

TECHNICAL MEMORANDUM
SUMMARY OF FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES
EFFORTS AND COORDINATION
COALFIELDS EXPRESSWAY SECTION II

State Project No. 0121-013-772, PE-101; UPC 85126

From: Pound Bypass

To: US Route 460 Connector

Wise, Dickenson, and Buchanan Counties

1. Coordination during Environmental Impact Statement (EIS) Development:

Early in the planning process, VDOT began coordinating with agencies involved with, or with knowledge of, federally listed threatened and endangered species, including:

- US Fish and Wildlife Service (USFWS);
- Virginia Department of Conservation and Recreation (VDCR);
- Virginia Department of Game and Inland Fisheries (VDGIF); and
- Virginia Department of Agriculture and Consumer Services (VDACS).

The coordination continued as needed throughout preparation of the EIS. Pertinent input from USFWS included the following:

- February 10, 1998 - Letter from U.S. Fish and Wildlife Service (USFWS) to Federal Highway Administration (FHWA) providing lists of threatened and endangered species by county (Buchanan, Dickenson, and Wise). No federally listed species were documented in Buchanan County. Two federally listed species were documented in Dickenson County: the endangered Indiana bat (*Myotis sodalis*) and the threatened Virginia spiraea (*Spiraea virginiana*). Eight federally listed species were documented in Wise County: birdwing pearly mussel (*Conradilla caelata*), endangered; shiny pigtoe (*Fusconaia cor*), endangered; fine-rayed pigtoe (*Fusconaia cuneolus*), endangered; gray bat (*Myotis grisescens*), endangered; Indiana bat (*Myotis sodalis*), endangered; small whorled pogonia (*Isotria medeoloides*), threatened; and Virginia spiraea (*Spiraea virginiana*), threatened.
- July 5, 2001 - Letter from USFWS to FHWA, project “is not likely to affect the Indiana bat” (*Myotis sodalis*); therefore, no further Section 7 consultation regarding the Indiana bat is required. However, this determination may be reconsidered if project plans change or if additional information becomes available.
- August 30, 2001 - Letter from USFWS to FHWA, project “is not likely to affect the small whorled pogonia” (*Isotria medeoloides*); therefore, no further Section 7 consultation regarding the small whorled pogonia is required. However, this determination may be reconsidered if project plans change or if additional information becomes available.

VDCR provided information on occurrence locations for natural heritage resources (natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species; unique or exemplar natural communities; and significant geologic formations). VDCR obtains information on documented resource locations through field inventory, review of pertinent scientific literature, review of museum and herbarium collections, and contributions from private individuals engaged in similar inventory work. VDCR provided locations of two Virginia spiraea communities and one Indiana bat community.

2. Field and other Evaluation Efforts during EIS Development:

Field surveys were conducted for three species: Virginia spiraea, small whorled pogonia, and Indiana bat.

2.1 Virginia Spiraea (*Spiraea virginiana*)

2.1.1 Description

Virginia spiraea is a large perennial deciduous shrub (1 - 3 m) characterized by narrow elliptic remotely toothed leaves that are glaucous beneath. Its yellowish/greenish flowers bloom in late May to late June. It can be distinguished from common associates by profuse branching patterns, flower color, and inflorescence. Virginia spiraea spreads clonally and forms dense clumps. The root system and vegetative characteristics allow it to thrive under appropriate disturbance regimes, such as along rocky, flood-scoured riverbanks in gorges or canyons. This plant is noted as a disturbance-adapted shrub that can tolerate flooding, inundation, erosion, scouring, deposition, and human interventions. Virginia spiraea grows vigorously in full sun on sandstone substrates and acidic moist soils along the banks of second and third order streams or on depositional point bars. Periodic flooding and scouring of the area is essential to this plant's survival because it eliminates arboreal and herbaceous competitors, and creates riverwash deposits. Frequent inundation facilitates dispersal of seeds to colonize new sites. Isolated populations of the species are distributed in Georgia, Tennessee, North Carolina, Virginia, West Virginia, and Kentucky.

2.1.2 Field Survey

The study areas for sections of the Coalfields Expressway contain habitat suitable for Virginia spiraea. Therefore, a field survey was conducted to determine potential project impacts to the species from the build alternatives. Twelve sites were surveyed by VDCR: four in Buchanan County, seven in Dickenson County, and one in Wise County. In addition, suitable habitat did exist at several locations. None of these locations were in Section II. No Virginia spiraea or any other state or federal listed plant species were found at the survey sites.

