

**ENVIRONMENTAL ASSESSMENT
FOR
TRAIL CONSTRUCTION AND MAINTENANCE
OF 55 MILES OF THE MOUNTAINS TO SEA TRAIL
BETWEEN AIR BELLOWS GAP OVERLOOK AND
NORTH CAROLINA STATE ROUTE 321**

**Alleghany, Ashe, Wilkes, and Watauga Counties,
North Carolina
Blue Ridge Parkway
Between Mileposts 236.9 and 291.8**



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United States Department of the Interior, National Park Service

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PURPOSE AND NEED

The purpose of this document is to evaluate the direct, secondary and cumulative environmental consequences of constructing and maintaining approximately 55 miles of the Mountains to Sea Trail (MST) between North Carolina State Route (NCSR 321) and Air Bellows Gap Overlook on Blue Ridge Parkway (BLRI), National Park Service (NPS), United States Department of the Interior lands. A feasibility study conducted by the National Park Service and State of North Carolina, Division of Parks and Recreation has concluded that a trail can reasonably be expected to be established (given the constraints of the natural, cultural, and visual environment) between these two points (Hultquist and Stutzman, trail assessment in, 2002). This section has been in review and planning by the Friends of the Mountains to Sea Trail (FMST), for a period of approximately 10 years. This section would complete all proposed MST alignment remaining within Parkway boundary.

National Park Service guidelines for compliance with the National Historic Preservation Act (NHPA) and National Environmental Policy Act require an analysis of potential impacts of the proposed activities on historic resources and the human environment.

BACKGROUND

The Mountains to Sea Trail is being built by volunteers on public lands between Clingman's Dome in Great Smoky Mountains National Park (GRSM) and Jockey's Ridge on the coast of North Carolina. When completed, the trail will extend more than 900 miles across the state of North Carolina. This trail started in 1973 when the North Carolina General Assembly passed the North Carolina Trails System Act, and efforts are underway so that one day a complete foot trail will reach across the state, from the Mountains to the Sea.

Approximately 350 miles of the MST will be in western North Carolina along the backbone of the southern Appalachian chain on National Park Service, U.S. Forest Service, Cherokee Reservation, State of North Carolina and privately owned lands. A Memorandum of Agreement, originally signed by the Parkway Superintendent in 1979 and renewed every five years thereafter, committed the Blue Ridge Parkway to this trail-building project.

Of the total amount of trail anticipated in western North Carolina, approximately 300 miles will be established within Blue Ridge Parkway administered lands alone. During the first 20 years of this project, the following segments of Mountains to Sea Trail have been officially dedicated on Blue Ridge Parkway lands:

- 44 miles between Highway 321 in the Boone/Blowing Rock area and Beacon Heights, just south of Grandfather Mountain, and,
- 183 miles between Buck Creek Gap just north of Mt. Mitchell and Balsam Gap west of Waynesville.

Two segments still remaining to be constructed on the Parkway are:

- Approximately 16 miles from Balsam Gap south to Oconaluftee in Great Smoky Mountains National Park. An Environmental Assessment and Finding of No Significant Impact was prepared and approved in 2002 for this section.
- This 55 mile section of the Mountains to Sea Trail proposed between Air Bellows Overlook and NCSR 321 is the final remaining section within Parkway boundary remaining to be evaluated, approved and constructed.

SCOPING HISTORY

Mountains to Sea Trail Section between Air Bellows Gap Overlook and NCSR 321

Trail alignment has been in the design and planning stage since 1992, involving the Friends of the Mountains to Sea Trail and Parkway staff. Trail and alignment review by Parkway staff has occurred over a period of approximately four years, with final review occurring in 2002.

In March 2003, the Blue Ridge Parkway Superintendent mailed a scoping notice announcing the project proposal and inviting review comments. This letter was sent to over 31 individuals and organizations on the park's planning mailing list, and was posted on the park's website. The scoping notice announced the project proposal, notified interested parties where more information could be obtained, and invited their review comments. The comment period closed on April 17, 2003.

As a result of the scoping effort four responses were elicited. All comments received in response to the scoping notices have been duly considered and will remain in the project record throughout this planning process. In consideration of these comments throughout the scoping and planning process, careful review of potential resource and visitor impacts, and developing appropriate mitigation to protect resources, the preferred alternative best strikes a balance between the widest range of use and enjoyment of the Blue Ridge Parkway without degradation of the environment or risk of health or safety.

ISSUES AND IMPACT TOPICS

The environmental analysis was prepared in accordance with the regulations of the Council on Environmental Policy Act (CEQ) (40 CFR 1500 et seq.) and in part 516 of the U.S. Department of the Interior's Departmental Manual (516 DM). The National Environmental Policy Act (NEPA) is the basic national charter for environmental protection; among other actions it calls for an examination of the impacts on the components of affected ecosystems. The Parkway Strategic Plan, 2001 NPS Management Policies, DO-12 (Conservation Planning, Environmental Impact Analysis, and Decision-making), DO-28 (Cultural Resources Management), and NPS-77 (Natural Resources Management), among other NPS and park policies, provides general direction for the protection of the natural abundance and diversity of the park's naturally occurring communities.

Various agencies have been contacted and consulted as part of this planning and environmental analysis effort. Appropriate federal, state, and local agencies have been contacted for input, review, and permitting in coordination with other legislative and executive requirements.

This environmental assessment provides disclosure of the planning and decision-making process and potential environmental consequences of the alternatives. The analysis of environmental consequences was prepared on the basis of a need to adequately analyze and understand the consequences of the impacts related to the proposed park developments and to involve the public and other agencies in the decision-making process. In implementing this proposal, the NPS would comply with all applicable laws and executive orders.

Issues and concerns affecting this proposal were identified from past NPS planning efforts, private individuals, environmental groups, and input from other state and federal agencies. The major issues are: conformance of this proposal with the Parkway Strategic Plan, natural resource issues including special status species (threatened and endangered species) (T&E), water quality, air quality, recreational resources, cultural (historic and archeological) resources, socioeconomic values, and environmental justice.

Impact Topics Included in this Document

Natural Resources

Soils:

Proposed activities have potential to impact the soil resource; therefore this topic will be briefly analyzed in this document.

Water Quality:

Alternatives presented and analyzed in this document could affect waters within the park; therefore, water quality will be addressed as an impact topic in this document.

Vegetation:

Proposed activities have potential to impact the vegetation in the project area; therefore vegetation will be analyzed in this document.

Aquatic Fauna:

Trout and other aquatic fauna habitat could be affected from the proposed project; therefore aquatic fauna will be analyzed in this document.

Threatened and Endangered Species:

Section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 *et seq.*) requires all federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. There are two known federally listed and twenty-four state listed endangered plant species in the vicinity of the proposed project area (see Appendix 1). There are also four federally-listed and six state-listed threatened or endangered animal species residing in the counties through which the trail alignment is proposed (see Appendix 2). Appropriate habitat for two of the federal-listed and two of the state-listed species are not found in the project area and will not be discussed in this EA. The other species may be found in the project area. An additional 66 animals are listed by North Carolina as either Species of Concern or Significantly Rare. Therefore, special status species will be addressed as an impact topic in this document. Consultation with the U.S. Fish and Wildlife Service would again be conducted before construction to ensure that no newly listed species have been found on site.

Wildlife:

There is a variety of wildlife within the project area and proposed activities have the potential to impact the wildlife, therefore, this topic will be briefly analyzed in this document.

Wetlands:

Section 404 of the Clean Water Act (33 USC 1344) requires that the U.S. Army Corps of Engineers issue permits for work affecting navigable waters and wetlands of the United States. Soils, hydrology, and vegetation typical of a wetland environment classify jurisdictional wetlands. Several jurisdictional wetlands exist at or near the proposed area of construction for this project. Wherever possible the trail will be routed around these wetlands and there should be no impacts to them. If the route cannot go around a wetland then permits will be requested from the Corps before any work is begun. This topic will be briefly analyzed in this document.

Cultural Resources

The NPS is mandated to preserve and protect its cultural resources through the Organic Act of August 25, 1916, and through specific legislation such as the Antiquities Act of 1906, the National Environmental Policy Act of 1969 (as amended), and the National Historic Preservation Act of 1966, as amended, NPS Management Policies, the Cultural Resource Management Guideline (DO-28), and the Advisory Council on Historic Preservation's implementing regulations regarding "Protection of Historic Properties" (36 CFR 800). Other relevant policy directives and legislation are detailed in DO-28.

