ENDANGERED AND THREATENED SPECIES HABITAT EVALUATION AND RARE SPECIES / COMMUNITY ASSESSMENT

A PORTION OF THE COLVIN RUN WATERSHED

FAIRFAX COUNTY, VIRGINIA

Prepared For:

Northern Virginia Stream Restoration, L.C.
c/o Wetland Studies and Solutions, Inc.
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WSSI Project #20010

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Endangered and Threatened Species Habitat Evaluation and Rare Species / Community Assessment

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Fairfax County, Virginia
WSSI #20010

January 14, 2010
Revised January 20, 2011

Executive Summary

Between March 18 and April 24, 2009, on August 19, 2009, between December 4 and December 11, 2009, and on December 21, 2010, Wetland Studies and Solutions, Inc. (WSSI) conducted an Endangered and Threatened Species Habitat Evaluation and Rare Species/Community Assessment within a portion of the Colvin Run Watershed. This study was conducted to determine if federally or state-listed endangered or threatened species (ETS), state-rare species, or rare plant communities are present or likely to occur within the study area.

In summary, no ETS, rare species, or rare plant communities were observed within the study area, and due to the lack of potential habitat, water quality, and distance to known populations, it is WSSI's opinion that there is low probability that these resources occur within the study area.

Introduction

WSSI has prepared an Endangered and Threatened Species Habitat Evaluation and Rare Species/Community Assessment for the Colvin Run study areas. This evaluation assesses the potential for federally listed and state-listed ETS, non-listed state-rare species and rare natural communities whose occurrences are tracked by the Virginia Department of Conservation and Recreation, Division of Natural Heritage (DCR)[1] to occur within the study areas. The results of this qualitative evaluation are graphically depicted on the Endangered and Threatened Species Habitat Evaluation and Rare Species/Community Assessment Map (Attachment I) and are described in detail below.

The study area includes streams and other drainage features as well as the adjacent riparian corridor along several areas within the proposed Colvin Run Watershed portion of the Northern Virginia Stream Restoration Bank. These areas are called Lake Newport, Bennington Woods, Vantage Hill, Baron Cameron Park, Lake Anne, Forest Edge, Wiehle, Tall Oaks, and Buttermilk Creek. The study area is located between the Dulles Access Road (Route 267) and Harry Byrd Highway (Route 7) to the west of Lake Fairfax Park, in northern Fairfax County, Virginia. Exhibit 1 is a vicinity map that depicts the approximate location of the study area.

The study area is covered mostly by mixed-deciduous forest, as depicted in the Spring 2004 WSSI Color Infrared Photograph in the background of Attachment I and on

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[1] *Although these species and communities are not formally listed as endangered or threatened at either the federal or state-level, DCR considers these resources to be of conservation concern and tracks their status and location in Virginia.*

the December 2008 Aerials Express Natural Color Imagery (Exhibit 2). Colvin Run flows in a northeasterly direction through the Tall Oaks study area. The study area is gently to steeply sloping. The topography can be seen in the excerpt from the Vienna, Virginia-Maryland 1994 USGS topographical quadrangle map included as Exhibit 3, as well as in the background topography on Attachment I. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Exhibit 4) depicts the FEMA-mapped floodplain associated with several streams within the study area. The Fairfax County-mapped 100-year floodplain is depicted on Attachment I.

The boundaries of jurisdictional wetlands and other waters of the U.S. located within the study area were delineated and survey-located by WSSI as described in a report entitled "Waters of the U.S. Delineation, Northern Virginia Stream Restoration Bank, A Portion of the Colvin Run Watershed (± 116 acres)". WSSI has received a confirmation letter (# 2007-2482) from the U.S. Army Corps of Engineers dated May 31, 2007, approving the delineation. This report was revised to include additional areas in a revision dated January 14, 2010. A jurisdictional determination from the COE was issued on September 29, 2010 (#2010-0397).

Exhibit 5 includes ground-level photographs depicting existing conditions within the study area. The approximate locations of photographs are depicted on Attachment I.

Methodology

Prior to conducting field work, WSSI consulted a number of references to determine what ETS could potentially occur on, or in the immediate vicinity of, the study area. These references included the following:

- A letter, dated January 9, 2009, from the DCR regarding recorded occurrences of Natural Heritage Resources (NHRs) within the study area, according to DCR's Biotics Data System. This letter indicates the presence of NHRs within the study area; however, due to the scope of activity and distance to resources, the DCR does not anticipate that the project will impact NHRs. A copy of this letter is included as Exhibit 6;

- The DCR Natural Heritage Resources Map (Exhibit 7), which depicts the proximity of documented Natural Heritage Resources (NHRs) to the study area (from data provided to WSSI by DCR under a license agreement);

- A Search Report containing a list of state and federal ETS known or expected to occur within a 3-mile radius of the study area, obtained from the Virginia Fish and Wildlife Information Service (FWIS), an on-line computer database provided by the Virginia Department of Game and Inland Fisheries (VDGIF). This report indicates that the wood turtle (*Glyptemys insculpta*), a state-listed threatened species, and two state-listed special concern species[2], including the barn owl (*Tyto alba*) and brown creeper (*Certhia americana*) have been documented within a 3-mile radius of the study area. A copy of the Search Report is included as Exhibit 8; and;

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2 *The special concern status is not an official legal status, and therefore the designated birds under this status are not formally protected by state or federal endangered species laws.*

- A letter, dated January 23, 2009, from the VDGIF regarding recorded concurrences of endangered and threatened species within the study area. This letter indicates that the wood turtle has been documented 1.5 miles from the easternmost study area. The letter from the DGIF also notes that Colvin Run is a tributary to a portion of Difficult Run that is designated a Threatened and Endangered Species Water due to documented wood turtle occurrences along Difficult Run. A copy of this letter is included as Exhibit 9.

From these references, WSSI compiled a list of ETS that are known to occur, or that could potentially occur, in the vicinity of the study area. These species, their regulatory status and habitat preferences are listed in Table 1 of this report and include the wood turtle, barn owl, and brown creeper. The references listed above did not indicate the presence or likelihood of occurrence of other ETS, state-rare species, or rare plant communities that occur in Northern Virginia such as the small whorled pogonia (*Isotria medeoloides*), American ginseng (*Panax quinquefolium*), bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus, including F.p. tundrius*), upland sandpiper (*Bartramia longicauda*), loggerhead shrike (*Lanius ludovicianus ludovicianus, L.l. migrans*), and Henslow's Sparrow (*Ammodramus henslowii*), state-rare diabase plants, upland depression swamps, and northern hardpan basic oak-hickory forests. Thus, these species are not addressed in detail in this report; furthermore, WSSI's field studies confirmed the lack of habitat for or presence of any of these other species within the study area.

Between March 18 and April 24, 2009, Jennifer D. Feese, PWS, PWD, Sean D. Sipple, PWS, PWD, CT, Lynn Straughan, PWS, PWD, and Beth Clements traversed the entire study area. Additional fieldwork was conducted by Sean D. Sipple, Jennifer D. Feese, Caitlin Kelliher, and Chelsea Trant on August 19, 2009 and between December 4 and 11, 2009. Additional fieldwork was also conducted by Sean D. Sipple on December 21, 2010. The study area was inspected for suitable habitat for the ETS determined by the literature and database searches to potentially occur in the vicinity of the study area. While conducting the habitat evaluation, WSSI also searched for individuals of these species in appropriate habitat, if present, and any observations of these species were noted. The brown creeper, however, is seasonal in occurrence or exhibits a level of behavior and activity that varies with the seasons, and therefore, this species may not be readily observable throughout the year. For this reason, the brown creeper may not have been present at the time of this investigation, and exhaustive searches for this species were not conducted at the time of this habitat evaluation. More intensive surveys of suitable habitat during the appropriate season would be required to maximize the chance for locating individuals of this species.

Part of the habitat evaluation included determining the extent of suitable wood turtle habitat within the study area. To do so, WSSI staff traversed the entire study area, including aquatic and terrestrial habitats[3] and inspected these areas to identify specific habitat features and classified them according to quality categories. Only representative habitat features (or lack of) were photographed. For the purpose of this report, WSSI has defined the wood turtle habitat quality categories as follows:

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[3] *All survey participants are authorized by VDGIF to collect wood turtles through inventory, assessment and distributional studies under TEND permit #031061 as sub-permittees.*

- **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 sparcely-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 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.