2.1.3 Conclusions

The FEIS and the Biological Assessment that accompanied it concluded that the selected corridor F1 would have no impact on Virginia spiraea. USFWS did not specifically comment on this species following review of the Biological Assessment (prepared for this species, small whorled pogonia, and Indiana bat).

2.2 Small Whorled Pogonia (*Isotria medeoloides*)

2.2.1 Description

Small whorled pogonia is an orchid that grows 4 to 10 inches high. The stems are robust, hollow, smooth, pale green, and glaucous. The leaves are pale green, glaucous, and borne in a single whorl of 5 or 6 at the top of the stem. One or two flowers form in the center of the whorl. The plant occurs in very ordinary looking third growth upland forests on terrain that is almost level or gently to moderately sloping in northerly or easterly directions. The understory is distinctly open. Soils are acidic sandy loams with low to very low nutrient contents. Isolated populations of the species are distributed in 15 states. In Virginia, the small whorled pogonia has been documented from 10 counties on the Piedmont and Coastal Plain and from Lee and Wise Counties in southwest Virginia.

2.2.2 Field Survey

The FEIS noted that the presence of the small whorled pogonia in the project area is unlikely and that due to the lack of recorded populations within or near the study areas of any of the sections of the Coalfields Expressway, a survey of all alternatives was not conducted. The USFWS agreed that VDOT would only need to survey the final alignment. Three surveys were conducted. The first survey focused on sites with high potential for species occurrences. No populations were found. One location of suitable habitat was identified and intensively surveyed. The majority of the land surveyed contained habitat with low or no potential for the species. The second survey was by VDCR and VDOT personnel; seventeen sites were surveyed. The third survey was conducted by a George Mason University professor of six sites. None of the surveys identified any populations of the species. Of the sites within the alignments, nine were in Buchanan County, thirteen in Dickenson County, and one in Wise County.

2.2.3 Conclusions

As reported in the FEIS, the selected corridor F1 would have no impact on small whorled pogonia. Following review of the Biological Assessment, USFWS concurred that the project would not likely affect this species.

2.3 Indiana Bat (*Myotis sodalis*)

2.3.1 Description

The Indiana bat is medium sized, with a head and body length of 41-49 mm and a forearm length of 35-41 mm. Weights range from 6 to 9 grams. The pelage (the hairy or furry covering) is fine and fluffy; the upper parts are a dull, grayish chestnut. This species closely resembles the little brown bat (*Myotis lucifungus*). This species occupies much of the eastern half of the United States, but is very uncommon in Virginia, having been recorded in 11 counties, including Wise and Dickenson.

2.3.2 Field Survey

A survey for Indiana bat was conducted for the selected F1 corridor using protocols developed in concert with USFWS. As part of the winter habitat assessment, VDOT collected information from state agencies on known cave and mine portal locations that could potentially serve as habitat for the species. Due to a lack of limestone geology in the project area, natural caves were not a concern. Based on the coordination, 21 sites were sampled for bats. No federally listed threatened or endangered bats were captured. A total of 118 bats representing three species were captured at 11 of the 21 sites. Northern long-eared bats (*Myotis septentrionalis*) represented the majority (66%) of the total bat captures. Other species included eastern pipistrelle bats (*pipistrelle subflavus*) and eastern small-footed bats (*Myotis leibii*).

For the summer habitat assessment, an analysis was conducted to demonstrate that sufficient suitable Indiana bat foraging and roosting habitat would remain after the project is constructed. The analysis involved estimating the amount of forestland within two miles of the CTB-approved F1 corridor. Next, the estimated forestland impact was subtracted from the amount of forestland within two miles of the corridor. The result approximates the amount of remaining forestland after project construction. The assessment determined that an estimated 46,907 acres of forestland would remain within two miles of the CTB-approved corridor after project construction. Stated differently, the project would impact an estimated 3.1% of the forestland within two miles of the project corridor.

2.3.3 Conclusions

As reported in the FEIS, the selected corridor F1 would have no impact on Indiana bat hibernacula and minimal impact on potential foraging/roosting habitat. USFWS concurred that the project is not likely to affect the Indiana bat; therefore, no further Section 7 consultation regarding the Indiana bat was required. However, USFWS noted that this determination may be reconsidered if project plans changed or if additional information becomes available. Notwithstanding, VDOT agreed that clearing trees within the project limits and buffer area would not occur between April 1 and November 15 of each year to minimize potential effects to Indiana bats during summer foraging and roosting.

