

Appendix 11. Species listed by the Virginia Natural Heritage as being significant, endangered, or threatened within two miles of the Cedar Creek and Belle Grove National Historical Park (CEBE).

W. Tayloe Murphy, Jr.
Secretary of Natural
Resources



Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

217 Governor Street
Richmond, Virginia 23219-2010
Telephone (804) 786-7951 FAX (804) 371-2674 TDD (804) 786-2121

September 28, 2004

Lindsey Donaldson
Center for Watershed Stewardship at Penn State
The Pennsylvania State University
227 East Calder Way
State College, PA 16801

Re: Natural Heritage Resources for Cedar Creek and Belle Grove National Historical Park

Dear Ms. Donaldson:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources within 2-miles of 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.

According to the information currently in our files, natural heritage resources have been documented within two-miles of the property boundaries (see table). In addition, significant caves have also been documented within the property boundaries and more caves may occur in the bluffs along the east side of Cedar Creek.

According to Wil Orndorff, Karst Protection Coordinator, the caves should not be adversely impacted if the area is maintained in green space. However if other activities are proposed, please coordinate with the Virginia Karst Program at 540-831-4056 (Wil.Orndorff@dcr.virginia.gov) to avoid, minimize, or mitigate impacts.

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

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.

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.

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

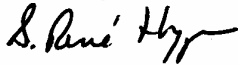
*State Parks • Soil and Water Conservation • Natural Heritage • Outdoor Recreation Planning
Chesapeake Bay Local Assistance • Dam Safety and Floodplain Management • Land Conservation*

Appendix 11. Species listed by the Virginia Natural Heritage as being significant, endangered, or threatened within two miles of the Cedar Creek and Belle Grove National Historical Park (CEBE) (continued).

www.dgif.virginia.gov/wildlife/info_map/index.html, or contact Shirl Dressler at (804) 367-6913.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,



S. René Hypes
Project Review Coordinator

CC: Wil Orndorff, DCR

Appendix 11. Species listed by the Virginia Natural Heritage as being significant, endangered, or threatened within two miles of the Cedar Creek and Belle Grove National Historical Park (CEBE) (continued).

Natural Heritage Elements and Conservation Sites Within Two-Miles of Cedar Creek and Belle Grove National Historical Park								
Scientific Name	Common Name	LastObs	Global Rank	Federal Species of	State Rank	Federal Status	State Status	Site Name
<i>Paxistima canbyi</i>	Canby's Mountain-lover	09/02/1945	G2	SOC	S2			
<i>Trichostema setaceum</i>	Narrow-leaved Blue-curls	09/16/1897	G5		S2			
<i>Crataegus pruinosa</i>	A Hawthorn	08/21/1938	G5		S2			
<i>Cirsium altissimum</i>	Tall Thistle	09/04/1949	G5		SH			
<i>Lasmigona subviridis</i>	Green Floater	ND	G3		S2		SC	
<i>Paxistima canbyi</i>	Canby's Mountain-lover	06/09/1935	G2	SOC	S2			
<i>Astragalus distortus</i> var. <i>distortus</i>	Bent Milkvetch	05/18/1935	G5T5?		S1			
<i>Penstemon hirsutus</i>	Hairy Beardtongue	05/08/1938	G4		S2			
<i>Paxistima canbyi</i>	Canby's Mountain-lover	08/16/1967	G2	SOC	S2			
Significant cave		1985-	GNR		SNR			
<i>Lasmigona subviridis</i>	Green Floater	06/26/1990	G3		S2		SC	NORTH FORK SHENANDOAH RIVER - STRASBURG SCU
<i>Alasmidonta varicosa</i>	Brook Floater	06/26/1990	G3		S1		LE	NORTH FORK SHENANDOAH RIVER - STRASBURG SCU
<i>Lampsilis cariosa</i>	Yellow Lampmussel	06/27/1990	G3G4		S2		SC	NORTH FORK SHENANDOAH RIVER - STRASBURG SCU

Appendix 11. Species listed by the Virginia Natural Heritage as being significant, endangered, or threatened within two miles of the Cedar Creek and Belle Grove National Historical Park (CEBE) (continued).

**Definitions of Abbreviations Used on Natural Heritage Resource Lists
of the
Virginia Department of Conservation and Recreation**

Natural Heritage State Ranks

The following ranks are used by the Virginia Department of Conservation and Recreation to set protection priorities for natural heritage resources. Natural Heritage Resources, or "NHR's," are rare plant and animal species, rare and exemplary natural communities, and significant geologic features. The criterion for ranking NHR's is the number of populations or occurrences, i.e. the number of known distinct localities; the number of individuals in existence at each locality or, if a highly mobile organism (e.g., sea turtles, many birds, and butterflies), the total number of individuals; the quality of the occurrences, the number of protected occurrences; and threats.

S1 - Critically imperiled in the state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically 5 or fewer populations or occurrences, or very few remaining individuals (<1000).

S2 - Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. Typically 6 to 20 populations or occurrences or few remaining individuals (1,000 to 3,000).

S3 - Vulnerable in the state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically having 21 to 100 populations or occurrences (1,000 to 3,000 individuals).

S4 - Apparently secure; Uncommon but not rare, and usually widespread in the state. Possible cause of long-term concern. Usually having >100 populations or occurrences and more than 10,000 individuals.

S5 - Secure; Common, widespread and abundant in the state. Essentially ineradicable under present conditions, typically having considerably more than 100 populations or occurrences and more than 10,000 individuals.

S#B - Breeding status of an animal within the state

S#N - Non-breeding status of animal within the state. Usually applied to winter resident species.

S#? - Inexact or uncertain numeric rank.

SH - Possibly extirpated (Historical). Historically known from the state, but not verified for an extended period, usually > 15 years; this rank is used primarily when inventory has been attempted recently.

S#S# - Range rank; A numeric range rank, (e.g. S2S3) is used to indicate the range of uncertainty about the exact status of the element. Ranges cannot skip more than one rank.

SU - Unrankable; Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SNR - Unranked; state rank not yet assessed.

SX - Presumed extirpated from the state. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SNA - A conservation status rank is not applicable because the element is not a suitable target for conservation activities.

Natural Heritage Global Ranks are similar, but refer to a species' rarity throughout its total range. Global ranks are denoted with a "G" followed by a character. Note GX means the element is presumed extinct throughout its range. A "Q" in a rank indicates that a taxonomic question concerning that species exists. Ranks for subspecies are denoted with a "T". The global and state ranks combined (e.g. G2/S1) give an instant grasp of a species' known rarity. **These ranks should not be interpreted as legal designations.**

FEDERAL LEGAL STATUS

The Division of Natural Heritage uses the standard abbreviations for Federal endangerment developed by the U.S. Fish and Wildlife Service, Division of Endangered Species and Habitat Conservation.

LE - Listed Endangered

LT - Listed Threatened

PE - Proposed Endangered

PT - Proposed Threatened

C - Candidate (formerly C1 - Candidate category 1)

E(S/A) - treat as endangered because of similarity of appearance

T(S/A) - treat as threatened because of similarity of appearance

SOC - Species of Concern species that merit special concern (**not a regulatory category**)

NL - no federal legal status

Appendix 11. Species listed by the Virginia Natural Heritage as being significant, endangered, or threatened within two miles of the Cedar Creek and Belle Grove National Historical Park (CEBE) (continued).

STATE LEGAL STATUS

The Division of Natural Heritage uses similar abbreviations for State endangerment.

- LE - Listed Endangered
- PE - Proposed Endangered
- SC - Special Concern - animals that merit special concern according to VDGIF (not a regulatory category)
- LT - Listed Threatened
- PT - Proposed Threatened
- C - Candidate
- NL - no state legal status

For information on the laws pertaining to threatened or endangered species, please contact:

U.S. Fish and Wildlife Service for all **FEDERALLY** listed species;
Department of Agriculture and Consumer Services, Plant Protection Bureau for **STATE** listed plants and insects
Department of Game and Inland Fisheries for all other **STATE** listed animals

Conservation Sites Ranking

Rank is a rating of the significance of the conservation site based on presence and number of natural heritage resources; on a scale of 1-5, 1 being most significant. Sites are also coded to reflect the presence/absence of federally/state listed species:

<u>Conservation Site Ranks</u>	<u>Legal Status of Site</u>
B1 – Outstanding significance	FL – Federally listed species present
B2 – Very High significance	SL – State listed species present
B3 – High significance	NL – No listed species present
B4 – Moderate significance	
B5 – Of general Biodiversity significance	

Appendix 12. Species listed by the U.S. Fish and Wildlife Service as being significant, endangered, or threatened for Shenandoah, Warren, and Frederick Counties, Virginia.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, VA 23061



September 13, 2004

Project name: Cedar Creek and Belle Grove National Historical Park
Project number: 9069 City/County, VA: Shenandoah, Warren, + Frederick

Greetings:

The U.S. Fish and Wildlife Service has reviewed your request for information on federally listed or proposed endangered or threatened species and designated critical habitat for the above referenced project. The following comments are provided under provisions of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

You requested scoping comments. Enclosed are county lists with species fact sheets. The Service recommends surveys within appropriate habitat. If this project involves a Federal agency (Federal permit, funds, land), we encourage the Federal agency to contact this office if they determine their proposed action is likely to adversely affect federally listed species or critical habitat.