To determine whether the wood turtle occupies aquatic winter-phase habitat within the study area, an exhaustive systematic search was conducted along any marginal and optimal habitat (identified during the habitat evaluation) along streams within the study area. WSSI systematically searched for wood turtles and recorded any observations of reptiles, amphibians, and other aquatic wildlife, including freshwater mussels and fish. A total of 24 contact hours of searching was performed within the study area within a two-day period.

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.

Results

Table 1 below summarizes the ETS that are known to occur or could potentially occur within the study area based on the literature and database searches. The potential for each of the ETS to occur within the study area is discussed in more detail in the following text.

Table 1. Listed Endangered, Threatened, and Rare Species Summary Table, Colvin Run Study Areas, Fairfax County, VA.

NAME	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Wood Turtle (*Glyptemys insculpta*)	ST	Clear perennial streams in forested floodplains and nearby fields, wet meadows, and farmlands.	Marginal and some optimal aquatic winter-phase and terrestrial habitat present. Low potential for occurrence within study area due to mostly marginal habitat, negative search results, and distance to a viable population.
Barn Owl (*Tyto alba*)	SS	Nests in silos, barns, and abandoned buildings, or large natural tree cavities. Forages in open fields and grasslands.	Suitable habitat not present within study area. Presumed absent.
Brown Creeper (*Certhia americana*)	SS	In Virginia, nests primarily in old-growth coniferous and mixed hardwood coniferous forests in the extreme north and at higher elevations of the mountains. Recorded breeding at Huntley Meadows, Fairfax County from 1984 to the early 1990s, but no breeding season records there since the 1990s.	Only known to nest in Fairfax County at Huntley Meadows Park from 1984 to 1990, but no breeding season records have been there since the early 1990s. Uncommon to common transient and winter visitor throughout Virginia. May occur as a migrant or winter visitor in forested habitats within the study area.

ST = State-listed Threatened
SS = State-listed Special Concern

Wood Turtle

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).

Habitat Requirements

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.

Potential Occurrence within the Study Area

During the time of the survey, water temperature was 9 °C, which is favorable for locating wood turtles in the streams since wood turtles emerge from their hibernacula at water temperatures of 15 °C. Air Temperature was 5 °C on average. The wind speed was estimated at 10 miles per hour. The relative humidity was 40%.

Based on our habitat evaluation, most of the study area provides marginal terrestrial habitat and unsuitable winter-phase habitat for wood turtles (Attachment I). However, the Tall Oaks study area provides optimal terrestrial and winter-phase habitat and portions of the Buttermilk Creek, Forest Edge, and Wiehle study areas provide marginal winter-phase habitat for wood turtles. Other areas such as non-perennial streams do not contain enough water during the over-wintering period to provide winter-phase habitat for wood turtles. Thus, a systematic search for the presence of wood turtles was not conducted in non-perennial streams during this study. Optimal terrestrial wood turtle habitat within the study area consists of a relatively wide, easily accessible, forested floodplain with basking and nesting habitat and containing potential plant species for foraging (Tall Oaks study area) such as greenbriars (*Smilax rotundifolia*), honeysuckles (*Lonicera* spp.), and grapes (*Vitis* spp.). Marginal terrestrial wood turtle habitat within the study area consists of a relatively narrow floodplain, with difficult accessibility due to stream incision, and lacking an abundance of basking and nesting habitat. Optimal winter-phase wood turtle habitat was present in 10 areas (Tall Oaks study area; Data Sites 11-20). Optimal winter-phase wood turtle habitat consisted of areas with an abundance of undercut banks, root wads, and log jams in deep, well oxygenated areas with short or no freeze-over periods. Marginal winter-phase wood turtle habitat was present in 10

areas (Buttermilk Creek, Forest Edge, and Wiehle study areas; Data Sites 1-10). Marginal winter-phase wood turtle habitat consisted of areas with undercut banks, rootwads, and log jams; however, the features were in shallow depths, with potentially long freeze-over periods. In addition to these habitat features, less suitable habitat features were observed, but not recorded. These features included transient logs likely to be displaced following storm events and rootwads or undercut banks that were located above ordinary high water and would not be continuously submerged to provide overwintering habitat. Table 1, below contains the number of observations of each habitat type.

Table 1: Wood Turtle Overwintering Habitat Features

MAPPED DATA SITES = 20	In-stream Habitat Feature Type						TOTAL
	Root Wad	Undercut Bank	Log or Log Jam	Leaf Packs	Tree Fall/ Snag	Hole	
# FEATURES OBSERVED	12	13	3	0	9	0	37
PERCENT	33	35	8	0	24	0	100
		Number of Sites With Multiple Habitat Features (MHF)					13
		Percent of Observed Sites With MHF					65

Although water temperatures were favorable for locating wood turtles in the streams and some terrestrial and winter-phase 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 factors such as degraded habitat (as described in our findings above), degraded water quality, and the proximity to a viable wood turtle population. It has been documented that much of the Colvin Run Watershed has poor water quality, which is likely due to the extent of development in the watershed (Virginia Save Our Streams 2002-2008). 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). The relatively highly impervious watershed and non-point source pollutant run-off is likely having some impact on the quality of these streams. Thus, terrestrial and winter-phase wood turtle habitat is only marginal and based on the distances to known occurrences, it is not surprising that we did not find any wood turtles during this study.

Based on the results of this study, and the lack of conclusive evidence of wood turtles anywhere in the Colvin Run watershed, it is WSSI's opinion that the probability that the study area supports wood turtles is low.

Barn Owl

The barn owl (*Tyto alba*) is an uncommon to rare resident throughout Virginia. Between 1976 and 1985, there were 111 known barn owl nest sites in Virginia, but in 1986, only 43 of those nest sites supported active breeding pairs. For this reason, it was recommended to list the barn owl as threatened in Virginia (Watts and Whalen, 2004). An artificial nest box program in the state resulted in an increase in known barn owl nest sites, and in January 1993, this species was designated a state special concern species (VDGIFa). The special concern status is not an official legal status, and thus, the barn owl is not formally protected by state or federal endangered species laws.

Habitat Requirements

The barn owl nests in areas of open country where it hunts for rodents and other small prey in densely grassed fields such as coastal marshes, lightly grazed pastures, and hay fields. Cultivated fields, with the exception of small grain fields, do not provide suitable foraging habitat due to low prey populations and dense protective cover. Barn owls require secure nest sites in close proximity to extensive complexes of such open habitats. Studies in coastal Virginia and New Jersey have shown that barn owls occupy home ranges encompassing several hundred hectares that contain nearly 250 acres (100 hectares) or grassland foraging habitat (Watts and Whalen, 2004). A 1986 study of nesting barn owls in the Richmond area determined that the home range of barn owls may vary from 1,025 to 2,100 acres (414 to 851 hectares) (VDGIFa). The species is often closely associated with human activities, often nesting in barns and silos, wooden water tanks, duck blinds, abandoned buildings, nest boxes, church steeples, and other artificial sites. Barn owls may nest in densely populated metropolitan areas (e.g., the have been known to nest in the old New York Yankees baseball stadium), providing they support sufficient populations of prey species such as rats and mice (Marti et al., 2005).

Potential Occurrence within the Study Area

According to the DGIF computerized Fish and Wildlife Information System (FWIS) database, the only nests observed within a 10 mile radius were from Sterling and Herndon, Virginia in 1989. No nesting barn owls have been documented since within a 10 mile radius. Due to minimal secure nesting sites and the lack of extensive open foraging habitat, it is WSSI's opinion that barn owls are not likely to regularly occur within the study area. In addition, barn owls are uncommon to rare permanent residents in the coastal plain and piedmont regions (VSO, 2007). Therefore, it is WSSI's opinion that the stream restoration efforts within the study area will have no direct effect on this species due to the lack of nesting habitat within the study area and that no known nesting barn owls have been documented in the vicinity of the study area.