Section 106 of the National Historic Preservation Act of 1966 requires that federal agencies having direct or indirect jurisdiction over undertakings consider the effect of those undertakings on properties on or eligible for listing on the National Register of Historic Places and afford the Advisory Council on Historic Preservation and the state historic preservation office an opportunity to comment.

The Blue Ridge Parkway has and will continue to consult with affiliated American Indian tribes to develop and accomplish its programs in a way that respects the beliefs, traditions, and other cultural values of the American Indian tribes who have ancestral ties to the lands encompassed by the park. The necessity for consultations with American Indians arises from the historic and current government-to-government relationship of the federal government with the American Indian tribes, particularly those that are federally recognized (*Federal Register* 1995 9250-9255), as well as from the related federal trust responsibility to conserve tribal resources. Consultations with American Indians are also required for compliance with a variety of laws and other legal entities, such as presidential executive orders, proclamations, and memoranda; federal regulations; and agency management policies and directives. Examples are the Indian Self-Determination and Education Assistance Act (1975); The American Indian Religious Freedom Act (1978 and as amended in 1994); the Native American Graves Protection and Repatriation Act (1990); National Historic Preservation Act (as amended in 1992); the Presidential

Memorandum of April 29, 1994, entitled “Government-to-Government Relations With Native American Tribal Governments; and Executive Order 13007 of May 24, 1996, entitled “Indian Sacred Sites.”

The 1992 amendments to the National Historic Preservation Act and the Archeological Resources Protection Act provide means whereby information about the character, location, or ownership of archeological sites, historic properties, and ethnographic sites, including traditional and cultural sites, might be withheld from public disclosure. This provision is especially important in cases where disclosure could risk harm to the resource or impede the use of a traditional site by practitioners.

Project activities have the potential to affect identified and unidentified archaeological resources contributing to the cultural significance of the area surrounding the proposed trail. Therefore, cultural resources are analyzed in this document.

Recreational Resources

The Outdoor Recreation Coordination Act of 1963 promotes coordination/development of effective outdoor recreation programs. Project activities have the potential to affect recreational resources in relation to trail use by park visitors. Therefore, recreational resources will be discussed.

Visual Resources

Visual resources could be affected by the alternatives. Therefore, park visual resources will be addressed as an impact topic in this document.

Impact Topics Dismissed from Further Analysis

Air Quality:

Clean Air Act, as amended (42 USC 7401 *et seq.*). Section 118 of the Clean Air Act requires all federal facilities to comply with existing federal, state, and local air pollution control laws and regulations.

The installation or construction of the proposed alternative would present no significant deterioration of ambient air since motorized equipment would not be used during construction of the trail. Local air quality may be temporarily degraded by dust generated from construction activities. This degradation would last only as long as construction activities occurred and neither overall park air quality nor regional air quality would be affected. For these reasons, air quality was dismissed as an impact topic.

Noise:

The Noise Control Act of 1972, as amended, sets standards and procedures for limiting noise that jeopardizes Americans' health and welfare. There would be minimal construction-related noise during construction and maintenance of the trail with the use of chainsaws to remove fallen or hazardous trees. No motorized equipment would be used. In the rare instance where a motorized wheelbarrow or other similar equipment would be used to transport materials to the project site, the disruption should not last more than several days. Visitor disruption would be minor. For these reasons, noise was dismissed as an impact topic.

Floodplains:

Executive Order 11988 ("Floodplain Management") requires an examination of impacts to floodplains. The 2001 NPS Management Policies, DO-2 Park Planning, and DO-12 Conservation Planning, Environmental Impact Analysis, and Decision-making provide guidelines on developments proposed in floodplains. Executive Order 11988, "Floodplain Management," requires all federal agencies to avoid construction within the 100-year floodplain unless no other practical alternative exists. Certain construction within a 100-year floodplain requires that a Statement of Findings be prepared and accompany a Finding of No Significant Impact. No portions of the proposal are within the 100-year floodplain. Therefore, no Statement of Findings for floodplains would be prepared. Floodplains were dismissed as an impact topic in this document.

Prime and Unique Farmland:

Prime farmland is the land that is best suited to food, feed, forage, fiber and oilseed crops. It may be cultivated land, pasture, woodland or other land but it is not urban and built-up land or water areas. Prime farmland produces the highest yields with minimal inputs of energy and economic resources, and farming it results in the least damage to the environment.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season and moisture supply needed to produce sustained high quality and/or high yields of a specific crop when treated and managed according to modern farming methods. Examples of such crops are citrus, olives, cranberries, fruit and vegetables.

According to the County Soil Maps produced by the Natural Resource Conservation Service, there are Prime Farmland Soils at several locations along the proposed trail (Table 1). Generally, these areas of prime farmlands on Parkway lands are narrow and small. The amount of disturbance resulting from trail construction

would cause little impact to these soils and no prime or unique farmland soil will be removed or functions replaced. Therefore, the topic of prime and unique farmland was dismissed as an impact topic in this document.

Table 1. Prime farmland soils along the proposed MST Trail (taken from NRCS maps)

Soil	MP	County	Present Land Use
Tusquitee loam	248.9	Ashe	Abandoned agricultural lease
Tusquitee loam	251.7	Ashe	Agricultural lease
Tusquitee loam	255.1	Ashe	Forest
Clifton loam	256.5-257.2	Ashe	Forest
Braddock gravelly loam	257.9-258.0	Ashe	Agricultural lease
Clifton loam	258.1-258.7	Ashe	Forest
Tusquitee loam	263.7 R	Ashe	Forest
Tusquitee loam	269.8 R	Ashe	Agricultural lease
Nikwasi loam	283.0-283.1	Watauga	Agricultural lease
Nikwasi loam	283.6 R	Watauga	Abandoned agricultural lease

Environmental Justice:

No alternative would have health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's Draft Environmental Justice Guidance (July 1996). Environmental Justice was dismissed as an impact topic in this document.

Socioeconomic Values:

The local economy and most business of the communities surrounding the park are based on construction, recreation, transportation, tourist sales, services, and light industry; the regional economy is strongly influenced by tourist activity. There may be short-term benefits to the local and regional economy resulting from expenditures from park visitors accessing the trail, if they stayed overnight. Local and regional businesses would not be appreciably affected in the long-term. Therefore, socioeconomic values were dismissed as an impact topic in this document.

ALTERNATIVES

This section describes two alternatives that are analyzed in this environmental assessment. The two alternatives are (A) No Action, and (B) Construct and maintain a foot trail between Air Bellows Gap Overlook and NCSR 321, (the preferred alternative).

This document does not address direct impacts to resources on segments of the trail that will be placed on North Carolina Stone Mountain State Park or bordering National Forest Service lands.

ALTERNATIVE A - NO ACTION

Alternative A, the No Action Alternative, represents conditions and management practices as they currently exist on Blue Ridge Parkway lands. It provides the basis of comparison for the action alternative. Under the No Action Alternative the MST foot trail would be terminated at Air Bellows Gap Overlook located at the northern end of the Parkway, and at SR 321, at the southern end of the Parkway. No further actions would be taken to locate the trail on Blue Ridge Parkway lands. The MST organization would be unable to finish their pursuit of a trail system from the mountains to the sea, or completing the final section of trail to be located within Blue Ridge Parkway boundary.

ALTERNATIVE B - THE PREFERRED ALTERNATIVE

Under Alternative B, a 55-mile foot trail would be established on Parkway lands between Air Bellows Gap Overlook at (MP 236.9) at North Carolina State Route 321 (MP 291.8). The proposed trail alignment is located by Parkway Sections 2-C through 2-F on a schematic location map in Appendix 4. Approximately, 34 miles of this trail would be considered new construction, with 8.5 miles of the trail following existing Blue Ridge Parkway Bluff Mountain, Brinegar's Cabin, and Cascade Falls Trails, and another approximate 12.5 miles following existing public roads.

Because the new trail construction would be designed and maintained as a primitive footpath, the following trail construction standard guidelines would apply:

General Parkway Trail Standards for the MST Trail

1. The trail would be constructed 24" to 30" maximum width and would curve around existing forest trees to the greatest extent possible. The trail tread would remain an earthen tread surface. On steep slopes the tread may require full bench construction techniques.
2. The Parkway follows the Appalachian Trail Conference (APC), published trail standards manual as a guideline for trails to be constructed on the Parkway. Since the Parkway is a narrow corridor of land ownership with an average width of approximately 1600 total feet; the MST may need to adjust the APC trail standard for preferred trail slopes to insure the alignment remains within Parkway boundary. Parkway management prefers that the MST trail be aligned to a maximum slope of ten percent whenever possible, however, where the alignment must be switch-backed to remain within Parkway boundary the trail

may be increased to a maximum of 18 percent for short distances not to exceed 150 feet. Longer maximum slope distances must be approved before construction. Trail construction grade should not exceed fifty percent of the average existing cross slope grade where the trail is to be constructed. Cross slope grades steeper than thirty percent would require full bench trail tread construction.