3. Coordination during EA Preparation:

September 26, 2008 – Letter from Virginia Department of Transportation to USFWS requesting input on issues or concerns on CFXII. No response to this letter was received; however, the letter listed below was received regarding the CFXIIC project in Buchanan County.

May 23, 2008 - Letter from USFWS to Virginia Department of Transportation (VDOT) regarding project CFXIIC, no federally listed species documented in Buchanan County. However, these federally-listed species have been documented in an adjacent county and may occur in Buchanan County: Virginia big-eared bat (*Corynorhinus townsendii virginianus*), Indiana bat (*Myotis sodalis*), and Virginia spiraea (*Spiraea virginiana*). The Virginia big-eared bat was not mentioned by USFWS as occurring in any of the three counties included in the original studies during preparation of the EIS; the Indiana bat and Virginia spiraea were both mentioned in reference to Dickenson and Wise Counties.

4. Field and Other Evaluation Efforts during EA Preparation:

As described above, the FEIS and associated Biological Assessment included the findings of a detailed study of three species: Virginia spiraea, small whorled pogonia, and Indiana bat. Through coordination with the USFWS and VDCR and intensive field surveys of potential habitat areas, it was determined that Virginia spiraea and small whorled pogonia were not present within the study area and would not be impacted. Potential winter habitat areas for the Indiana bat were surveyed and no threatened or endangered bat species were found. A summer habitat assessment determined that only 3.1% of forested land within a two-mile radius of the selected corridor would be impacted, leaving sufficient suitable habitat. Further, it was agreed that clearing trees within the project limits and buffer area would not occur between April 1 and November 15 of each year. There is no new information on newly recorded populations of Virginia spiraea, small whorled pogonia, or Indiana bat within the study area.

The Virginia big-eared bat (*Corynorhinus townsendii virginianus*), newly mentioned by USFWS during coordination for the EA, is of medium size (90-112 mm) and weight (9-12 g), with very large ears. Females gather during April and May to form maternity colonies in warm caves. This is one of only two Virginia bat species that roosts in caves in the summer. They are found exclusively in limestone caves and are known to occur in three caves in Tazewell County, which lies to the south and east of Buchanan County.

4.1 Field Efforts

The corridor proposed for CFXII has shifted from the selected corridor in the FEIS. Field reconnaissance was conducted to observe habitat conditions along the revised corridor and to evaluate potential habitat areas for the Virginia big-eared bat, a species not evaluated in the previous studies. The field efforts showed that the habitat characteristics of the revised study

corridor are very similar to the areas documented for the selected corridor in the FEIS. It was noted that surface mining activities have occurred over a large portion of the corridor in the last several years. There are no limestone caves in the study area. No Virginia big-eared bats were among the species collected during the survey of mines in the previous studies. In addition, no suitable habitat for the small whorled pogonia was identified in the new alignment. However, appropriate habitat for Virginia spiraea was identified within the revised CFXII corridor in Dickenson County along Russell Fork.

The VDCR Natural Heritage Division has documented two Virginia spiraea colonies in Dickenson County: on the Russell Fork near Breaks Gorge and on the Pound River downstream of the John W. Flannagan Dam. These are well outside of and downstream from the CFXII corridor. The suitable habitat area found within the revised CFXII corridor consists of a large area along the left bank of Russell Fork with indicators of frequent scour with gravelly soil. The area is also fairly open due to a lack of large woody species, another indication of high-energy flooding events. However, habitat suitability decreases due to a fairly dense herbaceous layer with various species of *Aster*, *Polygonum*, and *Carex* present. All remaining perennial channels subject to flooding events investigated within the proposed CFXII corridor were considered poor habitat for Virginia spiraea. This is due to a number of negative habitat factors, including, but not limited to, closed canopy over the stream channels, lack of areas of high erosion to eliminate competitive species, poor substrate quality, and regulated stream flows created by the John W. Flannagan Reservoir downstream of the study area.

4.2 Research Efforts

Literature searches and coordination with USFWS, VDGIF, and the DCR Division of Natural Heritage were conducted. A Virginia Fish and Wildlife Information Service (VaFWIS) Geographical Search was performed for a three mile radius of the project alignment. This information service provides a list of species and their designations, anadromous fish use streams, dams and fish impediments, trout streams, streams with threatened and endangered species, public lands, and watersheds within the search area.

The VaFWIS database included fourteen state and/or federally listed threatened or endangered species reported to occur or potentially occur within three miles of the Study Corridor (Table 1). Of the federally listed species, habitat for only Virginia spiraea was determined likely to occur within the alignment according to field surveys discussed above.