Brown Creeper

Although the brown creeper (*Certhia americana*) is widespread throughout its range, it is one of the most inconspicuous songbirds and is the only treecreeper in North America (Hejl et al. 2002). Records indicate that brown creepers are rare within their breeding range of Virginia, and are common to uncommon transients and winter residents in coastal plain and piedmont areas. The brown creeper was listed as a state species of special concern on January 1, 1993 (VDGIFb). The special concern status is not an

official legal status, and thus, the brown creeper is not formally protected by state or federal endangered species laws.

Habitat Requirements

Brown creeper nesting habitat can be generally characterized as coniferous forests and mixed-coniferous forests that include numerous large snags and live trees with high canopy cover. Wintering habitat is similar to that of breeding, with the exception that brown creepers are found in a variety of wooded habitats such as forested suburban and urban areas and orchards (Hejl et al., 2002). Typically associated with higher elevations in the mountain and valley region of Virginia, the brown creeper has been known to nest in middle–aged to mature dense coniferous forests, deciduous or mixed woodlands, and wooded swamps with standing dead trees with loose bark (VDGIFb). Wintering habitat in Virginia includes pole-sized stands of loblolly and short-leaf pines (*Pinus taeda* and *Pinus echinata*, respectively).

Potential Occurrence within the Study Area

Based on the DGIF fish and wildlife database search, the brown creeper was known to nest at Huntley Meadows Park, Fairfax County from 1984 to the early 1990s, but there has been no record of breeding pairs there since the early 1990s (VSO, 2007). Due to the lack of high-quality habitat within the study area (*i.e.*, coniferous forest), and based on the absence of any recent records from DGIF fish and wildlife database search, it is WSSI's opinion that the brown creeper is unlikely to nest within the study area. Given its wide distribution throughout its winter range, it is probable that the brown creeper may occur as a migrant or winter visitor in forested habitats within the study area.

It is WSSI's opinion that the stream restoration efforts within the study area will have no direct effect on this species during the breeding season due to the lack of nesting habitat. The brown creeper is an uncommon transient and winter resident of coastal plain and piedmont regions; however, in the event that this species overwinters in the study area, it is WSSI's opinion that these birds will be capable of seeking refuge and foraging habitat within adjacent forested areas.

Conclusions

In summary, no ETS, rare species, or rare plant communities were observed within the study area, and due to the lack of potential habitat, it is WSSI's opinion that there is low probability that these resources occur within the study area.

Limitations

This study is based on examination of the conditions on the study site at the time of our review and does not address conditions in the future. Such conditions change over time. Therefore, our conclusions may vary from future observations. Our ETS Habitat Evaluation and Rare Species/Community Assessment and report have been prepared in accordance with generally accepted guidelines for the conduct of such evaluations. We make no other warranties; either expressed or implied, that other wildlife species will not be observed in the project site during future Endangered and Threatened Species Habitat Evaluation and Rare Species / Community Assessment wildlife surveys.

If you have any questions regarding this report, please contact me at (703) 679-5649 or ssipple@wetlandstudies.com.

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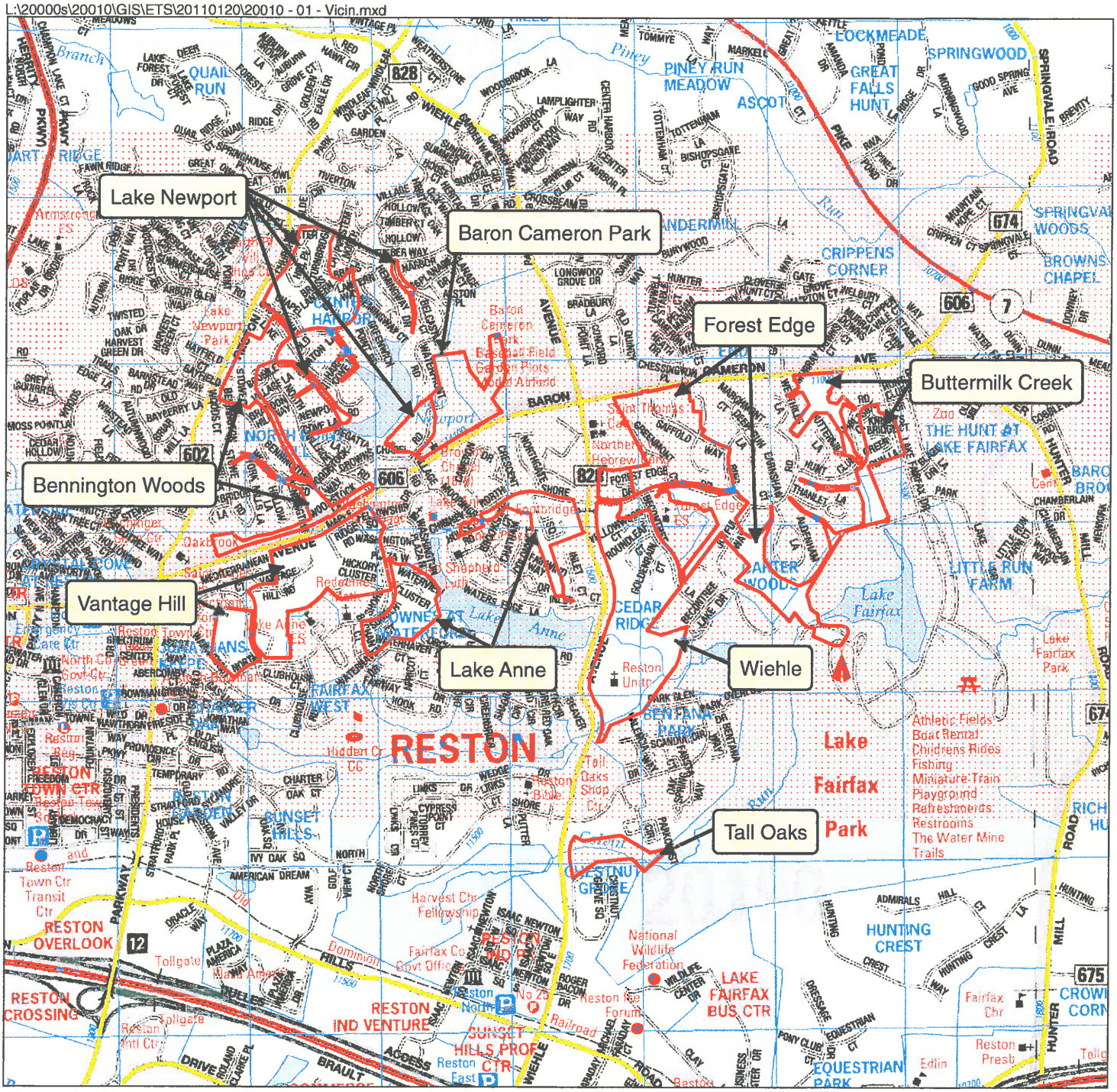
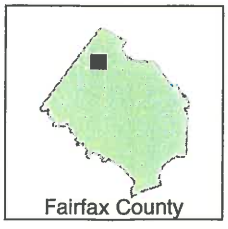
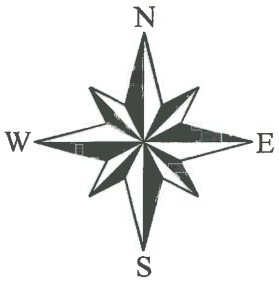


Vicinity Map
Northern Virginia Stream Restoration Bank
A Portion of the Colvin Run Watershed
WSSI #20010
Scale: 1" = 2000'