3. The Parkway Resident Landscape Architect and the Resource Management Division must approve all stream, creek, or wetland crossings before construction. Crossings of this nature may require stepping stones, bridges, boardwalks, puncheon, causeways, or other special structures depending on the resource management biological report for these special habitat areas. In some cases the trail would need to be routed around these areas, which are the most likely habitats to contain rare and endangered plant or animal species.
4. Trail construction within or bordering Parkway agriculture leases shall require prior alignment approval. Trail alignment would border all grazing leases and would be separated by forest or fencing. In some cases a fence may be moved, reconstructed, newly constructed, or fitted with a style to provide trail passage. The fence would be flagged for realignment approval by Parkway management before implementation.
5. Private roads intersecting or within Parkway boundary are under a right-of-way easement agreement with the Parkway. Access of private roads for the MST would require notification to the landowner, and a modification to the right-of-way agreement. Trail access on a right-of-way road would be permitted but the trail must remain within the boundary of the Parkway. Most road easements on the Parkway are a total of 10 feet wide. The trail would be confined to the surface of the road when paralleling it, and intersect the road surface within Parkway boundary.

Alternative B-Preferred Alternative by Parkway Section:

Trail Alignment Description:

Section 2-C: Approximately 11.2 miles of new trail would follow Parkway boundary between Air Bellows Gap Overlook and NCSR 18. Between Air Bellows Gap Overlook (MP 236.9) and Basin Cove Overlook (MP 244.7) the trail would follow the existing Bluff Mountain Trail system for approximately 7.5 miles. The trail would be located on Parkway right (when traveling south of the Parkway, anything on the right side of the road is considered “Parkway Right;” anything on the left side of the road is considered “Parkway Left”) between (MP 244.7) to cross to Parkway left at (MP 246). The trail shall follow a ridge on Parkway left between (MP 246), where it will join with SR 1144 at (MP 246.9). The trail will follow SR

1144 on Parkway right for a distance of approximately 1.3 miles until it shall cross along the Parkway SR 18 Bridge at (MP 248.1). This section is represented by trail map sheets (1-5 of 22) shown in Appendix 4.

Section 2-D: Approximately 13.1 miles of trail to be located between NCSR 18 (MP 248.1) and NCSR 16 (MP 261.2). Within this section the trail would follow North Carolina State Routes 1634, 1632, 1628, 1566, and 1613 for a total combined distance of approximately 3.1 miles. 10 miles of trail within this section would require new trail construction. This section of trail is represented by trail map pages (6-10 of 22), as shown in Appendix 4.

Section 2-E: Approximately 15.2 miles of new trail to be located between NCSR 16 (MP 261.2) and NCSR 421 (MP 276.4). Within this section the trail shall follow NCSR 1167 for a distance of approximately 1.7 miles. New trail construction would be required on 13.5 miles within this section. This section of trail is represented by trail map pages (11-16 of 22), as shown in Appendix 4.

Section 2-F: Approximately 15.4 miles of new trail to be located between NCSR 421 (MP 276.4) and NCSR 321 (MP 291.8). Within this section the trail shall follow Bamboo Roads and other public road for a distance of 1.8 miles. 13.6 miles of new trail would be constructed within this section. This section of trail is represented by trail map pages (16-22 of 22), as shown in Appendix 4.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

National Park Service policy requires that an environmentally preferred alternative be identified as the one that best promotes the national environmental policy expressed in the National Environmental Policy Act, section 101(b). This includes alternatives that:

- fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
- enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The environmentally preferred alternative is determined by applying the above criteria, which is guided by the Council on Environmental Quality (CEQ). The CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA’s Section 101. Generally, this means the alternative that causes the least damage to the biological and physical environment. It also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.” (Council on Environmental Quality, “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations” (40 CFR 1500-1508), *Federal Register* Vol. 46, No. 55, 18026-18038, March 23, 1981: Question 6a.

The “no action” alternative would provide maximum protection of park resources and values of the Blue Ridge Parkway.

After consideration of state, federal and public comments throughout the scoping and planning process, careful review of potential resource and visitor impacts, and developing appropriate mitigation to protect resources, the preferred alternative best strikes a balance between the widest range of use and enjoyment of the Blue Ridge Parkway without degradation of the environment or risk of health or safety, while providing an environment which supports a variety of individual choice; and finally, to achieve a balance between population and resource use.

MITIGATION MEASURES ON THE PREFERRED ALTERNATIVE

Mitigation measures are analyzed as part of the action alternatives. Mitigation measures have been designed to minimize, reduce, or eliminate impacts of the proposed activities. The following mitigation measures would apply to the preferred alternative.

NATURAL RESOURCES

General Measures

To minimize soil erosion along the project route, standard erosion control measures including silt fencing would be incorporated into the proposed action. Any revegetation efforts would use native species and/or seeds.

Should rare plant species or plants growing within the trail corridor be found or become listed on state or federal lists after construction of the proposed segment of trail, the Superintendent shall consider mitigating measures. Should mitigation measures require relocation of the trail, all environmental and archeological requirements applicable to the relocation would be satisfied prior to construction.

No pesticides, herbicides or growth regulating chemicals would be permitted in the construction or maintenance of this trail since it is located within lands designated as “natural.”

No off-road use of motorized equipment would be permitted to construct or maintain the proposed trail unless previously approved by the Superintendent. Hand tools and chainsaws could be used.

Parking of vehicles would be limited to paved overlooks and parking areas, road shoulders and existing roads.

Storm-damaged and hazardous trees may be cut and left on-site, as needed to establish the trail bed. Where possible, the cut-end of the bole(s) would not be visible from the trail. If they could not be moved and are visible from the trail, the cut ends would be scarified with an axe or chainsaw to mimic tree-fall.

Specific Measures

Dalibarda repens, a North Carolina endangered species, is found along the route of the proposed trail. The trail would be routed to avoid all areas containing *Dalibarda repens*.

Route the trail to avoid springs, seepages, wet areas, and moss-covered logs and rocks.

Route the trail away from rock faces and other rocky areas that may provide habitat for Alleghany Woodrats.

Route trail to avoid hollow trees that may provide nesting habitat for bats and birds.

Establish stream crossings at narrow spots in the channel using natural rock material taken from the same cove. Stream banks at these locations would be low and sloped to at most a 15% grade. If this is not possible then bridges would be installed crossing the streams or steps would be installed in the banks to allow hikers safe access to the stream crossing while protecting the bank from erosion. Crossings should not block or alter stream flow.

Halt construction and consult with Parkway project supervisor if rock outcrops containing moss or liverwort mats were found.

Construct trail bed between July and February to avoid impacts to breeding birds for all sections.

Route the trail away from rhododendron and other shrubs where possible to protect shrub-nesting birds.

CULTURAL RESOURCES

Presently, the existence, condition, and significance of archeological resources within the trail corridor are unknown. The Southeast Archeological Center, or a qualified NPS archeologist, would conduct a survey of the project area before ground disturbance takes place. This survey would serve to identify any significant archeological resources threatened by the construction of the trail. If any resources are encountered, adequate mitigation of project impacts or adjustment of the project design would take place to avoid or limit the adverse effects and so that the cultural heritage of the Blue Ridge Parkway is not damaged.

If previously unknown archeological resources were discovered during construction, all work in the immediate vicinity (600 feet) of the discovery would be halted until the resources could be identified and documented and an appropriate mitigation strategy developed, if necessary, in accordance with pertinent laws and regulations, including the stipulations of the 1995 *Programmatic Agreement Among the National Park Service (U.S. Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers*.

All workers would be informed of the criminal penalties for illegally collecting artifacts or intentionally damaging any archeological or historic property. Workers would also be informed of the correct procedures should previously unknown resources be uncovered during construction activities. Data recovery excavations would be carried out under NPS guidance to mitigate adverse affects as outlined in the section on environmental consequences.

After the project is underway, should unknown buried resources be located, the project would be halted and additional data recovery excavations would be undertaken. These subsurface survey and data recovery efforts would be guided by a project-specific research design either developed directly by NPS or at least approved by NPS. Additionally, the NPS would begin consultations under the Native American Graves Protection and Repatriation Act in the event that buried human remains and/or burial objects were discovered during archeological excavations or project development.

The Superintendent would notify Parkway staff when work could be restarted.

The MST trail development would be located to the fullest extent possible out of the view of visitors to the historic Brinegar Cabin Complex.