The information you requested is available at our website at <http://virginiafieldoffice.fws.gov>.

We recommend that you contact **both** of the State agencies listed below since each agency maintains a different database and has differing expertise and/or regulatory responsibility.

Virginia Dept of Game and Inland Fisheries
Environmental Services Section
P.O. Box 11104
Richmond, VA 23230
(804) 367-1000

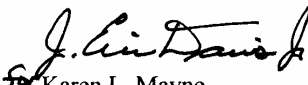
Virginia Dept of Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 2nd Floor
Richmond, VA 23219
(804) 786-7951

_____ Enclosed is information about communication towers and how certain categories of work may not require further coordination.

_____ We concur that the proposed action is not likely to adversely affect federally listed species.

If you have any questions, please contact Eric Davis at (804) 693-6694, ext. 104.

Sincerely,


Karen L. Mayne
Supervisor
Virginia Field Office

Appendix 12. Species listed by the U.S. Fish and Wildlife Service as being significant, endangered, or threatened for Shenandoah, Warren, and Frederick Counties, Virginia (continued).

**SHENANDOAH COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species**

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>
<u>BIRDS</u>		
<i>Haliaeetus leucocephalus</i>	Bald eagle	LT
<u>MAMMALS</u>		
<i>Myotis sodalis</i> ¹	Indiana bat	LE
<u>VASCULAR PLANTS</u>		
<i>Arabis serotina</i>	Shale barren rock cress	LE
<i>Scirpus ancistrochaetus</i> ¹	Northeastern bulrush	LE

Species of Concern (No official Federal status)

<u>AMPHIBIANS</u>		
<i>Plethodon punctatus</i>	Cow knob salamander	G3
<u>INVERTEBRATES</u>		
<i>Alasmidonta varicosa</i>	Brook floater	G3
<i>Caecidotea pricei</i>	Price's cave isopod	G3
<i>Chitrella superba</i>	A cave pseudoscorpion	G1
<i>Cicindela patruela</i>	Barrens tiger beetle	G3
<i>Lasmigona subviridis</i>	Green floater	G3
<i>Miktoniscus racovitzae</i>	Racovitza's terrestrial cave isopod	G2
<i>Mundochthonius holsingeri</i>	A cave pseudoscorpion	G1
<i>Pseudanophthalmus limicola</i>	Mud-dwelling cave beetle	G1
<i>Pseudanophthalmus parvicollis</i>	Thin-neck cave beetle	G1
<i>Speyeria idalia</i>	Regal fritillary	G3
<u>VASCULAR PLANTS</u>		
<i>Carex schweinitzii</i> ¹	Schweinitz's sedge	G3
<i>Delphinium exaltatum</i>	Canby's mountain-lover	G2
<i>Poa paludigena</i> ¹	Bog bluegrass	G3

¹This species has been documented in an adjacent county and may occur in this county.

June 25, 2002

Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

Appendix 12. Species listed by the U.S. Fish and Wildlife Service as being significant, endangered, or threatened for Shenandoah, Warren, and Frederick Counties, Virginia (continued).

**WARREN COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species**

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>
<u>INVERTEBRATES</u>		
<i>Antrolana lira</i>	Madison Cave isopod	LT
<u>MAMMALS</u>		
<i>Myotis sodalis</i> ¹	Indiana bat	LE

Species of Concern (No official Federal status)

<u>INVERTEBRATES</u>		
<i>Alasmidonta varicosa</i>	Brook floater	G3
<i>Caecidotea pricei</i>	Price's cave isopod	G3
<i>Lasmigona subviridis</i>	Green floater	G3
<i>Pseudanophthalmus petrunkevitchi</i>	Petrunkevitch's cave beetle	G1
<i>Speyeria idalia</i>	Regal fritillary	G3
<i>Striaria columbiana</i>	A millipede	G2
<i>Stygobromus gracilipes</i>	Shenandoah Valley cave amphipod	G2
<i>Stygobromus spinosus</i>	Blue Ridge Mountain amphipod	G2G3
<u>VASCULAR PLANTS</u>		
<i>Carex polymorpha</i>	Variable sedge	G2G3
<i>Carex schweinitzii</i> ¹	Schweinitz's sedge	G3
<i>Delphinium exaltatum</i>	Tall larkspur	G3
<i>Paxistima canbyi</i>	Canby's mountain-lover	G2
<i>Poa paludigena</i>	Bog bluegrass	G3

¹This species has been documented in an adjacent county and may occur in this county.

June 30, 2002
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

Appendix 12. Species listed by the U.S. Fish and Wildlife Service as being significant, endangered, or threatened for Shenandoah, Warren, and Frederick Counties, Virginia (continued).

FREDERICK COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>
<u>MAMMALS</u>		
Myotis sodalis ¹	Indiana bat	LE
<u>VASCULAR PLANTS</u>		
Ptilimnium nodosum ¹	Harperella	LE

Species of Concern (No official Federal status)

<u>INVERTEBRATES</u>		
Caecidotea pricei	Price's cave isopod	G3
Lasmigona subviridis	Green floater	G3
Pyrgus wyandot	Appalachian grizzled skipper	G2
Speyeria idalia	Regal fritillary	G3
Stygobromus biggersi	Bigger's cave amphipod	G1G2
Stygobromus gracilipes	Shenandoah valley cave amphipod	G2
<u>VASCULAR PLANTS</u>		
Paxistima canbyi	Canby's mountain-lover	G2

¹ This species has been documented in an adjacent county and may occur in this county.

June 30, 2002
 Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

Appendix 12. Species listed by the U.S. Fish and Wildlife Service as being significant, endangered, or threatened for Shenandoah, Warren, and Frederick Counties, Virginia (continued).

KEY

LE - federally listed endangered.

LT - federally listed threatened.

PE - federally proposed endangered.

PT - federally proposed threatened.

EX - believed to be extirpated in Virginia.

LE(S/A) - federally listed endangered due to similarity of appearance to a federally listed species.

LT(S/A) - federally listed threatened due to similarity of appearance to a federally listed species.

C - candidate species; the U.S. Fish and Wildlife Service has enough information to list the species as threatened or endangered, but this action is precluded by other listing activities.

SOC - species of concern; those species that have been identified as potentially imperiled or vulnerable throughout their range or a portion of their range. These species are not protected under the Endangered Species Act.

G - global rank; the species rarity throughout its total range.

G1 - extremely rare and critically imperiled with 5 or fewer occurrences or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.

G2 - very rare and imperiled with 6 to 20 occurrences or few remaining individuals; or because of some factor(s) making it vulnerable to extinction.

G3 - either very rare and local throughout its range or found locally (abundantly at some of its locations) in a restricted range; or vulnerable to extinction because of other factors. Usually fewer than 100 occurrences are documented.

G_T_ - signifies the rank of a subspecies or variety. For example, a G3T1 would apply to a subspecies of a species that is very rare and local throughout its range or found locally in a restricted range (G3) but the subspecies warrants a rank of T1, critically imperiled.

G_Q - The taxon has a questionable taxonomic assignment.

U.S. Fish & Wildlife Service

Shale Barren Rock Cress

Arabis serotina



A. Wieboldt

Description - The shale barren rock cress is a biennial plant in the mustard family. This plant occurs only in West Virginia and Virginia and is found on mid-Appalachian shale barrens of the Ridge and Valley Province of the Appalachian Mountains. This plant is highly habitat restricted and the number of individuals per population is low, most with fewer than 20 individuals. Because this species is a biennial, it has two age classes containing nonreproductive and reproductive individuals. Young, nonreproductive individuals have leaves in a basal rosette. Potentially reproductive individuals are present in the form of erect, flowering plants lacking a basal rosette. The flowering stem is composed of 3 to 41 branches. The flowers are small with white or creamy petals. Seeds are yellowish-brown and contain a narrow wing. Mature plants reach a height of 16 to 40 inches.

Life History - Mid-Appalachian shale barrens are characterized by an open, scrubby growth of pine, oak, red cedar, and other woody

species adapted to dry conditions and are found most frequently on eroding slopes undercut by a stream. Shale barrens are isolated islands of habitat with steep southern exposures with elevations of 1099 to 2494 feet, dry, relatively sparse vegetative cover, high temperatures, and low moisture in the summer. This plant reproduces sexually and diminished reproductive output brought about by deer grazing may lead to extirpation of some populations. The shale barren rock cress may not be a strict biennial, meaning that the rosettes may persist longer than one year, thus delaying flowering and fruiting beyond the second year. Flowering occurs from mid-July until the first killing frost, usually around November, at which time the plant dies.

Conservation - On August 14, 1989, the shale barren rock cress was federally listed as an endangered species due to the small number of populations and low numbers of individuals within those populations. Threats to this species include destruction of habitat by road construction or other human activities, herbivory by deer and insects especially during dry conditions, and drought. It has been documented that five shale barrens were destroyed due to road construction, two sites were partially destroyed from railroad construction, one site was crossed by a hiking path, and an additional site was destroyed by damming a stream. This plant is found in very stressed environments and cannot tolerate much disturbance.