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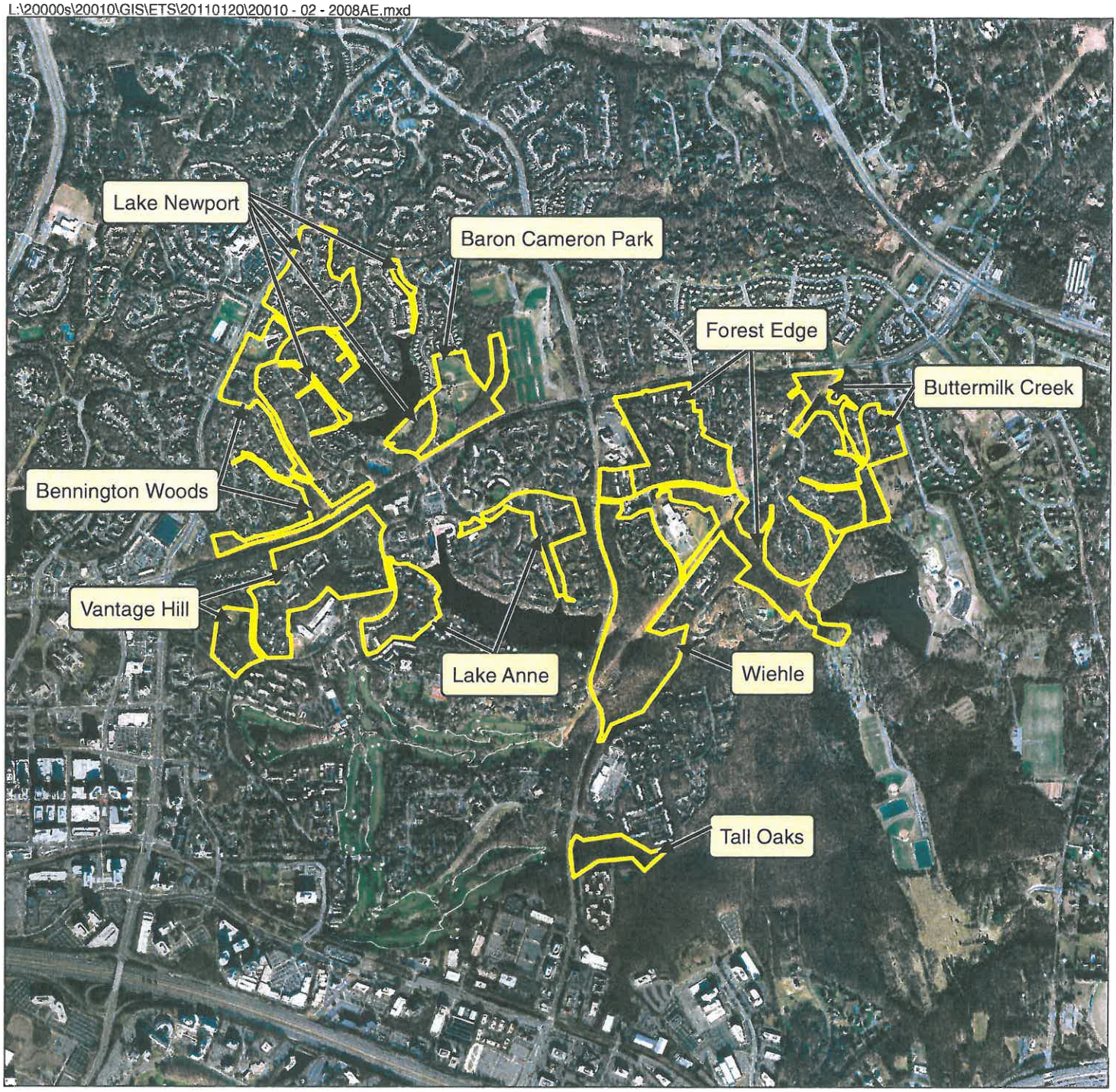

December 2008 Natural Color Imagery
Northern Virginia Stream Restoration Bank
A Portion of the Colvin Run Watershed
WSSI #20010
Scale: 1" = 2000'

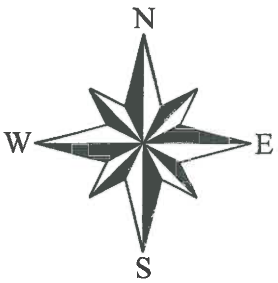

Photo Source: Aerials Express

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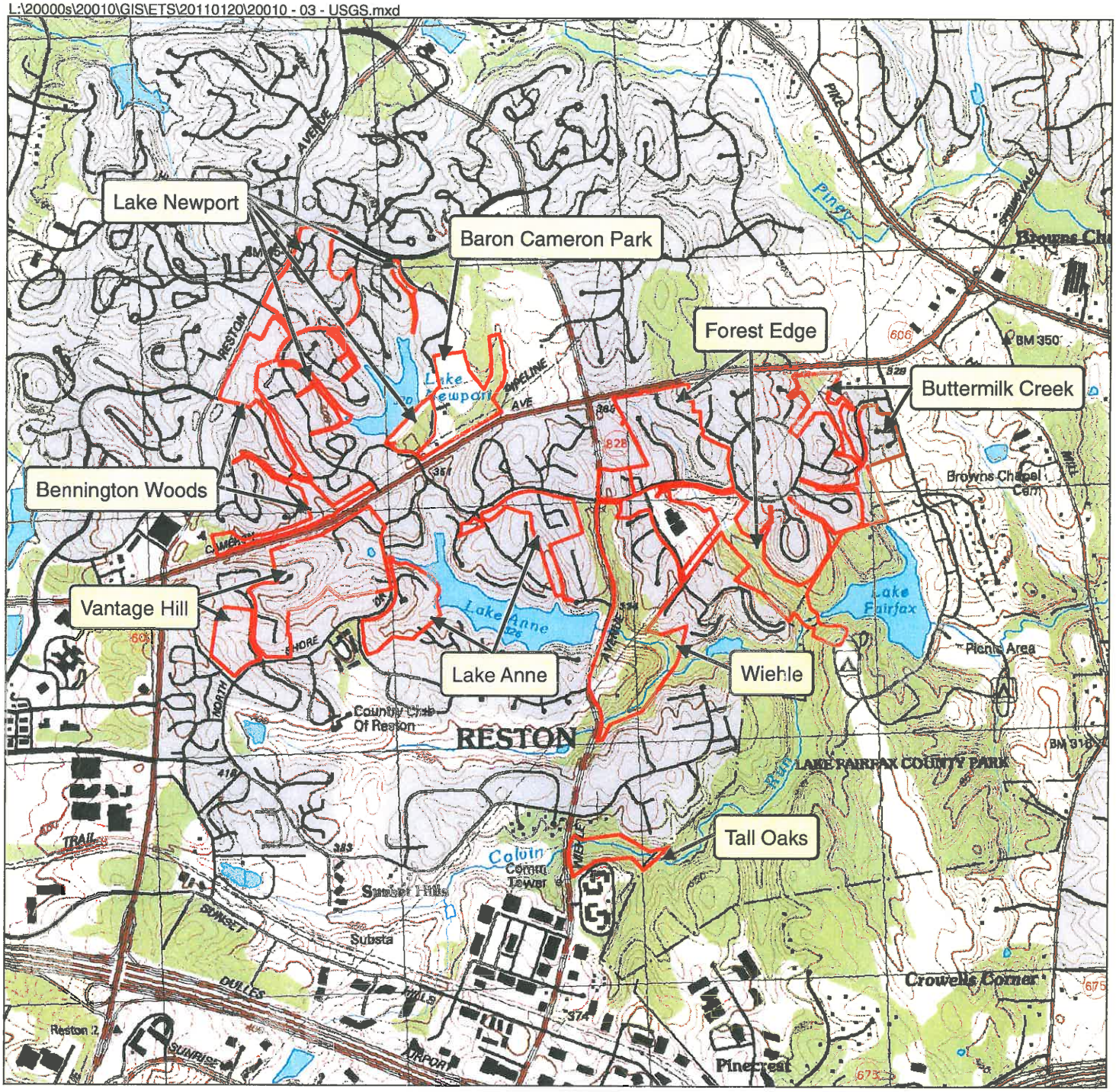

USGS Quad Map
Vienna, VA-MD 1994
Northern Virginia Stream Restoration Bank
A Portion of the Colvin Run Watershed
WSSI #20010
Scale: 1" = 2000'

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Latitude: 38°58'07" N
Longitude: 77°20'34" W
Hydrologic Unit Code (HUC): 02070008
Stream Class: III
Name of Watershed: Colvin Run