VISUAL RESOURCES

All materials used for trail construction would be of native materials or materials that will weather gray or materials that are gray in color.

Crossings of the roadway would be kept to an absolute minimum and would be aligned such that they were minimally visible from the roadway. Trail alignment along side slopes would be well hidden by forest cover.

Any crossings requiring trail markers would be of the standard MST design.

AFFECTED ENVIRONMENT

PARKWAY-WIDE OVERVIEW

The Blue Ridge Parkway follows the high crests of the central and southern Appalachians for 469 miles from Shenandoah National Park in Virginia to the Great Smoky Mountains National Park in North Carolina. Its breathtaking scenic beauty, unbridled natural resources, and unique historic sites make it the showpiece rural parkway of the National Park Service. But the Parkway is also notable as a remarkable landscape architecture and engineering achievement. Design of the Parkway began in 1934. More than 50 years in the making, the Parkway was completed in 1987 with the construction of a 7.5-mile section around the rugged and winding terrain of Grandfather Mountain.

The Parkway intersects three mountain provinces (ridge, plateau, and highlands) and extends almost 4 degrees in longitude and 2½ degrees in latitude, the third largest geographic range of any unit in the national park system. Yet, despite this extent, its width averages only 800 feet wide between developed areas.

The Parkway occupies 88,000 acres of lands within the socio-political boundaries of two states, six congressional districts, 12 counties in Virginia, 17 counties in North Carolina, 185 miles within four national forests, 11 miles within the Qualla Boundary Reservation of the Eastern Band of Cherokee Indians (Cherokee Indian Reservation), two state parks, nine watershed basins, a dozen municipal watersheds, and three metropolitan areas. There are more than 1,200 miles of boundary and 4,500 adjacent property owners. Three interstates, 270 secondary roads, and 400 utility lines bisect natural features. Like beads on a necklace, 900 vistas, 275 paved overlooks, 18 recreational areas, 14 backcountry areas (ranging from 1,000 to 5,000 acres), and 13 maintenance facilities line the Parkway to accommodate visitors. With annual use approaching 20,000,000 people, it is the most highly visited unit in the National Park System.

Parkway natural resources include 400 miles of streams with at least 150 headwaters, 1,250 vascular plants species (50 rare or endangered), six rare or endangered animals, a variety of slopes (mostly steep) and exposures, possibly 100 different soil types, an elevation range of 5,700 vertical feet, and 100 exotic plants. The Parkway also bisects 47 natural heritage areas, which includes more than half of the high-elevation wetlands known in North Carolina.

The primary activity is recreational driving, sight seeing and hiking. The Parkway also provides naturalist walks and talks, self-guided nature trails, roadside exhibits, picnicking, and camping.

HIGHLANDS DISTRICT OVERVIEW

The 88.3 mile Highlands District is bound on the northern end by Cumberland Knob, (MP 216.7) located at the North Carolina and Virginia state boundary line, and the southern end by Grandfather Mountain, a privately owned biosphere reserve (MP 305). The district includes Doughton Park, Moses Cone Memorial Park, and Julian Price Memorial Park; three highly visited recreational units of the Blue Ridge Parkway. The Town of Blowing Rock (approximately 9 miles east) with a population of 2,370 and Boone (approximately 12 miles northeast) with a population of 25,000 are located on the southern most extent of the District. Several small towns whose primary economy is light industry also occur along its length. The District provides numerous opportunities for extensive picturesque views over the surrounding Appalachian Mountain Range. At MP 236.8 MST shall depart from the Parkway boundary to enter into North Carolina Stone Mountain State Park.

PROPOSED PROJECT AREA OVERVIEW

NATURAL RESOURCES

The Blue Ridge Parkway consists of about 40,000 acres in North Carolina, with about 10,000 acres along the proposed trail route. Traversing the top of the Southern Appalachian Mountains elevations in this area range from 2,860 (MP 247.5) to 3,914 feet (MP 273.4). Unlike many other areas of the Parkway, adjoining lands in this section are privately held.

The proposed project area is located north of Blowing Rock, North Carolina and south of Sparta, North Carolina, in Alleghany, Ashe, Watauga, and Wilkes Counties between Blue Ridge Parkway Mileposts 237 and 291 (Glade Valley, Whitehead, Laurel Springs, Horse Gap, Glendale Springs, Maple Springs, Deep Gap, and Boone 7.5-minute USGS topographic quadrangle maps).

Topography/Soils

The trail generally goes through areas with rolling terrain but there are also several sections with steep slopes and sharp drop-offs. In most places the soil is resistant to erosion and deep enough to withstand trail construction and use. On rocky ridges there are patches of thin soil and in bottomlands there are many wetlands with rich organic soils. Measures to control storm water runoff will be needed on steeper sections of the trail and may include switchbacks and water bars. Trails should be routed around rock outcrops to protect the fragile soils found there. Wet areas will be avoided wherever possible. Where they cannot be avoided then boardwalks, stepping-stones or other hardened surface will be needed.

Natural Resources Conservation Service publishes soil surveys for each county and the completeness and timeliness of the surveys varies by county.

Alleghany County – The latest soil survey available is from 1973. Much of the Parkway's lands are identified as "Stony steep land association" and are found on very narrow ridges and upland slopes. A smaller amount is classified as Watauga-Chandler-Fanin association, indicating well drained/somewhat excessively drained soils on upland areas.

Ashe/Wilkes Counties – The Parkway runs along the boundary of Ashe and Wilkes Counties for approximately 25 miles. Because the soil surveys were compiled at different periods (Ashe 1983, Wilkes 1996) there are often different names used for similar soil associations found on opposite sites of the Parkway. Ashe County describes most of the soil along the Parkway as Watauga-Fanin-Chandler with a smaller section of Clifton-Evard-Fanin. Wilkes shows primarily Chandler-Watauga-Chestnut on lands along the Parkway with some Chestnut-Ashe-Chestnut and Evard-Cowee-Chestnut. Generally all of these soils are well drained and found on ridges or upper slopes.

Watauga County – The soil surveys for Watauga County are being updated. Soil associations along the Parkway are combinations of Porters, Chestnut, Cashiers, Watauga, Chandler soils.

Water Resources

The proposed trail route is along the upper reaches of the New River and Yadkin River watersheds. Numerous seeps/springs, headwaters, and second order tributaries are found in this stretch of the Parkway. There are a few third-order streams along the Parkway in the New River watershed. Many of the seeps and streams are ephemeral or intermittent due to their location near the tops of the

watershed. Streams in the Yadkin River tend to be smaller and more ephemeral than those in the New River drainage. Streams are generally clear flowing except after storm events when they may become quite turbid.

Due to Parkway water resources being located at the tops of the watersheds the water quality is generally good. The few streams in the Yadkin River basin on the south and east side of the Parkway are mainly classified at the lowest water quality level as Class C waters, suitable for secondary recreational activities but only on an infrequent basis and as being suitable for wildlife propagation and survival. At least one of these streams is designated as a 303(d) stream under the Clean Water Act due to sedimentation. Streams in the New River watershed on the north- and west-side of the Parkway generally have higher classifications with many streams near the southern end of the proposed trail rated as Water Supply IV. Most of these are also classified as Trout Waters, some of which are potential brook trout fishery. The trail will need to cross many of these streams. First and second order stream crossings will have little impact on the stream waters and on the aquatic fauna. Crossings have been identified where the banks are low and foot traffic should cause little damage to the banks. Few streams are more than 1m. in width.

There are several wetlands along the route, ranging from less than 0.1 acres up to several acres, in size. These vary from areas with several seeps in forested areas to open sites in agricultural fields. Most of these sites are widely scattered and routes by-passing these wetlands are available.

Plant Species

The overstory vegetation in the area of the proposal is a mixed eastern hardwood forest containing mostly:

<i>Quercus coccinea</i>	<i>Tsuga canadensis</i>	<i>Fagus grandifolia</i>
<i>Quercus alba</i>	<i>Quercus rubra</i>	<i>Robinia pseudoacacia</i>
<i>Quercus montana</i>	<i>Quercus velutina</i>	<i>Pinus strobus</i>
<i>Carya glabra</i>	<i>Acer rubrum</i>	<i>Aesculus flava</i>
<i>Tsuga caroliniana</i>	<i>Prunus serotina</i>	<i>Oxydendrum arboreum</i>

The understory is predominantly:

<i>Acer pensylvanicum</i>	<i>Sassafras albidum</i>
<i>Kalmia latifolia</i>	<i>Rhododendron maximum</i>
<i>Cornus florida</i>	<i>Rhododendron catawbiensis</i>

Overall, the diversity of vascular plants is low throughout the project area relative to other sites along the Blue Ridge Parkway, owing to moderately acidic soils and land use history. However, several unique and diverse plant communities of global

significance are present in the project area. Carolina Hemlock Forest (G2G3), Low Elevation Rocky Summit (G2), Southern Appalachian Bog (Northern Subtype) (G1T1), Spray Cliff (G2), and Swamp Forest-Bog Complex (Typic Subtype) (G2G3). Excellent examples of more common plant communities occur in the area to include: Chestnut Oak Forest, Montane Acidic Cliff, and Pine-Oak/Heath Forest. There are two known federally listed and twenty-four state listed rare plant species in the vicinity of the proposed project; (see Appendix 1).