Table 1. Threatened and Endangered Species

SPECIES	SCIENTIFIC NAME	FEDERAL DESIGNATION	STATE DESIGNATION
American Ginseng	<i>Panax quinquefolius</i>	Not listed	Threatened
Berwick's Wren	<i>Thryomanes bewickii</i>	Not listed	Endangered
Big Sandy Crayfish	<i>Cambarus veteranus</i>	Species of Concern	Endangered
Brook Floater	<i>Alasmidonta varicosa</i>	Not listed	Endangered
Brown Supercoil	<i>Paravitrea septadens</i>	Species of Concern	Threatened
Emerald Shiner	<i>Notropis atherinoides</i>	Not listed	Threatened
Indiana Bat	<i>Myotis sodalis</i>	Endangered	Endangered
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Not listed	Threatened
Migrant Loggerhead Shrike	<i>Lanius ludovicianus migrans</i>	Not listed	Threatened

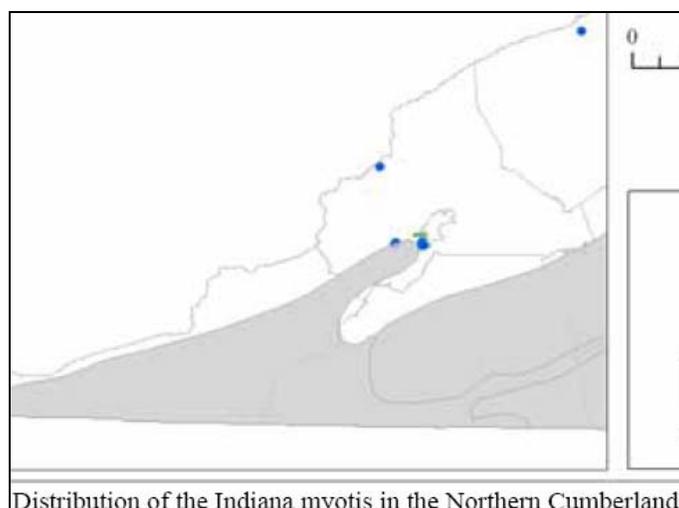
SPECIES	SCIENTIFIC NAME	FEDERAL DESIGNATION	STATE DESIGNATION
Shiny Pigtoe	<i>Fusconaia cor</i>	Endangered	Endangered
Spiny Riversnail	<i>Io fluvialis</i>	Species of Concern	Threatened
Variagate Darter	<i>Etheostoma variatum</i>	Not listed	Endangered
Virginia Spiraea	<i>Spiraea virginiana</i>	Threatened	Endangered
Small Whorled Pogonia	<i>Isotria medeoloides</i>	Threatened	Endangered

In 2012, the U.S. Fish and Wildlife Service Virginia Field Office’s on-line Information, Planning, and Conservation (IPaC) decision support system was used to generate a list of federally listed endangered or threatened species potentially occurring in the project vicinity. In addition to the federally listed species already listed above, the list generated by the system included the rayed bean (*Villosa fabalis*), a freshwater mussel, which was listed as endangered effective March 15, 2012 (Final Rule, Federal Register 77 p8632, February 14, 2012).

No areas designated as critical habitat are located within the project vicinity. Species with a Federal designation are described in more detail below.

4.2.1. Indiana Bat (*Myotis sodalis*)

The Indiana bat is medium sized, with a head and body length of 41-49 mm and a weight ranging from 6 to 9 grams. This species occupies much of the eastern half of the United States, but is very uncommon in Virginia, having been recorded in 11 counties, including Wise and Dickenson. Populations tend to hibernate in only a few select places and are easily affected by human activity, flooding, and pesticide poisoning. The bats feed on moths, mayflies, and other insects in treetops and along streams. In the summer, they prefer shagbark hickory and other trees to roost in, but return to the same caves to hibernate every winter. Streams are important to this species for feeding and travel pathways. There is one known residential occurrence in Wise County and foraging occurrences in Dickenson County. According to the confirmed locations mapped in *Virginia’s Comprehensive Wildlife Strategy*, this species is located well outside the vicinity of this project.



Source: *Virginia’s Comprehensive Wildlife Conservation Strategy* (also referred to as *Virginia Wildlife Plan*, Virginia Department of Game and Inland Fisheries, 2005).