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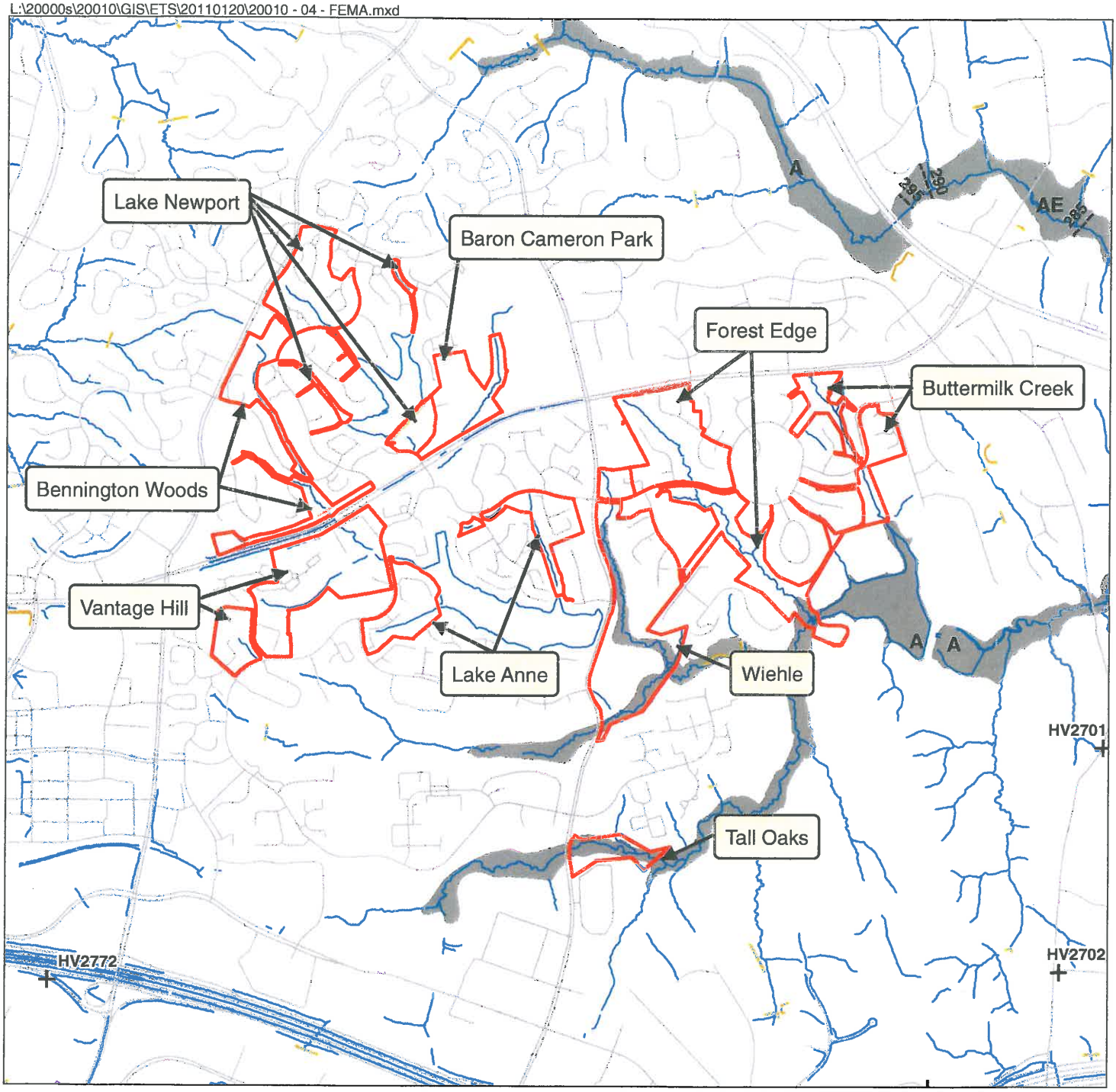

FEMA Flood Insurance Rate Map
Panel 51059C0130E Revised 9/17/2010
Northern Virginia Stream Restoration Bank
A Portion of the Colvin Run Watershed
WSSI #20010
Scale: 1" = 2000'

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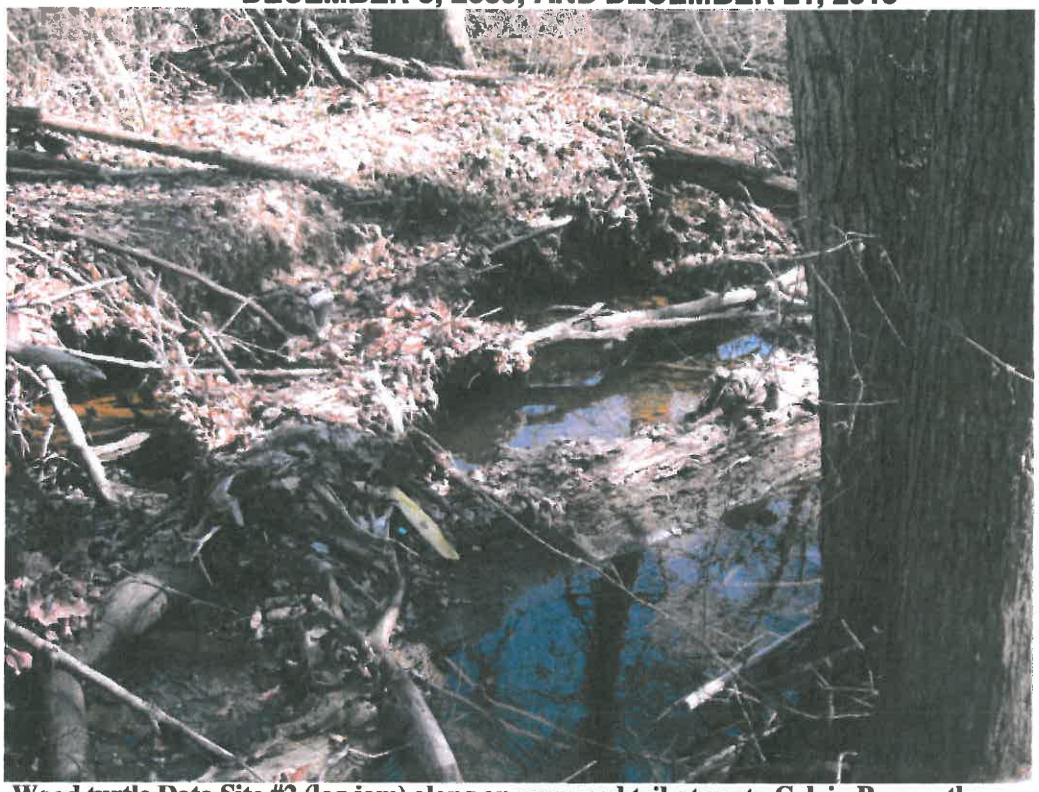
EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

1. **Looking southeast (downstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on Section A of the study area. Due to the generally incised stream, narrow floodplain, and low abundance of winter-phase habitat, this area provides only marginal habitat for wood turtles (*Glyptemys insculpta*). The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl (*Tyto alba*) and brown creeper (*Certhia americana*). (Attachment 1, Sheet 5)**

2. **Looking east (downstream) at a concrete-lined ditch on the Buttermilk Creek study area. This feature does not provide suitable habitat for wood turtles. (Attachment 1, Sheet 5)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010



3. **Wood turtle Data Site #2 (log jam) along an unnamed tributary to Colvin Run on the Buttermilk Creek study area. Due to the shallow depth, with a potentially long freeze-over period, this feature is considered marginal winter-phase habitat. (Attachment 1, Sheet 5)**

4. **Wood turtle Data Site #1 (undercut bank/snag) along an unnamed tributary to Colvin Run on the Buttermilk Creek study area. Due to the shallow depth, with a potentially long freeze-over period, this feature is considered marginal winter-phase habitat. (Attachment 1, Sheet 5)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

5. **Looking north (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Buttermilk Creek study area. Due to the generally incised stream, narrow floodplain, and low abundance of winter-phase habitat, this area provides only marginal habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 5)**

6. **Looking northwest (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Buttermilk Creek study area. Due to the generally incised stream, narrow floodplain, and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 5)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

7. **Looking east (downstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Forest Edge study area. Due to the generally incised stream, narrow floodplain, and low abundance of winter-phase habitat, this area provides only marginal habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 4)**

