Warbler, golden-winged	Vermivora chrysoptera		BOVA
040038		II	Bittern, American	Botaurus lentiginosus		BOVA
040052		II	Duck, American black	Anas rubripes		BOVA
040029		II	Heron, little blue	Egretta caerulea caerulea	Yes	BOVA,SppObs
040036		II	Night-heron, yellow-crowned	Nyctanassa violacea violacea	Yes	BOVA,SppObs
040213		II	Owl, northern saw-whet	Aegolius acadicus	Yes	BOVA,SppObs
040105		II	Rail, king	Rallus elegans		BOVA
040186		II	Tern, least	Sterna antillarum		BOVA
040320		II	Warbler, cerulean	Setophaga cerulea		BOVA
040304		II	Warbler, Swainson's	Limnothlypis swainsonii		BOVA
040266		II	Wren, winter	Troglodytes troglodytes		BOVA

To view **All 700 species** [View 700](#)

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FC=Federal Candidate; FS=Federal Species of Concern; CC=Collection Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need;
 II=VA Wildlife Action Plan - Tier II - Very High Conservation Need;
 III=VA Wildlife Action Plan - Tier III - High Conservation Need;
 IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

Bat Colonies or Hibernacula: Not Known

Anadromous Fish Use Streams (1 records)

[View Map of All Anadromous Fish Use Streams](#)

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE*	Highest Tier**	
C2	Accotink creek	Confirmed	2	FC	IV	Yes

Impediments to Fish Passage (4 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
1159	ACCOTINK DAM	ACCOTINK CREEK	Yes
1173	POHICK CREEK DAM #4	RABBIT BRANCH	Yes
1158	POHICK CREEK DAM #7	TR-POHICK CREEK	Yes
1160	POHICK CREEK DAM #8	MIDDLE RUN	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters

N/A

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species (1 Reach)

[View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species](#)

Stream Name	Tier Species					View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name				
Accotink Creek (20700102)		010077		I	Shiner, bridge Notropis bifrenatus	Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Public Holdings:

N/A

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Draft 2014 Impaired Waters

Category 4 & 5 by Basin and Stream Name*

Potomac and Shenandoah River Basins

Cause Group Code: **A15R-01-BEN - Accotink Creek**

Location:	Begins at the outlet of Lake Accotink and continues downstream until the tidal waters of Accotink Bay.
City/County	Fairfax Co.
Use(s):	Aquatic Life
Cause(s) / VA Category:	Benthic-Macroinvertebrate Bioassessments / 5A

Two biological monitoring events in 2007, at station 1aACO002.50, at Route 1, two biological monitoring events in 2007 and two biological monitoring events in 2008 at station 1aACO006.10, at Route 790, and two biological monitoring events in 2008, at station 1aACO009.14, at Routes 636 and 286, all resulted in VSCI scores which indicates an impaired macroinvertebrate community.

Accotink Creek

Aquatic Life

	Estuary (sq. miles)	Reservoir (acres)	River (miles)
Benthic-Macroinvertebrate Bioassessments / 5A			
Total impaired size by water type:			10.09

Sources:

- Source Unknown

* Narrative descriptions, location and city/county describe the entire extent of the impairment. Sizes may not represent the total size of the impairment.



Draft 2014 Impaired Waters

Category 4 & 5 by Basin and Stream Name*

Potomac and Shenandoah River Basins

Cause Group Code: **A15R-01-PCB - Accotink Creek**

Location:	Segment begins at the outlet of Lake Accotink and continues downstream until the tidal waters of Accotink Bay.
City/County	Fairfax Co.
Use(s):	Fish Consumption
Cause(s) / VA Category:	PCB in Fish Tissue / 5A

Excursions above the water quality criterion based fish tissue value (TV) of 20 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in three species of fish (3 total samples): American eel (2004), redbreast sunfish (2004), and rainbow trout (2004) collected at monitoring station 1aACO004.86 (2010 Assessment). Also, excursions for PCBs in fish tissue recorded in one species (American eel) of fish sampled (1 total excursion) at station 1aACO011.62 and in one species (yellow bullhead catfish) of fish sampled (1 total excursion) at station 1aACO012.58, in 2008.

Accotink Creek

Fish Consumption

Estuary (sq. miles)	Reservoir (acres)	River (miles)
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PCB in Fish Tissue / 5A		
Total impaired size by water type:		10.09

Sources:

- Source Unknown

* Narrative descriptions, location and city/county describe the entire extent of the impairment. Sizes may not represent the total size of the impairment.