What You Can Do To Help - If you find a plant that appears to be the shale barren rock-cress, take note of the location and photograph the plant, if possible. Please do not remove the plant!

Contact one of the following agencies for assistance:

Virginia Department of Agriculture
and Consumer Services
Office of Plant Protection
P.O. Box 1163
Richmond, Virginia 23209
(804) 786-3515

Virginia Department of
Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 3rd Floor
Richmond, Virginia 23219
(804) 786-7951

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694

References

U.S. Fish and Wildlife Service. 1989. Endangered and Threatened Wildlife and Plants: determination of endangered and threatened status for the shale barren rock cress; final rule. Federal Register 54(133): 29655-29658.

U.S. Fish and Wildlife Service. 1991. Shale barren rock cress (*Arabis serotina*) recovery plan. Newton Corner, Massachusetts.



U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
<http://www.fws.gov>
February 2002

U.S. Fish & Wildlife Service

Northeastern Bulrush

Scirpus ancistrochaetus



G. Bisbee

Description - The northeastern bulrush is a member of the sedge family and is known from Maryland, Massachusetts, New Hampshire, Pennsylvania, Vermont, Virginia, and West Virginia. This plant is extremely rare in Virginia where it is found in mountain ponds. These ponds are approximately 11,000 years old and harbor some of the older elements of Virginia's native vegetation.

Life History - This plant is found in ponds, wet depressions, and shallow sinkholes within small wetland complexes less than one acre in size. The wetlands are characterized by seasonally variable water levels. This bulrush occupies the deeper parts of the emergent zone. Some of these plants are found in wetland bogs with a pH variation from acidic to slightly alkaline. This species flowers from mid-June to July. Fruits from this plant mature from July to September. Most details of the life history of this species are unknown.

Conservation - The northeastern bulrush was federally listed as an endangered species on June 6, 1991. Threats include habitat loss and degradation caused by wetland drainage, dredging, and filling for residential development and agricultural use. Any modifications which reduce the water level or dry out a pond could eliminate all or most of the individuals in a population. Other threats include agricultural runoff, logging roads, fire roads, off-road vehicle use, and unauthorized collection. Siltation, vegetation succession, herbivory, and non-native plant species may also be threats. Potential natural threats include deer herbivory, beavers, natural water level fluctuations, fire, and succession.

What You Can Do To Help - Avoid using chemicals or fertilizers near ponds and wetlands. Maintain a buffer of natural vegetation around ponds and wetlands. If you find a plant that appears to be the northeastern bulrush, take note of the location and photograph the plant, if possible. Please do not remove the plant! Contact one of the following agencies for assistance:

Virginia Department of Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 3rd Floor
Richmond, Virginia 23219
(804) 786-7951

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694

References

- U.S. Fish and Wildlife Service. 1993. Northeastern bulrush (*Scirpus ancistrochaetus*) recovery plan. Hadley, Massachusetts.
- Wieboldt, T.F. 1991. Northeastern bulrush. Pages 80-82 in K. Terwilliger, ed. Virginia's Endangered Species, Proceedings of a Symposium. McDonald and Woodward Publishing Company, Blacksburg, Virginia.



U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
<http://www.fws.gov>
August 1999

Virginia Department of Agriculture
and Consumer Services
Office of Plant Protection
P.O. Box 1163
Richmond, Virginia 23209
(804) 786-3515

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003.