VDOT has committed to a time of year restriction that would prohibit clearing trees within the project limits and buffer area between April 1 and November 15 of each year to minimize potential effects to Indiana bats during summer foraging and roosting. Further coordination will be conducted with USFWS regarding this species as part of the EA review process.

4.2.2 Virginia Big-Eared bat (*Corynorhinus townsendii virginianus*)

The Virginia big-eared bat (*Corynorhinus t. virginianus*) is medium-sized, about 3.5 to 4 inches long. Its characteristic features are large ears (more than one inch long) and the presence of two large lumps (glands) on the muzzle. When the bats are at rest, the ears are curled alongside the head and reach back to half the length of the body. It occurs in Kentucky, North Carolina, Virginia, and West Virginia. In Virginia, it is known from three caves in Tazewell County, which is adjacent to Buchanan County and well beyond the project vicinity. It inhabits caves during both summer and winter. The bats forage over, near, and around foliage in several habitats: pastures, croplands (alfalfa and corn), shrub lands, riparian strips, and wooded corridors and woodlands. Field investigations of the revised project corridor revealed no caves and no observations of individuals of this species. No areas designated as critical habitat are located within the project vicinity. Accordingly, the project will have no effect on this species.

4.2.3. Shiny Pigtoe (*Fusconaia cor*)

The shiny pigtoe is a medium-sized freshwater mussel reaching more than 60 mm in length. It has a smooth and shiny yellowish-brown shell with prominent dark green to blackish rays. The shiny pigtoe historically occurred throughout the Tennessee River drainage as far south as Mussel Shoals, Alabama. Its current distribution is scattered over five rivers: the North Fork of the Holston in Virginia, the Clinch (from the Virginia-Tennessee border upstream to Nash Ford), the Powell (from the Virginia-Tennessee border upstream to Lee County, Tennessee), the Elk River in Tennessee (where it has not been seen since 1980), and the Paint Rock River in Alabama. Five reaches within the Clinch-Powell River watershed in southern Wise County are confirmed locations of this species; however, it is not known to occur within the watershed crossed by the project. This is a riffle species that likes clear running streams with stable substrate. It is typically well burrowed in sand and cobble substrates and does not appear tolerant of deeper water or reservoirs. In the early stages the larvae attach to fish before transforming into the juvenile form. Because the species is not known to occur in this watershed, the project would have no effect on the shiny pigtoe.

4.2.4. Rayed Bean

The USFWS website states that this species has been extirpated from Illinois, Kentucky, and Virginia but is still found in Indiana, Michigan, New York, Ohio, Pennsylvania, Tennessee, West Virginia and Ontario, Canada. The rayed bean is a small mussel, usually less than 1.5 inches long. The general biology of the rayed bean is similar to other bivalved mollusks belonging to the family Unionidae. Adults are suspension-feeders, spending their entire lives partially or completely buried within the substrate. Their life cycle includes a brief parasitic stage on fish. Mussel biologists know relatively little about the specific life-history requirements of the rayed bean. The Tippecanoe darter (*Etheostoma tippecanoe*) is the only verified host fish for the rayed bean; however, other hosts are thought to include the greenside darter (*E. blennioides*), rainbow darter (*E. caeruleum*), mottled sculpin (*Cottus bairdi*), and largemouth bass (*Micropterus salmoides*). The rayed bean is generally known from smaller, headwater creeks, but occurrence records exist from larger rivers. They usually are found in or near shoal or riffle (short, shallow length of stream where the stream flows more rapidly) areas, and in the shallow, wave-washed areas of glacial lakes. The rayed bean is oftentimes found among vegetation (water willow

(*Justicia americana*) and water milfoil (*Myriophyllum sp.*) in and adjacent to riffles and shoals. Because mussel biologists have been unable to identify the physical and biological features essential for the conservation of the rayed bean, information on those features for this species is not known at this time. Because the species is presumed extirpated from Virginia, the project would have no effect on the rayed bean.

4.2.5. Small Whorled Pogonia

This species is documented in detail previously. Because no suitable habitat exists within the CFXII corridor, the project would have no effect on the species.

4.2.6. Virginia Spiraea

This species is documented in detail previously. Suitable habitat for Virginia spiraea was identified within the proposed alignment in Dickenson County along Russell Fork; however, no spiraea plants were found. Accordingly, the project would have no effect on the species.

5. Conclusion

Further coordination regarding the Indiana bat will be conducted with USFWS as part of the EA review process. The project will have no effect on other federally listed species, namely: Virginia big-eared bat, shiny pigtoe, rayed bean, Virginia spiraea, and small whorled pogonia.

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