8. **Wood turtle Data Site #3 (undercut bank) along an unnamed tributary to Colvin Run on the Forest Edge study area. Due to the shallow depth, with a potentially long freeze-over period, this feature is considered marginal winter-phase habitat. (Attachment 1, Sheet 4)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

9. **Looking northeast (upstream) at a concrete-lined ditch on the Forest Edge study area. This feature does not provide suitable habitat for wood turtles. (Attachment 1, Sheet 4)**

10. **Looking southeast (downstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Forest Edge study area. Due to the small size, narrow floodplain, and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 2)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

11. **Looking northwest (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Forest Edge study area. Due to the small size, narrow floodplain, and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest and scrub-shrub community in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 2)**

12. **Wood turtle Data Site #4 (snag/undercut bank) along an unnamed tributary to Colvin Run on the Wiehle study area. Due to the shallow depth, with a potentially long freeze-over period, this feature is considered marginal winter-phase habitat. (Attachment 1, Sheet 4)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

13. **Wood turtle Data Site #5 (rootwad/undercut bank) along an unnamed tributary to Colvin Run on the Wiehle study area. Due to the shallow depth, with a potentially long freeze-over period, this feature is considered marginal winter-phase habitat. (Attachment 1, Sheet 4)**

14. **Looking northeast (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Wiehle study area. Due to the generally incised stream, narrow floodplain, and low abundance of winter-phase habitat, this area provides only marginal habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 4)**

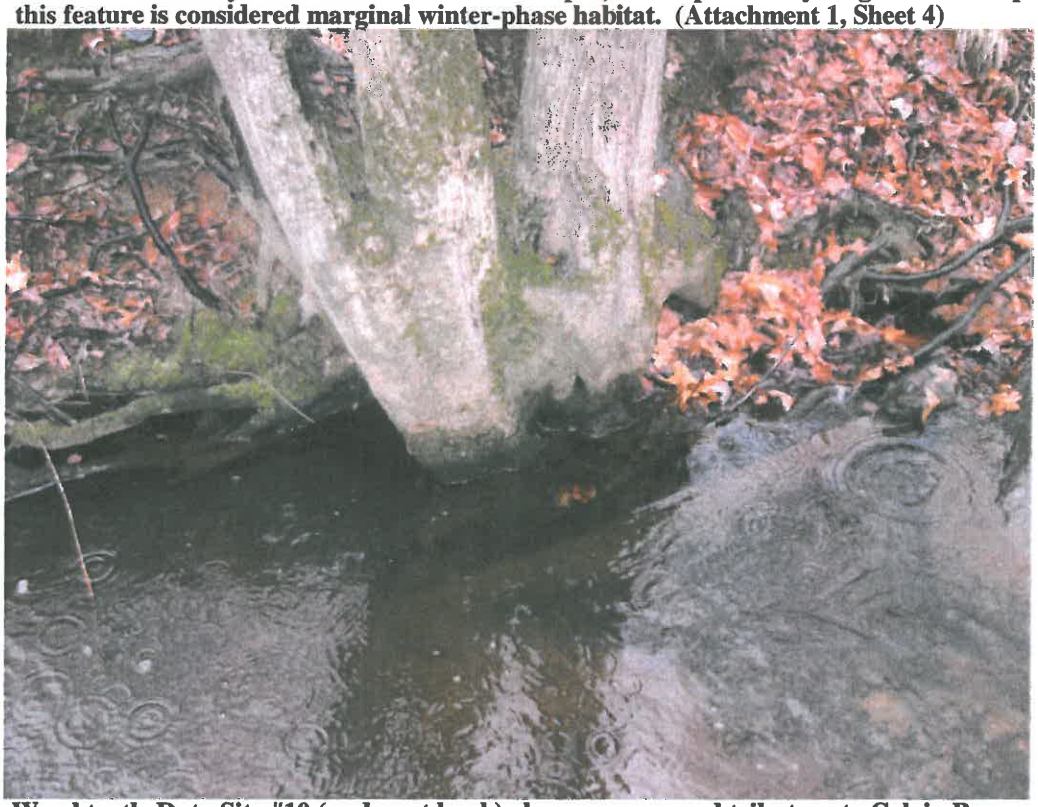
EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

15. **Wood turtle Data Site #6 (rootwad/undercut bank) along an unnamed tributary to Colvin Run on the Wiehle study area. Due to the shallow depth, with a potentially long freeze-over period, this feature is considered marginal winter-phase habitat. (Attachment 1, Sheet 4)**

16. **Wood turtle Data Site #8 (rootwad/undercut bank) along an unnamed tributary to Colvin Run on the Wiehle study area. Due to the shallow depth, with a potentially long freeze-over period, this feature is considered marginal winter-phase habitat. (Attachment 1, Sheet 4)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

17. **Wood turtle Data Site #9 (rootwad/undercut bank) along an unnamed tributary to Colvin Run on the Wiehle study area. Due to the shallow depth, with a potentially long freeze-over period, this feature is considered marginal winter-phase habitat. (Attachment 1, Sheet 4)**



18. **Wood turtle Data Site #10 (undercut bank) along an unnamed tributary to Colvin Run on the Wiehle study area. Due to the shallow depth, with a potentially long freeze-over period, this feature is considered marginal winter-phase habitat. (Attachment 1, Sheet 4)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

19. **Looking northwest (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Wiehle study area. Due to the narrow floodplain and low abundance of winter-phase habitat, this area provides only marginal habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 4)**

20. **Looking north (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Wiehle study area. Due to the generally incised stream, narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 4)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

21. **Looking north (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Wiehle study area. Due to the generally incised stream, narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 2)**

22. **Looking southeast (downstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Lake Anne study area. Due to the generally incised stream, narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 4)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

23. **Looking east (downstream) at a concrete-lined ditch on the Lake Anne study area. This feature does not provide suitable habitat for wood turtles. (Attachment 1, Sheet 3)**

24. **Looking southwest (upstream) at a concrete-lined ditch on the Lake Anne study area. This feature does not provide suitable habitat for wood turtles. (Attachment 1, Sheet 3)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

25. **Looking north (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Baron Cameron Park study area. Due to the generally incised stream, narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 1)**

26. **Looking northeast (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Baron Cameron Park study area. Due to the generally incised stream, narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 1)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

27. **Looking northwest (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Lake Newport study area. Due to the generally incised stream, narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 1)**

28. **Looking northwest (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Bennington Woods study area. Due to the narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 3)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

29. **Looking northwest (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Bennington Woods study area. Due to the narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 3)**

30. **Looking northwest (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Vantage Hill study area. Due to the concrete-lined channel and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 3)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

31. **Looking southwest at a pond along an unnamed tributary to Colvin Run on the Vantage Hill study area. Due to the lack of winter-phase habitat and narrow floodplain, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 3)**

32. **Looking southwest (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Vantage Hill study area. Due to the narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 3)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

33. **Looking northwest (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Vantage Hill study area. Due to the narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 3)**

34. **Looking northwest (upstream) at a concrete-lined ditch on the Vantage Hill study area. This feature does not provide suitable habitat for wood turtles. (Attachment 1, Sheet 3)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

35. **Looking southwest (upstream) at an unnamed tributary to Colvin Run and its adjacent floodplain on the Lake Anne study area. Due to the generally incised stream, narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 3)**

36. **Looking west (upstream) at Colvin Run and its adjacent floodplain on the Tall Oaks study area. The easily accessible wide forested floodplain and abundance of winter-phase habitat provide optimal habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. (Attachment 1, Sheet 5)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

37. **Wood turtle Data Site #11 (snag) along Colvin Run on the Tall Oaks study area. This feature is in an area that is deep and well oxygenated, with a short or no freeze-over period, thus it is considered optimal winter-phase habitat. (Attachment 1, Sheet 5)**

38. **Wood turtle Data Site #12 (rootwad/undercut bank) along Colvin Run on the Tall Oaks study area. This feature is in an area that is deep and well oxygenated, with a short or no freeze-over period, thus it is considered optimal winter-phase habitat. (Attachment 1, Sheet 5)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

39. **Wood turtle Data Site #13 (log jam) along Colvin Run on the Tall Oaks study area. This feature is in an area that is deep and well oxygenated, with a short or no freeze-over period, thus it is considered optimal winter-phase habitat. (Attachment 1, Sheet 5)**