Animal Species

Overall the Blue Ridge Parkway is a biologically rich area with 306 bird, 70 mammal, 78 amphibians and reptiles and 46 fish species recorded. The proposed trail route undoubtedly also supports a wide variety of wildlife species. Major species include rabbits, opossums, raccoons, squirrels, warblers, and deer, with smaller numbers of bears, bobcats, and foxes. Mountain lions have been reported in the area though these have not been confirmed.

There are four federally-listed and six state-listed threatened or endangered animal species residing in the counties through which the trail alignment is proposed (see Appendix 2). Appropriate habitat for two of the federal-listed and two of the state-listed species are not found in the project area and will not be discussed in this EA. Suitable habitat for other T&E species may be found in the project area. An additional 66 animals are listed as either Species of Concern or as Significantly Rare by the North Carolina Natural Heritage Program.

CULTURAL RESOURCES

The area south of Air Bellows Gap Overlook to NCSR 321 is an area potentially rich in pre-historical cultural resources, which are those cultural resources related to the occupation and habitation of the area by American Indians. There are also pockets of historic cultural resources, those related to European settlement and later occupation of areas by generations of Americans and foreign immigrants. The existence, condition, and significance of cultural resources, either historic or prehistoric, is presently unknown.

RECREATIONAL RESOURCES

Recreational resources within the project area include Doughton Park, and Price Memorial Park, which includes two of the most highly visited campgrounds and picnic areas located along the entire length of the Parkway. Price Memorial Park includes a beautiful recreational canoe lake. Doughton Park includes the Bluff's Lodge and Restaurant, and Moses Cone Memorial Park, which includes the historic

estate home and grounds. There is an extensive selection of over night lodging, winter skiing, and shopping opportunities provided in the Boone and Blowing Rock community areas.

Other Parkway trails that the MST would adjoin through this section would include the .1 mile Brinegar Cabin Walk, a historic farmstead. MST would adjoin the 7.5 mile long Bluff Mountain and Cedar Ridge Trail system. MST would adjoin a section of the .9 mile Cascades Trail Loop, which provides an overlook to a very scenic area waterfall, and bridge crossings over Cascades Creek. Other Parkway trails located within the area include the .1 mile Wildcat Rocks Trail (MP 241), the 2.8 mile Bluff Ridge Trail (MP 241), the 3.3 mile Basin Creek Trail (MP 243.7), the 6.5 mile Grassy Gap Fire Road (MP 243.7), the 5 mile Flat Rock Ridge Trail (MP 244.7), the 1 mile Jumping Off Rocks Trail (MP 260.3), the .3 mile Lump Trail (MP 264.4), the .6 mile Tompkins Knob Trail (MP 272.5), and the extensive horse and hiking trail system located along the carriage roads in Moses Cone Memorial Park located at MP 294.

The other form of recreation is scenic viewing. Long distance views of the Blue Ridge Mountains can be seen from the roadway and from the 24 parking overlooks constructed along the Parkway in this section. Along the same roadway, beautiful seasonal color can be found from the blooms of the pink shell azalea, rhododendron, mountain laurel, pieris and a number of herbaceous plants that bloom from spring to summer. In fall, the changing colors of the leaves provide additional interest. Through Doughton Park and in many views along this section are agriculture leases, which provide open scenes to historic farmsteads, and distance mountain views beyond.

VISUAL RESOURCES

The visual environment that the trail passes through is primarily a forested mountain landscape with some of the highest ranges in terms of elevation in western North Carolina. The elevation encountered along the proposed alignment allows for many panoramic, long distant views of multiple ridges. These ridges in the background often provide the layering effect of decreasing hues of blue. The section through Doughton Park provides treasured views to historic farmsteads. Based on preference studies of Parkway visitors, these types of views are the most preferred after views of moving and still water (pg. 40, Identifying and Mapping Critical views of Blue Ridge Parkway Vistas, Hammett and Patterson, 1991).

In the middleground of these scenes, multiple series of ridges provide a great amount of layering. While most of these ridges are in private ownership, the evidence of human development in terms of logging and housing development is scarce. Exceptions to this condition can be found in the Boone/ Blowing Rock vicinity of the trail. Several homes are visible from the roadway as the nearby

communities of Boone and Blowing Rock, North Carolina continues to attract retirees and people who wish to build permanent and vacation homes. So far, these homes are at density on middleground ridges that they are not adversely affecting the visual experience of visitors (pg. 7, Valuing Scenic Beauty: A Pilot Study on the Blue Ridge Parkway, Susan Kask, Ph.D., 1998).

In the foreground of views along the proposed trail, the visual resources are primarily a forested side slope with mature vegetation growth. The visual environment changes with elevation as the plant communities change. Throughout all of the Parkway sections the visual environment is fairly consistent. The forest is primarily oak with a consistent overhead canopy. Undergrowth varies with the exposure of the slope. North facing slopes have more rhododendron and mountain laurel, sometimes very thick, creating a tunnel. On southern exposure, the understory growth is more sparse and open. Some streams would be crossed and there is increased variety provided by the movement of water and the unique plant communities found in wet areas. The roadway and occasional cars would be seen in the foreground along with spectacular displays of pinkshell azalea and other flowering broadleaf evergreens that flourish in the direct sunlight provided by the presence of the roadway. These high elevation sideslopes are very dry and have thin soils. As a result, they do not support a high density of vegetation.

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

The National Environmental Policy Act (NEPA) requires that environmental documents disclose the environmental impacts of the proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. This section analyzes the environmental impacts of the two alternatives for the construction and maintenance of approximately 55 miles of MST on Parkway lands on natural resources (vegetation, wetlands, special status species, water quality), cultural resources, recreational resources, and visual resources. This analysis provides the basis for comparing the effects of the two alternatives. The intensity and duration of the impacts, mitigation measures and cumulative impacts were assessed in considering the impacts.

METHODOLOGY

In order to assess the impacts of a foot trail on the resources of the Blue Ridge Parkway, the following methods and assumptions were used:

- The proposed location of the trail was established by site visits and the use of Park Land Use Maps (PLUM).
- Unique and prime farmlands were determined from county soil maps.
- Lists of federal and state T&E species for the effected area were obtained from government publications and web sites. Habitat suitability was determined by site visits.
- Likely occurrence of several state-listed species was confirmed through discussions with NC Wildlife Resources Commission personnel.
- Water resources were surveyed by site visits, review of PLUMs, and USGS topographic maps. Water quality information was obtained from the NC Department of Environment and Natural Resources, Division of Water Quality web site.

Thresholds of Change

Intensity

The thresholds of change of an impact are designated as intensity and duration. For the purposes of this analysis, intensity or severity of the impact is defined as follows:

- Negligible - impact to the resource or discipline is barely perceptible and not measurable and is localized.
- Minor - impact to the resource or discipline is perceptible and measurable and is localized.
- Moderate - impact is clearly detectable and could have appreciable effect on the resource or discipline.
- Major - impact would have a substantial, highly noticeable influence on the resource or discipline.

Duration

The duration of the impacts in this analysis is defined as follows:

- Short term-impacts are those that occur during implementation of the alternative, including construction activities.
- Long term-impacts would extend beyond implementation of the alternative and would likely have permanent effects on the resource or discipline.

CUMULATIVE IMPACTS

A cumulative impact is described in regulations developed by the Council on Environmental Quality (CEQ), 40 CFR 1508.7 as an “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions.” Cumulative impacts can result from individually minor, but collectively significant actions, taking place over a period of time.

Cumulative impacts were determined by combining the impact of the construction of the MST alternatives with potential impacts of other past, present, and reasonably foreseeable future actions. Past actions include approximately 227 miles of segments of Mountains-to-Sea Trail previously built on Blue Ridge Parkway lands. When completed, approximately 350 miles of the MST will be in western North Carolina with approximately 300 miles established within National Park Service lands.