Draft 2014 Impaired Waters

Category 4 & 5 by Basin and Stream Name*

Potomac and Shenandoah River Basins

Cause Group Code: **A15R-02-BAC - Accotink Creek**

Location:	Begins at the confluence with Crook Branch, upstream from Route 846, and continues downstream until the start of Lake Accotink.
City/County	Fairfax Co.
Use(s):	Recreation
Cause(s) / VA Category:	Escherichia coli / 4A

E. coli bacteria criterion excursions (26 of 68 samples - 38.2%) from station 1aACO014.57, at Route 620.

Accotink Creek

Recreation

	Estuary (sq. miles)	Reservoir (acres)	River (miles)
Escherichia coli / 4A			
Total impaired size by water type:			5.22

Sources:

- Illicit Connections/Hook-ups to Storm Sewers
- Impervious Surface/Parking Lot Runoff
- Sewage Discharges in Unsewered Areas
- Wastes from Pets
- Waterfowl

* Narrative descriptions, location and city/county describe the entire extent of the impairment. Sizes may not represent the total size of the impairment.



Draft 2014 Impaired Waters

Category 4 & 5 by Basin and Stream Name*

Potomac and Shenandoah River Basins

Cause Group Code: **A15R-04-BEN - Accotink Creek**

Location:	Begins at the headwaters of Accotink Creek and continues downstream until the start of Lake Accotink.
City/County	Fairfax City, Fairfax Co.
Use(s):	Aquatic Life
Cause(s) / VA Category:	Benthic-Macroinvertebrate Bioassessments / 5A

EPA biological monitoring events in 2005 and 2006, and two biological monitoring events in 2007 at station 1aACO014.57, at Route 620, resulted in a VSCI score which indicates an impaired macroinvertebrate community.

Accotink Creek

Aquatic Life

	Estuary (sq. miles)	Reservoir (acres)	River (miles)
Benthic-Macroinvertebrate Bioassessments / 5A			
Total impaired size by water type:			11.59

Sources:

- Source Unknown

* Narrative descriptions, location and city/county describe the entire extent of the impairment. Sizes may not represent the total size of the impairment.

**EXHIBIT 8
STUDY AREA PHOTOGRAPHS
LAKE ACCOTINK PARK
WSSI #22647.01**



1. Looking northeast at the undercut bank of Accotink Creek, downstream of Lake Accotink. Suitable habitat for the wood turtle (*Glyptemys insculpta*) is not present in this portion of the study area due to the shallow nature of the stream and the high levels of turbidity.



2. Looking northwest (upstream) at Accotink Creek, downstream of Lake Accotink. This area contains rip-rap and has shallow water with very turbid flow and does not provide suitable winter-phase habitat for the wood turtle.

**EXHIBIT 8
STUDY AREA PHOTOGRAPHS
LAKE ACCOTINK PARK
WSSI #22647.01**



3. **Looking southeast (downstream) at Accotink Creek, downstream of Lake Accotink. This area contains rip-rap and has shallow water with very turbid flow and does not provide suitable winter-phase habitat for the wood turtle.**



4. **Looking north-northeast at the triple culverts under the walking path downstream of Lake Accotink. This area contains rip-rap and has shallow water with very turbid flow and does not provide suitable winter-phase habitat for the wood turtle.**

**EXHIBIT 8
STUDY AREA PHOTOGRAPHS
LAKE ACCOTINK PARK
WSSI #22647.01**



5. Looking northeast at the dam of Lake Accotink.



6. Looking southwest at the floodplain of Accotink Creek, upstream of Lake Accotink. This area provides suitable summer-phase habitat for the wood turtle.

**EXHIBIT 8
STUDY AREA PHOTOGRAPHS
LAKE ACCOTINK PARK
WSSI #22647.01**



7. Looking northwest (upstream) at Accotink Creek, upstream of Lake Accotink. This area does not provide suitable winter-phase habitat for the wood turtle due to the lentic flow of the creek.



8. Looking southwest (downstream) at Accotink Creek, upstream of Lake Accotink. This area does not provide suitable winter-phase habitat for the wood turtle due to the lentic flow of the creek.

**EXHIBIT 8
STUDY AREA PHOTOGRAPHS
LAKE ACCOTINK PARK
WSSI #22647.01**



9. **Looking north (upstream) at Accotink Creek, upstream of Lake Accotink. This area does not provide suitable winter-phase habitat for the wood turtle due to the lentic flow of the creek. However, it may provide a potential basking area for wood turtles.**



10. **Looking south (downstream) at Accotink Creek, upstream of Lake Accotink. This area does not provide suitable winter-phase habitat for the wood turtle due to the lentic flow of the creek.**