40. **Wood turtle Data Site #14 (rootwad/undercut bank/log jam) along Colvin Run on the Tall Oaks study area. This feature is in an area that is deep and well oxygenated, with a short or no freeze-over period, thus it is considered optimal winter-phase habitat. (Attachment 1, Sheet 5)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

41. **Wood turtle Data Site #15 (rootwad/snag) along Colvin Run on the Tall Oaks study area. This feature is in an area that is deep and well oxygenated, with a short or no freeze-over period, thus it is considered optimal winter-phase habitat. (Attachment 1, Sheet 5)**

42. **Wood turtle Data Site #16 (rootwad/snag) along Colvin Run on the Tall Oaks study area. This feature is in an area that is deep and well oxygenated, with a short or no freeze-over period, thus it is considered optimal winter-phase habitat. (Attachment 1, Sheet 5)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

43. **Wood turtle Data Site #17 (rootwad/undercut bank) along Colvin Run on the Tall Oaks study area. This feature is in an area that is deep and well oxygenated, with a short or no freeze-over period, thus it is considered optimal winter-phase habitat. (Attachment 1, Sheet 5)**

44. **Wood turtle Data Site #18 (rootwad/undercut bank) along Colvin Run on the Tall Oaks study area. This feature is in an area that is deep and well oxygenated, with a short or no freeze-over period, thus it is considered optimal winter-phase habitat. (Attachment 1, Sheet 5)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

45. **Wood turtle Data Site #19 (rootwad/undercut bank) along Colvin Run on the Tall Oaks study area. This feature is in an area that is deep and well oxygenated, with a short or no freeze-over period, thus it is considered optimal winter-phase habitat. (Attachment 1, Sheet 5)**

46. **Wood turtle Data Site #20 (snag) along Colvin Run on the Tall Oaks study area. This feature is in an area that is deep and well oxygenated, with a short or no freeze-over period, thus it is considered optimal winter-phase habitat. (Attachment 1, Sheet 5)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

47. **Looking southeast (downstream) at an unnamed tributary to Colvin Run on the Lake Newport study area. Due to the generally incised stream, narrow floodplain, and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. Photograph taken on August 19, 2009. (Attachment 1, Sheet 1)**

48. **Looking southwest at Lake Newport, a palustrine open water (POW) pond on the southern portion of the Lake Newport. Due to the lack of winter-phase habitat and narrow floodplain, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. Additionally, this area lacks the preferred nesting habitat for the barn owl and brown creeper. Photograph taken on August 19, 2009. (Attachment 1, Sheet 1)**

EXHIBIT 5
ETS HABITAT EVALUATION AND SURVEY PHOTOGRAPHS
A PORTION OF THE COLVIN RUN WATERSHED
TAKEN MARCH 18-19, 2009; APRIL 24, 2009; AUGUST 19, 2009;
DECEMBER 5, 2009, AND DECEMBER 21, 2010

49. **Looking northeast at a perennial stream adjacent to Baron Cameron Parkway. Due to the lack of winter-phase habitat and narrow floodplain, this area provides unsuitable terrestrial and unsuitable winter-phase habitat for wood turtles. Additionally, this area lacks the preferred nesting habitat for the barn owl and brown creeper. Photograph taken in December 2009. (Attachment 1, Sheet 3)**

50. **Looking northeast at the riparian zone along an unnamed tributary to Colvin Run on the Lake Anne study area. Due to the generally incised stream, narrow floodplain and lack of winter-phase habitat, this area provides marginal terrestrial and unsuitable winter-phase habitat for wood turtles. The mixed-hardwood forest in this area lacks the preferred nesting habitat for the barn owl and brown creeper. Photograph taken in December 2010. (Attachment 1, Sheet 3)**

L. Preston Bryant, Jr.
Secretary of Natural Resources

Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

217 Governor Street
Richmond, Virginia 23219-2010
(804) 786-7951 FAX (804) 371-2674

January 9, 2009

Carrie Williams
Wetland Studies and Solutions, Inc.
5300 Wellington Branch Drive
Gainesville, VA 20155

Re: Colvin Run Study Area, #20010

Dear Ms. Williams:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Biotics documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

In addition, our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

A fee of $90.00 has been assessed for the service of providing this information. Please find enclosed an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, **DCR - Division of Natural Heritage, 217 Governor Street Richmond, VA 23219.** Payment is due within thirty days of the invoice date. Please note the change of address for remittance of payment as of July 1, 2008. Late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Shirl Dressler at (804) 367-6913.

Should you have any questions or concerns, feel free to contact me at (804) 692-0984. Thank you for the opportunity to comment on this project.

Sincerely,

Kristal McKelvey
Coastal Zone Locality Liaison

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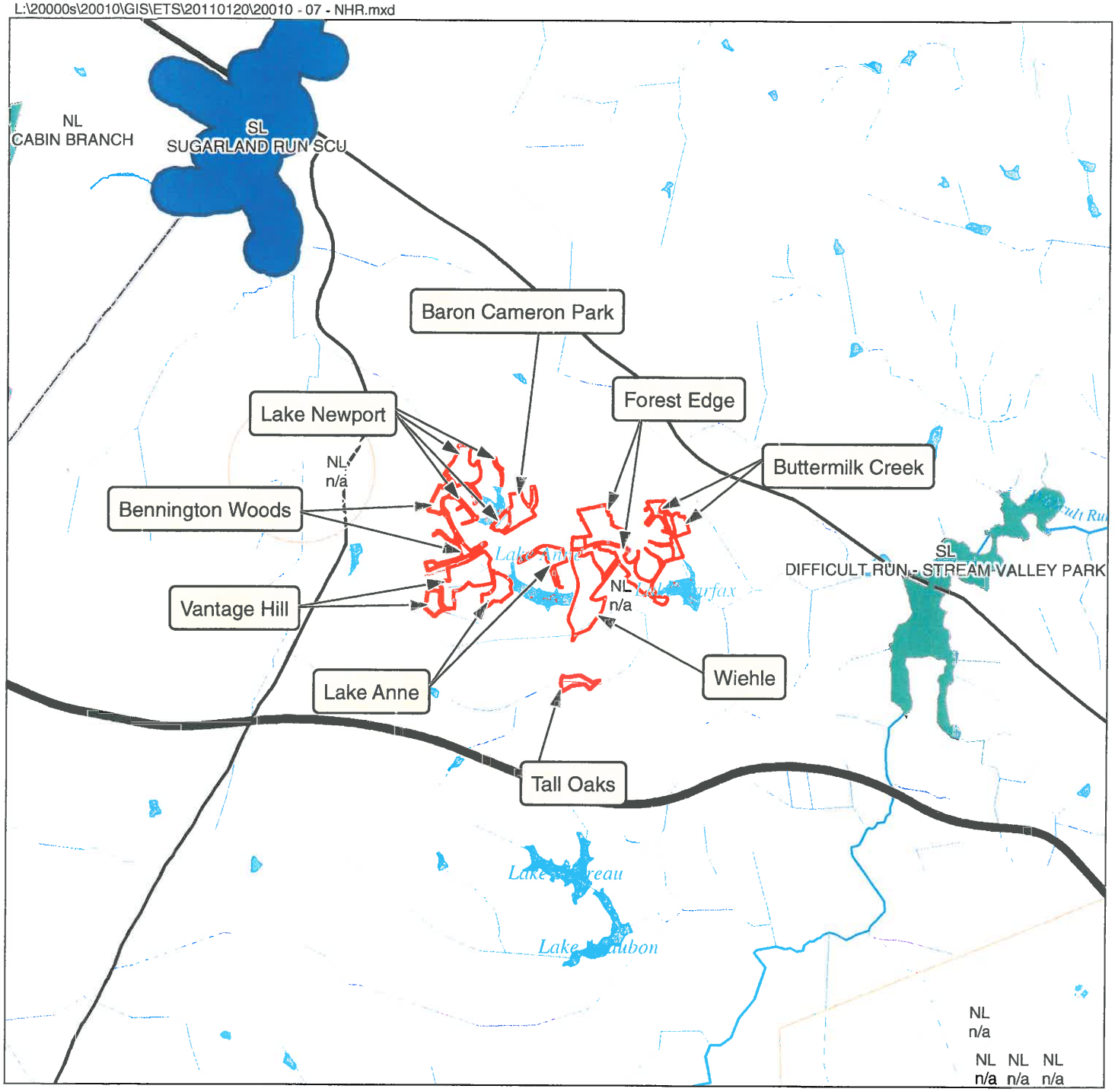

DCR - Natural Heritage Resources Map
Northern Virginia Stream Restoration Bank
A Portion of the Colvin Run Watershed
WSSI #20010
Scale: 1" = 1 Mile

- 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

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Wetland Studies and Solutions, Inc.