Therefore, it was also necessary to identify other ongoing or foreseeable future projects within the Blue Ridge Parkway and the surrounding region. The projects identified include various NC Department of Transportation road-widening and paving projects within and adjacent to Parkway boundaries, and rapid private development along the Parkway, especially in Watauga and Ashe Counties. This development has resulted in an increasingly fragmented and damaged environment. Predation by animals associated with human habitation, such as cats, raccoons and skunks, is a major problem for many animal species. Landscaping along the Parkway and the use of contaminated fill on and near Parkway lands have encouraged the spread of non-native plants. Suitable habitat for many species of plants and animals has been drastically reduced from all of these activities.

Cumulatively, these ongoing actions, combined with the construction of an additional 55 miles of the Mountains-to-Sea Trail could result in a major long-term adverse impact to the resources of the Blue Ridge Parkway. While the Parkway does have many “nodes” containing several hundred, or even in places several thousand acres, of land, in the section of the Parkway affected by this proposed action the Parkway is generally just a narrow strip surrounded by privately owned lands. Development, forest fragmentation and encroaching impacts from adjoining lands have reduced the visitor experience, threatened the cultural values and minimized the biological integrity of the Blue Ridge Parkway. Adding a trail to this narrow corridor will increase the impact on these resources and increase the likelihood of further degradation.

IMPAIRMENT

Pursuant to the 1916 Organic Act, the National Park Service has a management responsibility “*to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.*” As a result, the National Park Service cannot take an action that would “impair” park resources. National Park Service *Management Policies 2001* provide guidance on addressing impairment.

Impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact would be less likely to constitute impairment to the extent that it is an unavoidable result, which cannot reasonably be further mitigated, of an action necessary to preserve or restore the integrity of park resources or values (NPS 2000e). An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified as a goal in the park’s *General Management Plan* or other relevant National Park Service planning documents.

For the “*Trail Construction and Maintenance of 55 Miles of the Mountains to Sea Trail Between Air Bellows Gap Overlook and North Carolina State Route 321,*” the Blue Ridge Parkway is the key resource for which impairment must be addressed. Impairment of park resources was evaluated on the basis of the type and intensity of impacts, and in terms of the types of resources affected. Overall, beneficial impacts would not constitute impairment. With respect to the intensity of impacts, negligible and minor adverse impacts are not of sufficient magnitude to constitute impairment. Moderate and major adverse impacts may constitute impairment, but do not automatically do so. Rather, these impacts must be analyzed with respect to the three bulleted criteria above. In addition, when considering potential impairment of the Blue Ridge Parkway, not all resource topics have been analyzed. Impairment is considered for geologic, hydrological, biological, cultural, and scenic resources and recreation. However, analyses for air quality, noise, and park operations do not discuss impairment of the Blue Ridge Parkway because these resource topics were dismissed from further impact analyses.

Director's Order #12 requires that impairment be addressed in all environmental assessments and draft and final environmental impact statements, as well as in the decision documents (Finding of No Significant Impact, Record of Decision). Within this environmental assessment, impairment is addressed in the conclusion section of each impact topic under each alternative.

The preferred alternative would not impair park resources and conserves values embodied in the Organic Act to:

- Accomplish the mission of the National Park Service.
- Achieve goals of the *Parkway Master Plan* and *Strategic Plan*.
- Prevent impairment of park resources in a manner that meets legal and policy requirements.
- Achieve the purposes and criteria of the following NPS Mission Goals, the Parkway's Mission Goals, and the Parkway's long-range GPRA goals:
 - natural resources are protected to maintain ecological and biological diversity with the abundance of plant and animal species found in the Central and southern Appalachian ecosystem.
 - the natural and cultural resources are protected, restored, and maintained in good condition.
 - provide opportunities for visitors to experience the scenic qualities, recreational uses and natural and cultural resources of the Blue Ridge Parkway and its corridor.

OVERVIEW OF IMPACTS

The principal impacts, including the unavoidable impacts, of the two alternatives would be as follows:

Alternative A – No Action

The No Action Alternative maintains the status quo on Blue Ridge Parkway lands, as described in the *Affected Environment* Section of this EA. It provides a baseline from which to compare the action alternative, to evaluate the magnitude of proposed changes, and to measure the environmental effects of those changes. Under the No Action Alternative, no trail would be constructed or established. No planned recreational activities would occur. The goal of the State Trails Program, to establish a multi-use trail from western to eastern North Carolina, would not be realized.

Under the No Action Alternative, no management action would be taken to control the use of lands in this area. A less controlled, more indiscriminant use of lands would continue to occur. There would be some potential impact, adverse or

otherwise, to natural, cultural, or archeological and visual resource qualities with the continuing indiscriminant use of NPS lands.

No additional trail recreational resources would be provided.

Natural Resources

Direct/Indirect Impacts:

Under the No Action Alternative there would be no additional impacts than already exists. Few people would venture into the woods along this section of the Parkway except at developed areas such as Jeffress Park.

Cumulative Impacts:

Under the No Action Alternative, camping may occur at scattered sites but this would remain a very rare occurrence. Small amounts of poaching of plants and animals may continue in some locations.

Impairment:

There would be no impairment to park natural resources under this alternative.

Conclusion:

Under the No Action Alternative there would be no additional impacts than already exists.

Cultural Resources

Direct/Indirect Impacts:

The No Action Alternative would have no direct or indirect effects on cultural resources.

Cumulative Impacts:

With no trail construction, there would be no cumulative effects on cultural resources.

Impairment:

There would be no impairment to park cultural resources under this alternative.

Conclusion:

The No Action Alternative (no build) would have no effects on Parkway cultural resources.

Recreational Resources

Direct/Indirect Impacts:

The recreational value and opportunity of having the trail located within Blue Ridge Parkway boundary would not be realized. A trail connection between various Parkway trails and the North Carolina, Stone Mountain State Park would not be possible. The community of Blowing Rock is proposing future greenway connections to the Mountains to Sea Trail where it adjoins the Parkway at SR 321. In the no-action alternative this planning opportunity would not be realized.

Cumulative Impacts:

Completion of the MST Trail System as originally master planned may not be realized if it should be required to cross private lands as apposed to the public lands provided by the Blue Ridge Parkway.

Impairment:

There would be no impairment to recreational resources under the No Action Alternative.

Conclusion:

Creation of the Mountains to Sea Trail connections throughout this area is considered a highly valuable recreational resource for Blue Ridge Parkway visitors, and to adjoining communities. The Mountains to Sea Trail connections area the highest and best means to achieving this goal.

Visual Resources

Direct/Indirect Impacts:

Many of the viewing opportunities and experiences from the ridges and valleys above the Blue Ridge Parkway this trail could provide would not be realized by any other means. Visual impact of the trail itself to the environment or scenic vista from the Parkway would not in any way be impacted.

Cumulative Impacts:

The establishment of the scenic viewing opportunity the Mountains to Sea Trail could provide to visitors along some of the high ridges and valleys within the proposed route of the trail would not be realized. Visual impact of the trail itself to the environment or scenic vista from the Parkway would not in any way be impacted.

Impairment:

There would be no impairment to park visual resources under the No Action Alternative.

Conclusion:

The hiking trail as proposed by the Mountains to Sea Trail as proposed is considered highly valuable as an opportunity to fully enjoy the scenic opportunities of the Highlands Area. Without the trail many of these opportunities could not be realized by any other means.

Conclusion for Alternative A:

Under the No Action Alternative there would be no additional impacts to natural resources than already exists.

The hiking trail as proposed by the Mountains to Sea Trail is considered highly valuable as an opportunity to fully enjoy the scenic opportunities of the Highlands Area. Without the trail many of these opportunities could not be realized by any other means. The establishment of the scenic viewing opportunity the Mountains to Sea Trail could provide to visitors along some of the high ridges and valleys within the proposed route of the trail would not be realized.

The No Action Alternative (no build) would have no effects on Parkway cultural resources.

Under this alternative, there would be no impairment to park natural, cultural, recreational and visual resources.

Alternative B – Preferred Alternative

Natural Resources

Under the Preferred Alternative visitation to the woods and fields in this 55-mile section of the Parkway would increase as hiking is encouraged. The ease of access afforded by the proposed trail would prove an easy and efficient means for plant and animal poachers to reach forest resources. Plant poachers seek plants with medicinal, horticultural (showy), floral (florist industry) or rare qualities. This area contains species that meet all of these criteria.

Soils

Direct/Indirect Impacts:

Soils along the proposed trail route would be disturbed for most of the 55 miles. Approximately 13 acres of land would be disturbed to construct the 2-foot wide trail surface.

Cumulative Impacts:

There should be minimal cumulative impacts to soils due to this trail construction. Most of the trail route is undisturbed natural lands and, except for this project, little if any soil disturbance has or is planned to occur.