BOVA Code	Status*	Common Name	Scientific Name
050023	FESE	Bat, Indiana	<i>Myotis sodalis</i>
040093	FTST	Eagle, bald	<i>Haliaeetus leucocephalus</i>
040267	FSSE	Wren, Bewick?s	<i>Thryomanes bewickii</i>
040292	FSST	Shrike, migrant loggerhead	<i>Lanius ludovicianus migrans</i>
040320	FS	Warbler, cerulean	<i>Dendroica cerulea</i>
020027	FSSS	Salamander, Cow Knob	<i>Plethodon punctatus</i>
010363	FS	Darter, Appalachia	<i>Percina gymnocephala</i>
040084	FS	Goshawk, northern	<i>Accipiter gentilis</i>
050024	FS	Myotis, eastern small-footed	<i>Myotis leibii</i>
050081	FS	Woodrat, Allegheny	<i>Neotoma magister</i>
060081	FSSS	Floater, green	<i>Lasmigona subviridis</i>
100155	FSST	Skipper, Appalachian grizzled	<i>Pyrgus wyandot (=centaureae wyandot)</i>
100256	FS	Crescent, tawny	<i>Phyciodes batesii batesii</i>
050106	FS	Cottontail, Appalachian	<i>Sylvilagus obscurus</i>
060006	FSSE	Floater, brook	<i>Alasmidonta varicosa</i>
100248	FS	Fritillary, regal	<i>Speyeria idalia idalia</i>
060050	FSSS	Pigtoe, Tennessee	<i>Fusconaia barnesiana</i>
040096	ST	Falcon, peregrine	<i>Falco peregrinus</i>
040129	ST	Sandpiper, upland	<i>Bartramia longicauda</i>
030062	ST	Turtle, wood	<i>Clemmys (=Glyptemys) insculpta</i>
040293	ST	Shrike, loggerhead	<i>Lanius ludovicianus</i>
040210	SS	Owl, long-eared	<i>Asio otus</i>
040262	SS	Nuthatch, red-breasted	<i>Sitta canadensis</i>
040264	SS	Creepers, brown	<i>Certhia americana</i>
040278	SS	Thrush, hermit	<i>Catharus guttatus</i>
040094	SS	Harrier, northern	<i>Circus cyaneus</i>
040112	SS	Moorhen, common	<i>Gallinula chloropus cachinnans</i>
040204	SS	Owl, barn	<i>Tyto alba pratincola</i>
040213	SS	Owl, northern saw-whet	<i>Aegolius acadicus</i>
040241	SS	Flycatcher, alder	<i>Empidonax alnorum</i>
040285	SS	Kinglet, golden-crowned	<i>Regulus satrapa</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
040306	SS	Warbler, golden-winged	<i>Vermivora chrysoptera</i>
040314	SS	Warbler, magnolia	<i>Dendroica magnolia</i>
040366	SS	Finch, purple	<i>Carpodacus purpureus</i>
040372	SS	Crossbill, red	<i>Loxia curvirostra</i>
040266	SS	Wren, winter	<i>Troglodytes troglodytes</i>
040364	SS	Dickcissel	<i>Spiza americana</i>
050045	SS	Otter, northern river	<i>Lontra canadensis lataxina</i>
050046		Skunk, eastern spotted	<i>Spilogale putorius putorius</i>
050047		Skunk, striped	<i>Mephitis mephitis nigra</i>
050048		Skunk, striped	<i>Mephitis mephitis mephitis</i>
050049		Fox, red	<i>Vulpes vulpes fulva</i>
050050		Fox, common gray	<i>Urocyon cinereoargenteus cinereoargenteus</i>
050051		Bobcat	<i>Lynx rufus rufus</i>
050054		Woodchuck	<i>Marmota monax monax</i>
050055		Chipmunk, Fisher's eastern	<i>Tamias striatus fisheri</i>
050058		Squirrel, northern gray	<i>Sciurus carolinensis pennsylvanicus</i>
050059		Squirrel, talkative red	<i>Tamiasciurus hudsonicus loquax</i>
050063		Squirrel, eastern fox	<i>Sciurus niger vulpinus</i>
050065		Squirrel, southern flying	<i>Glaucomys volans volans</i>
050069		Beaver, American	<i>Castor canadensis</i>
050073		Mouse, northern white-footed	<i>Peromyscus leucopus noveboracensis</i>
050077		Mouse, common golden	<i>Ochrotomys nuttalli aureolus</i>
050082		Vole, meadow	<i>Microtus pennsylvanicus pennsylvanicus</i>
050085		Lemming, Stone's southern bog	<i>Synaptomys cooperi stonei</i>
050087		vole, common Gapper's red-backed	<i>Clethrionomys gapperi gapperi</i>
050091		Vole, pine	<i>Microtus pinetorum scalopsoides</i>
050092		Muskrat, common	<i>Ondatra zibethicus zibethicus</i>
050094		Rat, black	<i>Rattus rattus rattus</i>
050095		Rat, Norway	<i>Rattus norvegicus norvegicus</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
050098		Mouse, house	<i>Mus musculus musculus</i>
050099		Mouse, meadow jumping	<i>Zapus hudsonius americanus</i>
050100		Mouse, woodland jumping	<i>Napaeozapus insignis roanensis</i>
050103		Cottontail, eastern	<i>Sylvilagus floridanus mallurus</i>
050025		Bat, silver-haired	<i>Lasionycteris noctivagans</i>
050027		Pipistrelle, eastern	<i>Pipistrellus subflavus subflavus</i>
050028		Bat, big brown	<i>Eptesicus fuscus fuscus</i>
050029		Bat, eastern red	<i>Lasiurus borealis borealis</i>
050030		Bat, hoary	<i>Lasiurus cinereus cinereus</i>
050037		Bear, black	<i>Ursus americanus americanus</i>
050038		Raccoon	<i>Procyon lotor lotor</i>
050040		Weasel, least	<i>Mustela nivalis allegheniensis</i>
050041		Weasel, long-tailed	<i>Mustela frenata noveboracensis</i>
050042		Mink, common	<i>Mustela vison mink</i>
060137		Mussel, creeper	<i>Strophitus undulatus</i>
060141		Pondhorn, Florida	<i>Unio merus carolinianus (=obesus)</i>
060177		Clam, Asian	<i>Corbicula fluminea</i>
070094		Crayfish, no common name	<i>Cambarus acuminatus</i>
070098		Crayfish, spiny cheek	<i>Orconectes limosus</i>
070102		Crayfish, Appalachian brook	<i>Cambarus bartonii bartonii</i>
070104		Crayfish	<i>Orconectes obscurus</i>
080166		Dragonfly, wandering glider	<i>Pantala flavescens</i>
100026		Deerfly	<i>Chrysops vittatus vittatus</i>
100032		Gnat	<i>Culicoides guttipennis</i>
100040		Moth, codling	<i>Cydia pomonella</i>
100041		Borer, European corn	<i>Ostrinia nubilalis</i>
100042		Earworm, corn	<i>Heliathis zea</i>
100043		Armyworm	<i>Pseudaletia unipuncta</i>
100047		Moth, gypsy	<i>Lymantria dispar</i>
100079		Butterfly, monarch	<i>Danaus plexippus</i>
100082		Butterfly, silver-spotted skipper	<i>Epargyreus clarus</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
100090		Butterfly, mourning cloak	<i>Nymphalis antiopa</i>
100092		Butterfly, black swallowtail	<i>Papilio polyxenes asterius</i>
100093		Butterfly, eastern tiger swallowtail	<i>Papilio glaucus</i>
100094		Butterfly, clouded sulphur	<i>Colias philodice</i>
100095		Moth, Luna	<i>Actias luna</i>
100096		Moth, Io	<i>Automeris io</i>
100098		Moth, Polyphemus	<i>Antheraea polyphemus</i>
100101		Moth, snowberry clearwing	<i>Hemeris diffinis</i>
100137		Butterfly, brown elfin	<i>Callophrys augustinus</i>
100142		Butterfly, southern cloudywing	<i>Thorybes bathyllus</i>
100143		Butterfly, northern cloudywing	<i>Thorybes pylades</i>
100146		Butterfly, sleepy duskywing	<i>Erynnis brizo</i>
100147		Butterfly, dreamy duskywing	<i>Erynnis icelus</i>
100148		Butterfly, Juvenal's duskywing	<i>Erynnis juvenalis</i>
100149		Butterfly, Horace's duskywing	<i>Erynnis horatius</i>
100150		Butterfly, mottled duskywing	<i>Erynnis martialis</i>
100153		Butterfly, wild indigo duskywing	<i>Erynnis baptisiae</i>
100257		Butterfly, pearl crescent	<i>Phyciodes tharos</i>
100258		Butterfly, eastern comma	<i>Polygonia comma</i>
100259		Butterfly, question mark	<i>Polygonia interrogationis</i>
100260		Butterfly, gray comma	<i>Polygonia progne</i>
100262		Butterfly, American lady	<i>Vanessa virginiensis</i>
100263		Butterfly, painted lady	<i>Vanessa cardui</i>
100264		Butterfly, red admiral	<i>Vanessa atalanta</i>
100265		Butterfly, common buckeye	<i>Junonia coenia</i>
100266		Butterfly, viceroy	<i>Limenitis archippus</i>
100268		Butterfly, red-spotted purple	<i>Limenitis arthemis astyanax</i>
100269		Butterfly, tawny emperor	<i>Asterocampa clyton</i>
100270		Butterfly, hackberry emperor	<i>Asterocampa celtis</i>
100272		Butterfly, northern pearly-eye	<i>Enodia anhedon</i>
100274		Butterfly, Appalachian brown	<i>Satyrodes appalachia</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
100277		Butterfly, common wood-nymph	<i>Cercyonis pegala</i>
100279		Butterfly, little wood-satyr	<i>Megisto cymela</i>
100283		Moth, imperial	<i>Eacles imperialis</i>
100284		Moth, regal	<i>Citheronia regalis</i>
100285		Moth, pine-devil	<i>Citheronia sepulcralis</i>
100286		Moth, rosy maple	<i>Dryocampa rubicunda</i>
100287		Moth, spiny oakworm	<i>Anisota stigma</i>
100288		Moth, orangestriped oakworm	<i>Anistora senatoria</i>
100289		Moth, pinkstriped oakworm	<i>Anisota virginiensis</i>
100290		Moth, buck	<i>Hemileuca maia</i>
100294		Moth, whitelined sphinx	<i>Hyles lineata</i>
100295		Moth, Carolina sphinx	<i>Manduca sexta</i>
100296		Moth, Five-spotted hawk	<i>Manduca quinquemaculata</i>
100297		Moth, rustic sphinx	<i>Manduca rustica</i>
100298		Moth, ash sphinx	<i>Manduca jasmineearum</i>
100299		Moth, elm sphinx	<i>Ceratomia amyntor</i>
100300		Moth, waved shinx	<i>Ceratomia undulosa</i>
100305		Moth, laurel sphinx	<i>Sphinx kalmiae</i>
100307		Moth, Southern pine sphinx	<i>Lapara coniferarum</i>
100308		Moth, northern pine sphinx	<i>Lapara bombycoides</i>
100310		Moth, small-eyed sphinx	<i>Paonias myops</i>
100311		Moth, walnut sphinx	<i>Laothoe juglandis</i>
100312		Moth, hummingbird clearwing	<i>Hemaris thysbe</i>
100314		Moth, Pandorus sphinx	<i>Eumorpha pandorus</i>
100315		Moth, Nessus sphinx	<i>Amphion floridensis</i>
100317		Moth, Virginia-creeper sphinx	<i>Darapsa myron</i>
100318		Moth, azalea sphinx	<i>Darapsa pholus</i>
100359		Butterfly, Peck?s skipper	<i>Polites peckius</i>
110229		Tick, winter	<i>Dermacentor albipictus</i>
110230		Tick, American dog	<i>Dermacentor variabilis</i>
110231		Tick, rabbit	<i>Haemaphysalis leporispalustris</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
110232		Tick, brown dog	<i>Rhipicephalus sanguineus</i>
100156		Butterfly, common checkered-skipper	<i>Pyrgus communis</i>
100157		Butterfly, common sootywing	<i>Pholisora catullus</i>
100160		Butterfly, least skipper	<i>Ancyloxypha numitor</i>
100161		Butterfly, European skipper	<i>Thymelicus lineola</i>
100164		Butterfly, Indian skipper	<i>Hesperia sassacus</i>
100165		Butterfly, cobweb skipper	<i>Hesperia metea</i>
100167		Butterfly, carus skipper	<i>Polites carus</i>
100168		Butterfly, crossline skipper	<i>Polites origenes</i>
100169		Butterfly, tawny-edged skipper	<i>Polites themistocles</i>
100174		Butterfly, sachem	<i>Atalopedes campestris</i>
100175		Butterfly, little glassywing	<i>Pompeius verna</i>
100177		Butterfly, Delaware skipper	<i>Anatrytone logan</i>
100178		Butterfly, Hobomok skipper	<i>Poanes hobomok</i>
100180		Butterfly, Zabulon skipper	<i>Poanes zabulon</i>
100185		Butterfly, Dun skipper	<i>Euphyes vestris</i>
100193		Roadside-skipper, common	<i>Amblyscirtes vialis</i>
100194		Butterfly, pepper and salt road-skipper	<i>Amblyscirtes hegon</i>
100200		Butterfly, pipevine swallowtail	<i>Battus philenor</i>
100201		Butterfly, giant swallowtail	<i>Papilio cresphontes</i>
100202		Butterfly, spicebush swallowtail	<i>Papilio troilus</i>
100204		Butterfly, zebra swallowtail	<i>Eurytides marcellus</i>
100205		Butterfly, cabbage white	<i>Pieris rapae</i>
100206		Butterfly, checkered white	<i>Pontia protodice</i>
100207		Butterfly, West Virginia white	<i>Pieris virginianensis</i>
100209		Butterfly, falcate orangetip	<i>Anthocharis midea</i>
100210		Butterfly, Olympia marble	<i>Euchloe olympia</i>
100211		Butterfly, orange sulphur	<i>Colias eurytheme</i>
100217		Butterfly, little yellow	<i>Eurema lisa</i>
100219		Butterfly, harvester	<i>Feniseca tarquinius</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
100220		Butterfly, American copper	<i>Lycaena phlaeas</i>
100223		Butterfly, frosted elfin	<i>Callophrys irus</i>
100224		Butterfly, Henry's elfin	<i>Callophrys henrici</i>
100225		Butterfly, eastern pine elfin	<i>Callophrys niphon</i>
100227		Butterfly, white M hairstreak	<i>Parrhasius m-album</i>
100228		Butterfly, gray hairstreak	<i>Strymon melinus</i>
100230		Butterfly, coral hairstreak	<i>Satyrium titus</i>
100232		Butterfly, banded hairstreak	<i>Satyrium calanus</i>
100234		Butterfly, striped hairstreak	<i>Satyrium liparops</i>
100236		Butterfly, olive juniper hairstreak	<i>Callophrys gryneus gryneus</i>
100238		Butterfly, eastern tailed-blue	<i>Everes comyntas</i>
100239		Butterfly, spring azure	<i>Celastrina ladon</i>
100240		Butterfly, dusky azure	<i>Celastrina nigra (=ebinina)</i>
100242		Butterfly, silvery blue	<i>Glaucopsyche lygdamus</i>
100245		Butterfly, American snout	<i>Libytheana carinenta</i>
100247		Butterfly, variegated fritillary	<i>Euptoieta claudia</i>
040365		Grosbeak, evening	<i>Coccothraustes vespertinus</i>
060025		Mussel, eastern elliptio	<i>Elliptio complanata</i>
050108		Deer, white-tailed	<i>Odocoileus virginianus</i>
050124		Mouse, prairie deer	<i>Peromyscus maniculatus bairdii</i>
050125		Coyote	<i>Canis latrans</i>
060077		Mussel, plain pocketbook	<i>Lampsilis cardium</i>
100249		Butterfly, great spangled fritillary	<i>Speyeria cybele</i>
100250		Butterfly, Aphrodite fritillary	<i>Speyeria aphrodite</i>
100252		Butterfly, meadow fritillary	<i>Boloria bellona</i>
100254		Butterfly, Baltimore checkerspot	<i>Euphydryas phaeton</i>
100255		Butterfly, silvery checkerspot	<i>Chlosyne nycteis</i>
040373		Crossbill, white-winged	<i>Loxia leucoptera</i>
040375		Towhee, eastern	<i>Pipilo erythrophthalmus</i>
040377		Sparrow, savannah	<i>Passerculus sandwichensis</i>
040378		Sparrow, grasshopper	<i>Ammodramus savannarum pratensis</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
040383		Sparrow, vesper	<i>Poocetes gramineus</i>
040387		Junco, dark-eyed	<i>Junco hyemalis</i>
040388		Sparrow, American tree	<i>Spizella arborea</i>
040389		Sparrow, chipping	<i>Spizella passerina</i>
040391		Sparrow, field	<i>Spizella pusilla</i>
040393		Sparrow, white-crowned	<i>Zonotrichia leucophrys</i>
040394		Sparrow, white-throated	<i>Zonotrichia albicollis</i>
040395		Sparrow, fox	<i>Passerella iliaca</i>
040396		Sparrow, Lincoln's	<i>Melospiza lincolni</i>
040397		Sparrow, swamp	<i>Melospiza georgiana</i>
040398		Sparrow, song	<i>Melospiza melodia</i>
040399		Longspur, Lapland	<i>Calcarius lapponicus</i>
040401		Bunting, snow	<i>Plectrophenax nivalis nivalis</i>
040410		Goose, snow	<i>Chen caerulescens</i>
050001		Opossum, Virginia	<i>Didelphis virginiana virginiana</i>
050002		Shrew, ashen masked	<i>Sorex cinereus cinereus</i>
050004		Shrew, smoky	<i>Sorex fumeus fumeus</i>
050007		Shrew, southeastern	<i>Sorex longirostris longirostris</i>
050010		Shrew, pygmy	<i>Sorex hoyi winnemana</i>
050013		Shrew, Kirtland's short-tailed	<i>Blarina brevicauda kirtlandi</i>
050015		Shrew, least	<i>Cryptotis parva parva</i>
050016		Mole, hairy-tailed	<i>Parascalops breweri</i>
050017		Mole, eastern	<i>Scalopus aquaticus aquaticus</i>