Exhibit 7

Virginia Department of Game and Inland Fisheries

4/29/2009 1:33:09 PM

Fish and Wildlife Information Service

VaFWIS Initial Project Assessment Report Compiled on 4/29/2009, 1:33:09 PM

Help

Known or likely to occur within a **3 mile radius of 38,58,09. 77,20,06.**
in **059 Fairfax County, VA**

560 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 40) (40 species with Status* or Tier I**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060006	SE	II	Floater, brook	Alasmidonta varicosa		BOVA
030062	ST	I	Turtle, wood	Glyptemys insculpta	Yes	Collections,TEWaters,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
040093	FSST	II	Eagle, bald	Haliaeetus leucocephalus		BOVA
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
100248	FS	I	Fritillary, regal	Speyeria idalia idalia		BOVA
100154	FS	II	Butterfly, Persius duskywing	Erynnis persius persius		BOVA
060029	FSSS	III	Lance, yellow	Elliptio lanceolata		BOVA
040372	SS	I	Crossbill, red	Loxia curvirostra		BOVA
040306	SS	I	Warbler, golden-winged	Vermivora chrysoptera		BOVA

010032	SS	II	Sturgeon, Atlantic	Acipenser oxyrinchus		BOVA
040029	SS	II	Heron, little blue	Egretta caerulea caerulea		BOVA
040213	SS	II	Owl, northern saw-whet	Aegolius acadicus		BOVA
040304	SS	II	Warbler, Swainson's	Limnothlypis swainsonii		BOVA
040266	SS	II	Wren, winter	Troglodytes troglodytes		BOVA
030063	CC	III	Turtle, spotted	Clemmys guttata		BOVA
040094	SS	III	Harrier, northern	Circus cyaneus		BOVA
040036	SS	III	Night-heron, yellow-crowned	Nyctanassa violacea violacea		BOVA
040204	SS	III	Owl, barn	Tyto alba pratincola	Yes	BBA,BOVA
060071	SS	III	Lampmussel, yellow	Lampsilis cariosa		BOVA
030012	CC	IV	Rattlesnake, timber	Crotalus horridus		BOVA
040264	SS	IV	Creeper, brown	Certhia americana	Yes	BBA,BOVA
040180	SS	IV	Tern, Forster's	Sterna forsteri		BOVA
040364	SS		Dickcissel	Spiza americana		BOVA
040032	SS		Egret, great	Ardea alba egretta		BOVA
040366	SS		Finch, purple	Carpodacus purpureus		BOVA
040285	SS		Kinglet, golden-crowned	Regulus satrapa		BOVA
040112	SS		Moorhen, common	Gallinula chloropus cachinnans		BOVA
040262	SS		Nuthatch, red-breasted	Sitta canadensis		BOVA
040189	SS		Tern, Caspian	Sterna caspia		BOVA
040278	SS		Thrush, hermit	Catharus guttatus		BOVA

040314	SS		Warbler, magnolia	Dendroica magnolia		BOVA
040335	SS		Warbler, mourning	Oporornis philadelphia		BOVA
050045	SS		Otter, northern river	Lontra canadensis lataxina		BOVA
060076	SS		Lampmussel, eastern	Lampsilis radiata radiata		BOVA
040225		I	Sapsucker, yellow-bellied	Sphyrapicus varius		BOVA
040319		I	Warbler, black-throated green	Dendroica virens		BOVA

To view **All 560 species** View 560

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; SC=State Candidate; CC=Collection Concern; SS=State Special 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

Anadromous Fish Use Streams

N/A

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (2 Reaches)

View Map of All Threatened and Endangered Waters

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
Difficult Run (02070008)	ST	030062	ST	I	Turtle, wood	Glyptemys insculpta	Yes
Sugarland Run (02070008)	ST	030062	ST	I	Turtle, wood	Glyptemys insculpta	Yes

Cold Water Stream Survey (Trout Streams)
Managed Trout Species

N/A

Public Holdings:

N/A

audit no. 234482 4/29/2009 1:33:09 PM Virginia Fish and Wildlife Information Service

COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

Department of Game and Inland Fisheries

Robert W. Duncan
Executive Director

January 23, 2009

Carrie L. Williams, PWS, PWD
Environmental Scientist
Wetland Studies and Solutions, Inc.
5300 Wellington Branch Drive, Suite 100
Gainesville, Virginia 20155

RE: ESSLOG #26063, Colvin Run Study Areas, WSSI #20010, Reston, Fairfax County, VA– subscriber confirmation.

Dear Ms. Williams:

This letter is in response to your request for information related to the presence of threatened or endangered species in the vicinity of the above referenced project.

I concur with your findings from the Virginia Fish and Wildlife Information Service. Though there are a number of species listed as "likely to occur" on the Project Review Reports, only the *state threatened* wood turtle (*Glyptemys insculpta*) has been documented approximately 1.5 miles from the easternmost point of this project area. As well, Colvin Run is a tributary to a portion of Difficult Run that is designated a Threatened and Endangered Species' Water. This designation is due to documented occurrences of the *state threatened* wood turtle (*Glyptemys insculpta*). Therefore, the applicant should coordinate with the VDGIF Environmental Services Section (804-367-6913) concerning potential impacts this species and this resource.

Information about fish and wildlife species was generated from our agency's computerized Fish and Wildlife Information System, which describes animals that are known or may occur in a particular geographic area. Field surveys may be necessary to determine the presence or absence of some of these species on or near the proposed area. Also, additional sensitive animal species may be present, but their presence has not been documented in our information system.

Endangered plants and insects are under the jurisdiction of the Virginia Department of Agriculture and Consumer Services, Bureau of Plant Protection. Questions concerning sensitive plant and insect species occurring at the project site should be directed to Keith Tignor at (804) 786-3515.

The Virginia Department of Conservation and Recreation, Natural Heritage Program, maintains a database of natural heritage resources, including the habitat of rare, threatened, or endangered plant and animal species, unique exemplary natural communities, and significant geologic formations, that may contain information not documented in this letter. Their database may be accessed from http://www.dcr.state.va.us/dnh/nhrinfo.htm, or by contacting S. Rene Hypes at (804) 371-2708.

This letter summarizes the likelihood of the occurrence of endangered or threatened animal species at the project site. If you have any questions in this regard, please contact me at (804) 367-1185.

Please note that this response does not constitute consultation or management recommendations regarding endangered or threatened wildlife, or any other environmental concerns. These issues are analyzed by our Environmental Services Section, in conjunction with interagency review of applications for state and federal permits. If you have any questions in this regard, please contact the Environmental Services Section at (804) 367-6913.

Please note that the data used to develop this response are continually updated. Therefore, if significant changes are made to your project or if the project has not begun within 6 months of receiving this letter, then the applicant should request a new review of our data.

The Fish and Wildlife Information Service, the system of databases used to provide the information in this letter, can now be accessed via the Internet! The Service currently provides access to current and comprehensive information about all of Virginia's fish and wildlife resources, including those listed as threatened, endangered, or special concern; colonial birds; waterfowl; trout streams; and all wildlife. Users can choose a geographic location and generate a report of species known or likely to occur around that point. From our main web page at www.dgif.virginia.gov, choose the hyperlink to "Virginia Fish and Wildlife Information Service." For more information about the service, please contact Shirl Dressler at (804) 367-6913.

Thank you for your interest in the wildlife resources of Virginia.

Sincerely,

Susan H. Watson
Information Specialist

cc: R.T. Fernald, VDGIF
R. Hypes, VDCR-NH