Impairment:

There would be no impairment to soils under this alternative.

Conclusion:

If proper Best Management Practices (BMP) are used during trail construction both direct and cumulative impacts should be minor.

Vegetation***Direct/Indirect Impacts:***

There would be immediate impacts on vegetation in the direct path of the trail as construction such as grading, step installation, and waterbars would destroy any plants. However, the area impacted by construction would be relatively small, therefore, no long-term impacts to overall survival of native species is expected. As previously stated, the trail would provide for easy access to many plants that are actively poached in the park. The development of any illegal side trails or social (bushwhack) trails would result in the trampling and eventual decline of vegetation and erosion of soil due to improper routing. To ensure safety to park visitors, removal of hazardous trees along the trail would be needed. Dead and dying trees provide a wide variety of habitats for plants and animals. Seeds of invasive non-native plants may be transported by visitors on footwear and clothing and become established in new areas posing threats to the native flora.

Cumulative Impacts:

There may be impacts to vegetation from soil compaction on the trail to tree roots that could lead to decline and eventual death and result in an increased workload for hazard tree removal. Soil erosion and sedimentation may become problematic for vegetation if the trail is not properly maintained. Any feature along the trail such as a large tree, vista, wildflower area, creek, etc., may attract visitors off the trail and will create additional impacts to vegetation in form of trampling and soil compaction/erosion.

Impairment:

The trail would not result in impairment to Parkway vegetation.

Conclusion:

Direct impacts are minimal relative to surrounding resources. However, indirect impacts such as social trails and poaching are considerable. Cumulative impacts can be reduced with appropriate trail maintenance.

Water Quality

Direct/Indirect Impacts:

Several water resources will be crossed or encountered along the trail route. These areas are generally more sensitive to visitor use than upland and dry sites. Stream banks can be quickly degraded as hikers cross streams, resulting in increased sedimentation and loss of streamside vegetation. Trails through wetlands can create channels that may affect the hydrology of the site. The lack of toilet facilities along the trail will cause hikers to relieve themselves along the trail, increasing the chance of contamination of Parkway waters. Camping facilities are also limited and it is expected that illegal camping will increase. Many of these camping sites may occur near water resources with increased impacts to them due to cleaning dishes, soil compaction, and human wastes. Visitors on other trails on Parkway lands have often built dams on streams and have used stream rocks to improve trails. These activities have disturbed aquatic animal habitat and water flows.

Cumulative Impacts:

Many of the wetlands and streams along the route are in agricultural fields. Cattle and horse grazing, mowing of riparian zones, and application of fertilizers have already degraded several of the water resources along this route. Some streams originating from off of Parkway lands are also impacted by development and other land uses on private lands.

Impairment:

There would be no impairment of the Parkway's water resources under this Alternative. Habitat for several aquatic species could be degraded along the trail route, however.

Conclusion:

Impacts to these resources should be minimal if proper BMP's are used at trail crossings and if the trail is routed around wetlands.

Aquatic Fauna

Direct/Indirect Impacts:

The little direct impact on aquatic fauna will be limited to trail crossings of streams. At these locations impact will depend on the size of the stream and the need for hikers to walk in the stream. Impact will be limited to fauna that may be stepped on or that are on stones that may be dislodged by trampling. Indirect impacts include increased sedimentation, loss of vegetation at crossings, dislodging of detritus and disturbance of habitat.

Cumulative Impacts:

Streams in many areas have been dramatically altered by human activity, especially through agricultural activities and development. The impacts from the trail would have little increased effect when the trail is installed properly, sited in appropriate locations and routed around aquatic resources whenever possible.

Impairment:

There would be no impairment to aquatic resources under this alternative.

Conclusion:

Impacts to aquatic fauna should be minimal if BMP's are implemented at trail crossings and around wetlands.

Threatened and Endangered Species

Direct/Indirect Impacts:

By definition T&E species are at risk of extinction or extirpation due to small population numbers and limited reproduction. There is a danger that some of these species will be damaged by trail construction and increased recreational activities resulting from this project. While the Parkway is generally not viewed as an important biological area this view is changing as these lands increasingly become refuges for many species unable to survive development pressures on adjoining private property.

The trail will be routed around all known locations of T&E species. Increased visitor use may result in bushwhacked trails that cross T&E plant sites or approach T&E animal habitat, but these should be rare occurrences.

Cumulative Impacts:

T&E habitat on lands adjacent to the Blue Ridge Parkway have been heavily impacted through development, roads, logging and other human activities. The Parkway lands have become increasingly important as habitat for these species as adjacent lands have been lost. A trail on 55 miles along the Parkway and the increased visitor use it will bring could have an impact on T&E species along the route.

Impairment:

Construction of the proposed trail under this alternative will not be an impairment to threatened and endangered species.

Conclusion:

Proper routing of the trail should avoid conflicts with T&E species. The narrow strip of land available in much of the project route limits the distance that can be placed between T&E species habitat and visitor impacts. There would not likely be impacts to T&E species as a result of this project, and if any, they would be limited and short-term.

Wildlife

Direct/Indirect Impacts:

The proposed trail may have an adverse effect on individual native species and on localized natural processes. Population level effects are not anticipated for any species. Most of the fauna of concern is highly mobile, such as cerulean warbler (*Dendroica cerulean*), Diana fritillary (*Speyeria diana*), and New England cottontail (*Sylvilagus transitionalis*), and will be in the area of the trail for very short time periods. Some wildlife may be temporarily displaced from the area during construction activities, though this would be short-term and limited to few species. Animals displaced for short periods include slower moving, mid-sized animals, such as timber rattlesnakes (*Crotalus horridus*) and Weller's salamander (*Plethodon welleri*). The smaller the species, such as terrestrial snails, the more likely there is of the chance of an impact. Direct impacts will be minimized by proper trail siting and by limiting trail construction to times when most animals are not nesting or mating. Increased visitor use on the trail, in areas where visitors have traditionally been few, will increase disruption of the animal life in the area despite the best intentions. Some nesting birds, such as magnolia warblers (*Dendroica magnolia*), may stop using suitable habitat due to increased human activities.

Cumulative Impacts:

As with other topics in this section there is decreasing habitat available for many species of wildlife on lands adjoining the Blue Ridge Parkway. Habitat fragmentation of these adjoining lands put additional pressures on large, contiguous tracts found on the Parkway. Additional impacts on Parkway lands, such as long-distance trails, will further reduce opportunities for wildlife to reproduce, disburse and survive. Overall this impact should be minor for any individual species.

Impairment:

Habitat fragmentation, disruption of nesting opportunities and interference of foraging activities of Parkway wildlife may all be negatively impacted from this project. None of these impacts would be significant enough to impair resources that are specific to the purpose of the establishment of the Blue Ridge Parkway.

Conclusion:

The trail will have limited impacts on Parkway wildlife and these impacts will likely be short-term in nature.

Wetlands

Direct/Indirect Impacts:

The trail route has been laid out to avoid all wetlands. There may be some off-trail use by visitors to wetlands near the trail but this should be limited.

Cumulative Impacts:

Wetlands on lands adjoining the Blue Ridge Parkway are becoming fewer and less biologically intact as development pressures mount. The impact to wetlands on the Parkway should be so negligible that there will be no net cumulative effect.

Impairment:

The trail would not result in impairment to Parkway wetlands.

Conclusion:

The proposed trail should not impact wetlands.

Cultural Resources

Direct/Indirect Impacts:

Unknown sub-surface cultural resources could be directly affected by the construction of this section of the Mountains to Sea Trail. This trail construction could have indirect effects on other cultural resources by opening up areas now inaccessible to the public for visitor exploration and resource degradation. Such indirect effects would include overhanging rock shelters and pioneer cabin sites becoming targets for curious hikers.

Cumulative Impacts:

Potential resource disturbance and degradation from this proposed trail construction can be mitigated and minimized by completing the required archeological surveys and by careful location of the trail route to avoid cultural resource sites.

Impairment:

The proposed trail would not result in impairment to Parkway cultural resources.

Conclusion:

The substantial benefits to the recreating public of building this trail segment can be realized with minimal (and no adverse) effects on Parkway cultural resources. This assertion is based on satisfactory results from a pre-construction archeological

survey of the trail route and then careful design and placement of the trail to avoid affecting both surface and sub-surface cultural resources.

Recreational Resources

Direct/Indirect Impacts:

The recreational value and opportunity of having the trail located within Blue Ridge Parkway boundary would be realized. A trail connection between various Parkway trails and the North Carolina, Stone Mountain State Park would be possible. The community of Blowing Rock is proposing future greenway connections to the Mountains to Sea Trail where it adjoins the Parkway at SR 321. In the action alternative this planning opportunity would be realized.