050019		Mole, star-nosed	<i>Condylura cristata cristata</i>
050020		Bat, little brown	<i>Myotis lucifugus lucifugus</i>
050022		Myotis, northern	<i>Myotis septentrionalis septentrionalis</i>
040367		Finch, house	<i>Carpodacus mexicanus</i>
040369		Redpoll, common	<i>Carduelis flammea</i>
040370		Siskin, pine	<i>Carduelis pinus</i>
040371		Goldfinch, American	<i>Carduelis tristis</i>
040315		Warbler, Cape May	<i>Dendroica tigrina</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
040316		Warbler, black-throated blue	<i>Dendroica caerulescens</i>
040317		Warbler, yellow-rumped	<i>Dendroica coronata cornata</i>
040319		Warbler, black-throated green	<i>Dendroica virens</i>
040307		Warbler, blue-winged	<i>Vermivora pinus</i>
040311		Warbler, Nashville	<i>Vermivora ruficapilla</i>
040312		Parula, northern	<i>Parula americana</i>
040313		Warbler, yellow	<i>Dendroica petechia</i>
040286		Kinglet, ruby-crowned	<i>Regulus calendula</i>
040287		Pipit, American	<i>Anthus rubescens</i>
040290		Waxwing, cedar	<i>Bombycilla cedrorum</i>
040321		Warbler, blackburnian	<i>Dendroica fusca</i>
040323		Warbler, chestnut-sided	<i>Dendroica pensylvanica</i>
040324		Warbler, bay-breasted	<i>Dendroica castanea</i>
040325		Warbler, blackpoll	<i>Dendroica striata</i>
040326		Warbler, pine	<i>Dendroica pinus</i>
040328		Warbler, prairie	<i>Dendroica discolor</i>
040329		Warbler, palm	<i>Dendroica palmarum</i>
040330		Ovenbird	<i>Seiurus aurocapilla</i>
040331		Waterthrush, northern	<i>Seiurus noveboracensis</i>
040332		Waterthrush, Louisiana	<i>Seiurus motacilla</i>
040333		Warbler, Kentucky	<i>Oporornis formosus</i>
040336		Yellowthroat, common	<i>Geothlypis trichas</i>
040337		Chat, yellow-breasted	<i>Icteria virens virens</i>
040338		Warbler, hooded	<i>Wilsonia citrina</i>
040340		Warbler, Canada	<i>Wilsonia canadensis</i>
040341		Redstart, American	<i>Setophaga ruticilla</i>
040342		Sparrow, house	<i>Passer domesticus</i>
040343		Bobolink	<i>Dolichonyx oryzivorus</i>
040344		Meadowlark, eastern	<i>Sturnella magna</i>
040346		Blackbird, red-winged	<i>Agelaius phoeniceus</i>
040347		Oriole, orchard	<i>Icterus spurius</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
040348		Oriole, Baltimore	<i>Icterus galbula</i>
040349		Blackbird, rusty	<i>Euphagus carolinus</i>
040350		Blackbird, Brewer's	<i>Euphagus cyanocephalus</i>
040352		Grackle, common	<i>Quiscalus quiscula</i>
040353		Cowbird, brown-headed	<i>Molothrus ater</i>
040355		Tanager, scarlet	<i>Piranga olivacea</i>
040356		Tanager, summer	<i>Piranga rubra</i>
040357		Cardinal, northern	<i>Cardinalis cardinalis</i>
040358		Grosbeak, rose-breasted	<i>Pheucticus ludovicianus</i>
040360		Grosbeak, blue	<i>Guiraca caerulea caerulea</i>
040361		Bunting, indigo	<i>Passerina cyanea</i>
040242		Flycatcher, least	<i>Empidonax minimus</i>
040243		Pewee, eastern wood	<i>Contopus virens</i>
040245		Lark, horned	<i>Eremophila alpestris</i>
040246		Swallow, tree	<i>Tachycineta bicolor</i>
040247		Swallow, bank	<i>Riparia riparia</i>
040248		Swallow, northern rough-winged	<i>Stelgidopteryx serripennis</i>
040249		Swallow, barn	<i>Hirundo rustica</i>
040250		Swallow, cliff	<i>Petrochelidon pyrrhonota pyrrhonota</i>
040251		Martin, purple	<i>Progne subis</i>
040252		Jay, blue	<i>Cyanocitta cristata</i>
040254		Raven, common	<i>Corvus corax</i>
040255		Crow, American	<i>Corvus brachyrhynchos</i>
040256		Crow, fish	<i>Corvus ossifragus</i>
040257		Chickadee, black-capped	<i>Poecile atricapillus</i>
040258		Chickadee, Carolina	<i>Poecile carolinensis</i>
040260		Titmouse, tufted	<i>Baeolophus bicolor</i>
040261		Nuthatch, white-breasted	<i>Sitta carolinensis</i>
040215		Whip-poor-will	<i>Caprimulgus vociferus</i>
040216		Nighthawk, common	<i>Chordeiles minor</i>
040217		Swift, chimney	<i>Chaetura pelagica</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
040218		Hummingbird, ruby-throated	<i>Archilochus colubris</i>
040220		Kingfisher, belted	<i>Ceryle alcyon</i>
040221		Flicker, northern	<i>Colaptes auratus</i>
040222		Woodpecker, pileated	<i>Dryocopus pileatus</i>
040223		Woodpecker, red-bellied	<i>Melanerpes carolinus</i>
040224		Woodpecker, red-headed	<i>Melanerpes erythrocephalus</i>
040225		Sapsucker, yellow-bellied	<i>Sphyrapicus varius</i>
040226		Woodpecker, hairy	<i>Picoides villosus</i>
040227		Woodpecker, downy	<i>Picoides pubescens medianus</i>
040229		Kingbird, eastern	<i>Tyrannus tyrannus</i>
040234		Flycatcher, great crested	<i>Myiarchus crinitus</i>
040236		Phoebe, eastern	<i>Sayornis phoebe</i>
040239		Flycatcher, Acadian	<i>Empidonax virescens</i>
040240		Flycatcher, willow	<i>Empidonax traillii</i>
040205		Screech-owl, eastern	<i>Megascops asio</i>
040206		Owl, great horned	<i>Bubo virginianus</i>
040209		Owl, barred	<i>Strix varia</i>
040113		Coot, American	<i>Fulica americana</i>
040119		Killdeer	<i>Charadrius vociferus</i>
040095		Osprey	<i>Pandion haliaetus carolinensis</i>
040268		Wren, Carolina	<i>Thryothorus ludovicianus</i>
040269		Wren, marsh	<i>Cistothorus palustris</i>
040271		Mockingbird, northern	<i>Mimus polyglottos</i>
040272		Catbird, gray	<i>Dumetella carolinensis</i>
040273		Thrasher, brown	<i>Toxostoma rufum</i>
040275		Robin, American	<i>Turdus migratorius</i>
040277		Thrush, wood	<i>Hylocichla mustelina</i>
040281		Veery	<i>Catharus fuscescens</i>
040282		Bluebird, eastern	<i>Sialia sialis</i>
040284		Gnatcatcher, blue-gray	<i>Polioptila caerulea</i>
040265		Wren, house	<i>Troglodytes aedon</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
040211		Owl, short-eared	<i>Asio flammeus</i>
040294		Starling, European	<i>Sturnus vulgaris</i>
040295		Vireo, white-eyed	<i>Vireo griseus</i>
040297		Vireo, yellow-throated	<i>Vireo flavifrons</i>
040298		Vireo, blue-headed	<i>Vireo solitarius</i>
040299		Vireo, red-eyed	<i>Vireo olivaceus</i>
040301		Vireo, warbling	<i>Vireo gilvus gilvus</i>
040302		Warbler, black-and-white	<i>Mniotilta varia</i>
040303		Warbler, prothonotary	<i>Protonotaria citrea</i>
040305		Warbler, worm-eating	<i>Helmitheros vermivorus</i>
030063		Turtle, spotted	<i>Clemmys guttata</i>
030068		Turtle, eastern box	<i>Terrapene carolina carolina</i>
040001		Loon, common	<i>Gavia immer</i>
040005		Grebe, horned	<i>Podiceps auritus</i>
040008		Grebe, pied-billed	<i>Podilymbus podiceps</i>
040024		Cormorant, double-crested	<i>Phalacrocorax auritus</i>
040027		Heron, great blue	<i>Ardea herodias herodias</i>
040028		Heron, green	<i>Butorides virescens</i>
040035		Night-heron, black-crowned	<i>Nycticorax nycticorax hoactii</i>
040042		Flamingo, greater	<i>Phoenicopterus ruber</i>
040043		Swan, mute	<i>Cygnus olor</i>
040044		Swan, tundra	<i>Cygnus columbianus columbianus</i>
040045		Goose, Canada	<i>Branta canadensis</i>
040051		Mallard	<i>Anas platyrhynchos</i>
040052		Duck, American black	<i>Anas rubripes</i>
040053		Gadwall	<i>Anas strepera</i>
040054		Pintail, northern	<i>Anas acuta acuta</i>
040056		Teal, green-winged	<i>Anas crecca carolinensis</i>
040057		Teal, blue-winged	<i>Anas discors orphna</i>
040059		Wigeon, American	<i>Anas americana</i>
040060		Shoveler, northern	<i>Anas clypeata</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
040061		Duck, wood	<i>Aix sponsa</i>
040062		Redhead	<i>Aythya americana</i>
040063		Duck, ring-necked	<i>Aythya collaris</i>
040064		Canvasback	<i>Aythya valisineria</i>
040065		Scaup, greater	<i>Aythya marila</i>
040066		Scaup, lesser	<i>Aythya affinis</i>
040067		Goldeneye, common	<i>Bucephala clangula americana</i>
040068		Bufflehead	<i>Bucephala albeola</i>
040069		Duck, long-tailed	<i>Clangula hyemalis</i>
040074		Scoter, surf	<i>Melanitta perspicillata</i>
040076		Duck, ruddy	<i>Oxyura jamaicensis</i>
040077		Merganser, hooded	<i>Lophodytes cucullatus</i>
040078		Merganser, common	<i>Mergus merganser americanus</i>
040079		Merganser, red-breasted	<i>Mergus serrator serrator</i>
040080		Vulture, turkey	<i>Cathartes aura</i>
040081		Vulture, black	<i>Coragyps atratus</i>
040130		Yellowlegs, greater	<i>Tringa melanoleuca</i>
040132		Sandpiper, solitary	<i>Tringa solitaria</i>
040134		Sandpiper, spotted	<i>Actitis macularia</i>
040140		Woodcock, American	<i>Scolopax minor</i>
040141		Snipe, common	<i>Gallinago gallinago</i>
040142		Dowitcher, short-billed	<i>Limnodromus griseus</i>
040167		Gull, herring	<i>Larus argentatus</i>
040170		Gull, ring-billed	<i>Larus delawarensis</i>
040197		Pigeon, rock	<i>Columba livia</i>
040198		Dove, mourning	<i>Zenaida macroura carolinensis</i>
040202		Cuckoo, yellow-billed	<i>Coccyzus americanus</i>
040203		Cuckoo, black-billed	<i>Coccyzus erythrophthalmus</i>
040097		Merlin	<i>Falco columbarius</i>
040098		Kestrel, American	<i>Falco sparverius sparverius</i>
040099		Grouse, ruffed	<i>Bonasa umbellus</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
040100		Bobwhite, northern	<i>Colinus virginianus</i>
040101		Pheasant, ring-necked	<i>Phasianus colchicus</i>
040102		Turkey, wild	<i>Meleagris gallopavo silvestris</i>
040108		Sora	<i>Porzana carolina</i>
040085		Hawk, sharp-shinned	<i>Accipiter striatus velox</i>
040086		Hawk, Cooper's	<i>Accipiter cooperii</i>
040087		Hawk, red-tailed	<i>Buteo jamaicensis</i>
040088		Hawk, red-shouldered	<i>Buteo lineatus lineatus</i>
040089		Hawk, broad-winged	<i>Buteo platypterus</i>
040090		Hawk, rough-legged	<i>Buteo lagopus johannis</i>
040092		Eagle, golden	<i>Aquila chrysaetos</i>
010407		Sculpin, Potomac	<i>Cottus girardi</i>
020004		Bullfrog	<i>Rana catesbeiana</i>
020007		Treefrog, gray	<i>Hyla versicolor</i>
020008		Frog, northern green	<i>Rana clamitans melanota</i>
020012		Frog, eastern cricket	<i>Acris crepitans crepitans</i>
020013		Frog, pickerel	<i>Rana palustris</i>
020018		Frog, upland chorus	<i>Pseudacris feriarum feriarum</i>
020019		Frog, wood	<i>Rana sylvatica</i>
020026		Salamander, cave	<i>Eurycea lucifuga</i>
020029		Salamander, four-toed	<i>Hemidactylium scutatum</i>
020031		Salamander, Jefferson	<i>Ambystoma jeffersonianum</i>
020033		Salamander, longtail	<i>Eurycea longicauda longicauda</i>
020035		Salamander, marbled	<i>Ambystoma opacum</i>
020038		Salamander, northern dusky	<i>Desmognathus fuscus</i>
020043		Salamander, northern red-backed	<i>Plethodon cinereus</i>
020049		Salamander, spotted	<i>Ambystoma maculatum</i>
020051		Salamander, three-lined	<i>Eurycea guttolineata</i>
020053		Salamander, northern two-lined	<i>Eurycea bislineata</i>
020054		Salamander, valley and ridge	<i>Plethodon hoffmani</i>
020059		Toad, American	<i>Bufo americanus</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
020062		Toad, Fowler?s	<i>Bufo fowleri</i>
020065		Newt, red-spotted	<i>Notophthalmus viridescens viridescens</i>
020070		Salamander, northern red	<i>Pseudotriton ruber ruber</i>
020071		Peeper, northern spring	<i>Pseudacris crucifer crucifer</i>
020075		Salamander, seal	<i>Desmognathus monticola</i>
020077		Salamander, northern spring	<i>Gyrinophilus porphyriticus porphyriticus</i>
020080		Salamander, white-spotted slimy	<i>Plethodon cylindraceus</i>
030002		Lizard, eastern fence	<i>Sceloporus undulatus</i>
030004		Skink, five-lined	<i>Eumeces fasciatus</i>
030005		Skink, southeastern five-lined	<i>Eumeces inexpectatus</i>
030006		Skink, broadhead	<i>Eumeces laticeps</i>
030012		Rattlesnake, timber	<i>Crotalus horridus</i>
030016		Copperhead, northern	<i>Agkistrodon contortrix mokasen</i>
030018		Racer, northern black	<i>Coluber constrictor constrictor</i>
030019		Wormsnake, eastern	<i>Carphophis amoenus amoenus</i>
030020		Snake, northern ring-necked	<i>Diadophis punctatus edwardsii</i>
030022		Cornsnake, red	<i>Elaphe guttata</i>
030023		Ratsnake, black	<i>Elaphe obsoleta obsoleta</i>
030024		Snake, eastern hog-nosed	<i>Heterodon platirhinos</i>
030026		Kingsnake, eastern	<i>Lampropeltis getula getula</i>
030029		Milksnake, eastern	<i>Lampropeltis triangulum triangulum</i>
030033		Snake, queen	<i>Regina septemvittata</i>
030034		Watersnake, northern	<i>Nerodia sipedon sipedon</i>
030038		Greensnake, northern rough	<i>Opheodrys aestivus aestivus</i>
030039		Greensnake, smooth	<i>Opheodrys vernalis</i>
030041		Brownsnake, northern	<i>Storeria dekayi dekayi</i>
030042		Snake, northern red-bellied	<i>Storeria occipitomaculata occipitomaculata</i>
030044		Gartersnake, eastern	<i>Thamnophis sirtalis sirtalis</i>
030045		Ribbonsnake, common	<i>Thamnophis sauritus sauritus</i>
030049		Earthsnake, eastern smooth	<i>Virginia valeriae valeriae</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
030050		Turtle, eastern snapping	<i>Chelydra serpentina serpentina</i>
030052		Stinkpot	<i>Sternotherus odoratus</i>
030057		Cooter, northern red-bellied	<i>Pseudemys rubriventris rubriventris</i>
030060		Turtle, eastern painted	<i>Chrysemys picta picta</i>
010050		Trout, rainbow	<i>Oncorhynchus mykiss</i>
010051		Trout, brown	<i>Salmo trutta</i>
010052		Trout, brook	<i>Salvelinus fontinalis</i>
010055		Pickerel, redfin	<i>Esox americanus americanus</i>
010056		Pickerel, chain	<i>Esox niger</i>
010058		Stoneroller, central	<i>Campostoma anomalum</i>
010062		Carp, common	<i>Cyprinus carpio</i>
010063		Minnow, cutlips	<i>Exoglossum maxillingua</i>
010066		Chub, bluehead	<i>Nocomis leptcephalus</i>
010067		Chub, river	<i>Nocomis micropogon</i>
010068		Shiner, golden	<i>Notemigonus crysoleucas</i>
010072		Shiner, comely	<i>Notropis amoenus</i>
010073		Shiner, satinfin	<i>Cyprinella analostana</i>
010074		Shiner, rosefin	<i>Lythrurus ardens</i>
010080		Shiner, common	<i>Luxilus cornutus</i>
010082		Shiner, spottail	<i>Notropis hudsonius</i>
010086		Shiner, swallowtail	<i>Notropis procne</i>
010087		Shiner, rosyface	<i>Notropis rubellus</i>
010091		Shiner, spotfin	<i>Cyprinella spiloptera</i>
010099		Minnow, bluntnose	<i>Pimephales notatus</i>
010100		Minnow, fathead	<i>Pimephales promelas</i>
010101		Dace, blacknose	<i>Rhinichthys atratulus</i>
010102		Dace, longnose	<i>Rhinichthys cataractae</i>
010103		Chub, creek	<i>Semotilus atromaculatus</i>
010104		Fallfish	<i>Semotilus corporalis</i>
010105		Sucker, white	<i>Catostomus commersoni</i>
010106		Chubsucker, creek	<i>Erimyzon oblongus</i>

Appendix 15. Animal species known or likely to occur within a three-mile radius of latitude/longitude coordinates 734366/4321966. Provided by the Commonwealth of Virginia, Department of Game and Inland Fisheries Fish and Wildlife Information Service, Biota of Virginia (BOVA) database 2003 (continued).

BOVA Code	Status*	Common Name	Scientific Name
010108		Sucker, northern hog	<i>Hypentelium nigricans</i>
010116		Redhorse, shorthead	<i>Moxostoma macrolepidotum</i>
010120		Catfish, white	<i>Ameiurus catus</i>
010122		Bullhead, yellow	<i>Ameiurus natalis</i>
010123		Bullhead, brown	<i>Ameiurus nebulosus</i>
010125		Catfish, channel	<i>Ictalurus punctatus</i>
010129		Madtom, margined	<i>Noturus insignis</i>
010131		Eel, American	<i>Anguilla rostrata</i>
010143		Killifish, banded	<i>Fundulus diaphanus</i>
010175		Bass, rock	<i>Ambloplites rupestris</i>
010180		Sunfish, redbreast	<i>Lepomis auritus</i>
010181		Sunfish, green	<i>Lepomis cyanellus</i>
010182		Pumpkinseed	<i>Lepomis gibbosus</i>
010183		Bluegill	<i>Lepomis macrochirus</i>
010184		Sunfish, longear	<i>Lepomis megalotis</i>
010186		Bass, smallmouth	<i>Micropterus dolomieu</i>
010188		Bass, largemouth	<i>Micropterus salmoides</i>
010189		Crappie, white	<i>Pomoxis annularis</i>
010191		Darter, greenside	<i>Etheostoma blennioides</i>
010193		Darter, fantail	<i>Etheostoma flabellare</i>
010283		Sculpin, mottled	<i>Cottus bairdi</i>
010345		Dace, pearl	<i>Margariscus margarita</i>

*FE=Federal Endangered; FT=Federal Threatened; FC=Federal Candidate; FS=Federal Species of Concern (not a legal status; list maintained by USFWS Virginia Field Office); SE=State Endangered; ST=State Threatened; SS=State Special Concern (not a legal status). No assigned status if blank.

U.S. Fish & Wildlife Service

Bald Eagle

Haliaeetus leucocephalus



Description - The bald eagle occurs throughout the United States. It is a large bird-of-prey with dark brown plumage, a white head and tail, and a yellow bill, feet, and eyes. Juvenile eagles generally have a dark brown body, sometimes with white patches on the tail, belly, and underwings. The head and tail become completely white when full adult plumage is reached at four to five years of age.

Life History - The majority of Virginia's eagle population is found on the coastal plain. The bald eagle breeding season begins in mid-November when large nests are built (or the previous year's nest is repaired) usually in loblolly pine trees that are in close proximity to water. Eagles lay one to three eggs between mid-January and late March. In March, most eggs hatch and by June or July most young have fledged. However, the young will continue to use the nest for several weeks. In Virginia, during the summer and winter months, juvenile and nonbreeding adult eagles congregate along large rivers in areas with abundant food and little human

disturbance. During the day, these eagles feed and perch along the river shoreline. In late afternoon, they move inland to roost either singly or communally. Roosts are typically located away from human disturbance and near water and a food source. Bald eagles feed primarily on fish, but will also eat carrion, waterfowl, small mammals, snakes, and turtles.

Conservation - The bald eagle was federally listed as an endangered species in the Chesapeake Bay Region on March 11, 1967. On July 12, 1995, the bald eagle was reclassified to threatened throughout the 48 lower states because the population had increased due to the banning persistent pesticides, habitat protection, and other recovery activities. On July 6, 1999, the bald eagle was proposed for removal from the list of endangered and threatened wildlife in the lower 48 states. This action was proposed because the available data indicated that this species has recovered. The recovery is due in part to habitat protection and management actions initiated under the Endangered Species Act. It is also due to reduction in levels of persistent pesticides occurring in the environment. If and when the eagle is no longer protected by the Endangered Species Act, it will still be protected by the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and state laws. Until the eagle is officially delisted, it will continue to receive protection pursuant to the Endangered Species Act. Bald eagles in the Chesapeake Bay are increasing. However, habitat destruction through urban and

residential development and human disturbance in nesting, roosting, and

foraging habitats continue to be a threat.

What You Can Do To Help - If you know of a bald eagle nest on or near property proposed for clearing, development, or logging please contact one of the following agencies for assistance:

Virginia Department of Game and Inland Fisheries
P.O. Box 11104
Richmond, Virginia 23230
(804) 367-1000

U. S. Fish and Wildlife Service
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694

References

U.S. Fish and Wildlife Service. 1990. Chesapeake Bay Region bald eagle recovery plan: first revision. Newton Corner, Massachusetts.

U.S. Fish and Wildlife Service. 1999. Proposed rule to remove the bald eagle in the lower 48 states from the list of endangered and threatened wildlife. Federal Register 64(128): 36453-36464.

Watts, B.D., K.W. Cline, and M.A. Byrd. 1994. The bald eagle in Virginia: An information booklet for land planners. The Center for Conservation Biology, College of William and Mary, Williamsburg, Virginia.



U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
<http://www.fws.gov>
August 1999

U.S. Fish & Wildlife Service

Indiana Bat

Myotis sodalis



Description - The Indiana bat occurs throughout 27 states in the eastern and mid-western U.S. It is found in the western portion of Virginia during hibernation, but seldom found in Virginia during the summer. This medium-sized bat weighs six to nine grams and has an average life span of four years. This short-eared bat is two inches from head to toe and has a wing span of nine to eleven inches. Its fur is dull grayish-brown and the underparts are pinkish.

Life History - After mating in the fall, the Indiana bat travels up to 300 miles to hibernate in large caves and abandoned mines that have stable, cold temperatures during the winter. The fact that the Indiana bats congregate and form large aggregations in only a small percentage of known caves suggests that very few caves meet their requirements. During hibernation they can be found on flat ceilings of caves in clusters containing 500 to 1,000 or more bats. Half of all hibernating Indiana bats winter in Indiana. Hibernation begins in

mid-October and ends in April; females are the first to leave. Males roost in caves or mines during the summer. Maternity colonies are located in riparian forests along streams. Females roost together in hollow trees or under loose bark and have one young per pregnancy. The young are born in late June or early July. After one month, young are capable of flight and begin independent feeding. Foraging takes place along forested streams. They feed exclusively on insects.

Conservation - The Indiana bat was federally listed as an endangered species on March 11, 1967. This bat has declined primarily due to human disturbance during hibernation. This species is easily disturbed by human activity such as vandalism, caving, and research during the hibernating months. Other threats are flooding of caves, blockage of cave entrances, and pesticide poisoning.

What You Can Do To Help - Avoid using pesticides and other chemicals near caves and waterways. Do not enter gated caves or mines. These gates have been installed to protect bats and human safety. Cave habitats are fragile and easily disturbed; if you must enter a cave, do so only as an observer and leave everything as you found it. Never shoot, poison, or otherwise harm bats. Bats are extremely beneficial insect eaters, and nuisance bats can be encouraged to move elsewhere. If you find a bat, please do not disturb it!

Contact one of the following agencies for assistance:

Virginia Department of Game and Inland Fisheries
P.O. Box 11104
Richmond, Virginia 23230
(804) 367-1000

Virginia Department of Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 3rd Floor
Richmond, Virginia 23219
(804) 786-7951

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694

References

Dalton, V.M. and C.O. Handley, Jr. 1991. Social myotis. Pages 569-570 in K. Terwilliger, ed. Virginia's Endangered Species, Proceedings of a Symposium. McDonald and Woodward Publishing Company, Blacksburg, Virginia.

U.S. Fish and Wildlife Service. 1999. Agency Draft: revised draft of the recovery plan for the Indiana bat (*Myotis sodalis*). Fort Snelling, Minnesota.



U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
<http://www.fws.gov>
December 2000

Appendix 18. Native fish currently known to exist in the watershed of the North Fork of the Shenandoah River (HUC 2070006). Provided by NatureServe 2004.

Scientific Name	Common Name
<i>Clinostomus funduloides</i>	Rosyside Dace
<i>Rhinichthys cataractae</i>	Longnose Dace
<i>Rhinichthys atratulus</i>	Blacknose Dace
<i>Campostoma anomalum</i>	Central Stoneroller
<i>Semotilus corporalis</i>	Fallfish
<i>Semotilus atromaculatus</i>	Creek Chub
<i>Exoglossum maxillingua</i>	Cutlips Minnow
<i>Nocomis micropogon</i>	River Chub
<i>Anguilla rostrata</i>	American Eel
<i>Cyprinella analostana</i>	Satinfin Shiner
<i>Cyprinella spiloptera</i>	Spotfin Shiner
<i>Luxilus cornutus</i>	Common Shiner
<i>Notropis rubellus</i>	Rosyface Shiner
<i>Notropis amoenus</i>	Comely Shiner
<i>Notropis hudsonius</i>	Spottail Shiner
<i>Notropis procne</i>	Swallowtail Shiner
<i>Hypentelium nigricans</i>	Northern Hog Sucker
<i>Catostomus commersoni</i>	White Sucker
<i>Ameiurus natalis</i>	Yellow Bullhead
<i>Noturus insignis</i>	Margined Madtom
<i>Salvelinus fontinalis</i>	Brook Trout
<i>Fundulus diaphanus</i>	Banded Killifish

Appendix 18. Native fish currently known to exist in the watershed of the North Fork of the Shenandoah River (HUC 2070006). Provided by NatureServe 2004 (continued).

Scientific Name	Common Name
<i>Cottus caeruleomentum</i>	Blue Ridge Sculpin
<i>Cottus girardi</i>	Potomac Sculpin
<i>Lepomis auritus</i>	Redbreast Sunfish
<i>Lepomis gibbosus</i>	Pumpkinseed
<i>Etheostoma olmstedii</i>	Tessellated Darter
<i>Etheostoma flabellare</i>	Fantail Darter

Appendix 19. National Ambient Air Quality Standards (NAAQS), published in 2003 by the Environmental Protection Agency (EPA) in connection with the Clean Air Act and 40 CFR, Part 50.

POLLUANT	PRIMARY STANDARD		SECONDARY STANDARD	
	ug/m ³	ppm	ug/m ³	ppm
CARBON MONOXIDE 8-hour concentration 1-hour concentration	10,000 ^a 40,000 ^a	9 ^a 35 ^a		
SULFUR DIOXIDE Annual arithmetic mean 24-hour concentration 3-hour concentration	80 365 ^a	0.03 0.14 ^a	1300 ^a	0.50 ^a
NITROGEN DIOXIDE Annual arithmetic mean	100	0.053	Same as primary	
OZONE 8-hour concentration 1-hour concentration	157 ^b 235 ^c	0.08 ^b 0.12 ^c	Same as primary	
LEAD Quarterly arithmetic mean	1.5		Same as primary	
PARTICULATE MATTER PM_{2.5} Annual arithmetic mean 24-hour concentration PM₁₀ Annual arithmetic mean 24-hour concentration	15 ^d 65 ^e 50 150 ^a		Same as primary	

^a Not to be exceeded more than once a year

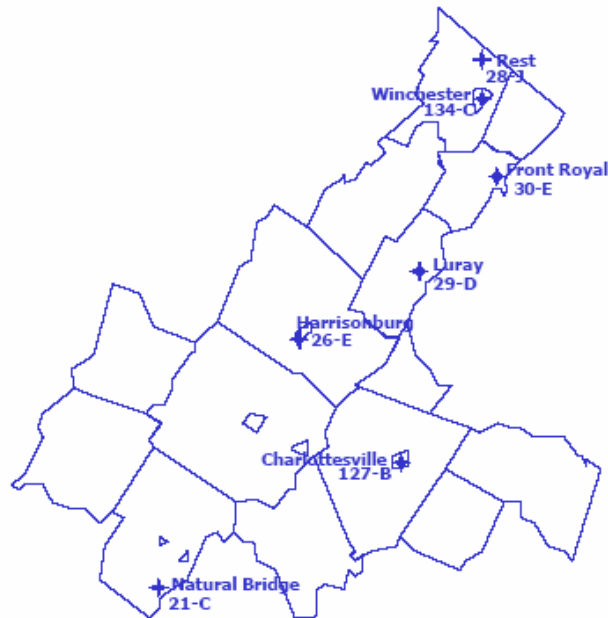
^b 3-year average of the 4th highest 8-hour concentration may not exceed 0.08 ppm

^c Areas in nonattainment with the 1-hour standard must meet that standard before demonstrating attainment with the 8-hour standard.

^d Based on a 3-year average of annual averages

^e Based on a 3-year average of annual 98th percentile values

Appendix 20. Virginia Department of Environmental Quality Ambient Air monitoring sites in the Valley Monitoring Network 2003.



STATION NUMBER	POLLUT.	SITE TYPE	LOCATION	AIRS NUMBER	CITY/COUNTY	LAT/ LONG
21-C	O ₃ , PM _{2.5}	SLAMS IMPROVE	Natural Bridge Ranger Station	51-163-0003	Rockbridge Co.	37° 37' 34" 79° 30' 47"
26-E	PM ₁₀ , SO ₂	SLAMS	Valley DEQ Office 4411 Early Road	51-165-0002	Harrisonburg Rockingham Co.	38° 23' 22" 78° 54' 51"
28-J	O ₃	SLAMS	Woodbine Road Lester Building Systems	51-069-0010	Rest Frederick Co.	39° 16' 58" 78° 04' 53"
29-D	O ₃ , PM _{2.5}	SLAMS	Luray Caverns Airport	51-139-0004	Luray Page Co.	38° 39' 48" 78° 30' 17"
30-E	PM ₁₀	SLAMS	Warren Co. Memorial Hospital 1000 Shenandoah Avenue	51-187-0004	Front Royal Warren Co.	38° 55' 58" 78° 11' 54"
127-B	PM ₁₀	SLAMS	City Hall Annex 606 E. Market Street	51-540-0002	Charlottesville	38° 01' 57" 78° 28' 37"
134-C	PM ₁₀	SLAMS	Winchester Courts Building	51-840-0002	Winchester	39° 11' 08" 78° 09' 47"