Cumulative Impacts:

Blue Ridge Parkway visitors would be provided a diverse hiking opportunity currently not provided in the area, which shall be conveniently connected to some of the most highly visited campgrounds, and concessions facilities the Blue Ridge Parkway provides.

Impairment:

The trail would not result in impairment to Parkway recreational resources.

Conclusion:

Creation of the Mountains to Sea Trail connections throughout this area is considered a highly valuable recreational resource for Blue Ridge Parkway visitors, and to adjoining communities. The Mountains to Sea Trail connections are the highest and best means to achieving this goal. Blue Ridge Parkway visitors would be provided a diverse hiking opportunity currently not fully provided in the area, which shall be conveniently connected to some of the most highly visited campgrounds, and concessions facilities the Blue Ridge Parkway provides.

Visual Resources

Direct/Indirect Impacts:

Many of the viewing opportunities and experiences from the ridges and valleys above the Blue Ridge Parkway this trail could provide would be realized for many Blue Ridge Parkway visitors. Visual impact of the trail itself to the environment or scenic vista from the Parkway would be minimized with sustainable trail alignment and construction practices.

Cumulative Impacts:

The establishment of the scenic viewing opportunity the Mountains to Sea Trail could provide to visitors along some of the high ridges and valleys within the

proposed route of the trail would be realized. Visual impact of the trail itself to the environment or scenic vista from the Parkway would be minimized with sustainable trail alignment and construction practices.

Impairment:

The trail would not result in impairment to Parkway visual resources.

Conclusion:

The hiking trail as proposed by the Mountains to Sea Trail is considered highly valuable as an opportunity to fully enjoy the scenic opportunities of the Highlands Area. Without the trail many of these opportunities could not be realized by any other means. The establishment of the scenic viewing opportunity the Mountains to Sea Trail could provide to visitors along some of the high ridges and valleys within the proposed route of the trail would be provided.

Conclusion for Alternative B:

Visual impact of the trail itself to the environment or scenic vista from the Parkway would have minimal impact. Sustainable trail alignment measures to minimize visual impact of the trail itself to the Blue Ridge Parkway would be utilized to maximum value to minimize this impact. The hiking trail as proposed by the Mountains to Sea Trail is considered highly valuable as an opportunity to fully enjoy the scenic opportunities of the Highlands Area. Without the trail many of these opportunities could not be realized by any other means. The establishment of the scenic viewing opportunity the Mountains to Sea Trail could provide to visitors along some of the high ridges and valleys within the proposed route of the trail would be provided.

The substantial benefits to the recreating public of building this trail segment can be realized with minimal (and no adverse) effects on Parkway cultural resources. This assertion is based on satisfactory results from a pre-construction archeological survey of the trail route and then careful design and placement of the trail to avoid affecting both surface and sub-surface cultural resources.

There are negligible secondary or cumulative effects on natural, cultural and visual resources or visitor experience that will occur as a result of implementing either of the alternatives. This determination is based upon:

1. Of the 88,000 acres of Parkway lands only one tenth of a percent have been affected in the past by trail construction,
2. The only on-going trail work on Parkway lands is limited maintenance of existing trails,
3. The effects of the proposed alternative would impact 13 additional acres of Parkway land.

Within the 88,000 acres of federal lands administered by the Blue Ridge Parkway there are 115 individual trail systems with a total of more than 200 miles of trail tread currently available for visitors to hike. These trails directly occupy approximately 100 acres or one tenth of a percent of the federally owned land base. Most trails are a mile or less in length and are accessed from parking overlooks with longer trails being tied into developed recreation areas.

When completed, the 800 mile-long Mountains to Sea Trail will occupy a corridor on Parkway lands some 300 miles in length. Since 1979 some 227 miles of the MST have been completed across Parkway lands. When the proposed 16 miles of trail from Balsam Gap to Oconaluftee are completed approximately 243 miles of the MST will be completed. This trail will now terminate on Parkway land at Milepost 463 leaving several miles of trail to be established on Cherokee Reservation lands. To realize the goal of connecting GRSM with the coast, more trails will be necessary in the future, thus furthering effecting undisturbed lands.

The availability of additional long distance trails to hike such as the MST will draw more visitors who prefer that kind of experience over the short leg-stretcher trails that dominate the Parkway's trail system. This will increase the access that visitors have to hiking through and viewing the scenic and natural resources of the middle section of the Parkway that are now primarily only available from driving the motor road. This long distance trail will also serve to better distribute hikers over more miles of trails within the Parkway.

Because of minor ground disturbance caused by trail construction involving a 2-foot wide trail that is placed to minimize cutting vegetation more than six inches in diameter at breast height and water bars installed to minimize soil erosion, there will be negligible cumulative effects to the Parkway's resource base caused by construction and use of the MST. Overall the current trail system when combined with the proposed 55 miles of additional trail will continue to constitute a very minor part of the overall visitor use of Parkway facilities.

The addition of this length of trail should have no impact to the maintenance workload of the Parkway since all construction and volunteer trail clubs performs maintenance activities. These clubs perform their duties in cooperation with the Blue Ridge Parkway.

With the addition of more sections of the Mountains to Sea Trail, there may be an increase in the number of through-hikers--those people hiking long distances of the trail over a period of several days. Currently, the only provisions for camping are at designated campgrounds within the Blue Ridge Parkway or on U.S. Forest Service (USFS) lands. There are no designated campgrounds from Balsam Gap to Soco Gap on the Blue Ridge Parkway. In addition, there are no tracts of USFS land adjacent to the Parkway in this area to provide camping. There is, however, a private

campground being developed on Cherokee lands at MP 458 just off of the Heintooga Spur Road. There is also a designated campground at the end of the Heintooga Spur Road in Great Smoky Mountains National Park. Trail use to date has been predominately day hikers, but the role of overnight camping will have to be evaluated if through-hikers begin to use the trail and the use of additional lands will be required.

Of the 47 Natural Heritage Areas designated on the Parkway in North Carolina, seven occur between Milepost 237 and Milepost 291 south of Asheville in the Pisgah Ledge, Plott Balsams and Balsam Mountains. The MST will pass through 13 of the 16 Natural Heritage Areas (NHA) south of Asheville. This leaves only three NHAs south of Asheville with minimal human intrusion.

Impacts to Federally Listed and Federal Concern Species

Aegolius acadicus acadicus Gmelin (Northern Saw-Whet Owl)

The northern saw-whet owl is a Species of Federal Concern and a North Carolina Special Concern species (though the state is proposing to change the listing to Threatened). According to one report, an estimated 500 pairs of saw-whet owls may occur as a disjunct population in the southern Appalachian Mountains (Rowe ca. 1997). Home range of birds in the southern Appalachians is somewhere between 73.4 to 250.5 ha 160.8 ha (Rowe ca. 1997). Roosts averaged 4.06 m off the ground with the majority occurring in red spruce/Fraser fir forests mixed with hardwoods and rhododendron understory (Milling *et al.* ca. 1997). Cockerel (1997) suggests that the small mammal availability may be a limiting factor and Rowe (ca. 1997 and 1998) suggests that outdoor recreation may also threaten the owls.

The northern saw-whet owl is currently not listed as threatened or endangered in either North Carolina or under the Endangered Species Act. Preliminary research indicates that genetic profiles of southern populations are significantly different than its northern counterparts, perhaps warranting designation as a separate subspecies (Rowe pers. comm. 1999). Based on this information, we believe this species could be federally listed in the future.

The vegetation along this section of the MST Trail, with an absence of spruce and fir, is not conducive to saw-whet owl breeding activities. There is increasing data showing that saw-whet owls are altitudinal migrants, moving from their breeding territories at higher elevations to lower elevations during the winter. In the winter they use areas with dense cover, especially pines or hardwood forests (Williams, pers. comm.). Though there are no records of saw-whet owls using Parkway lands along this proposed route, there is suitable winter habitat available.

Clemmys muhlenbergii (Bog turtle)

The bog turtle is considered to be the rarest freshwater turtle in North America and is currently listed as endangered in nearly every state within its range, including Virginia and North Carolina. Northern bog turtle populations (i.e., from Maryland north) are currently classified as Threatened under the Endangered Species Act (ESA). For the purpose of regulating illegal commercial collection, southern bog turtle populations (from Virginia south) are also classified as Threatened under the ESA due to similarity of appearance to the northern populations (USFWS 1997). Although the southern bog turtle's Threatened status under the ESA affords it some protection from illegal collecting, this protection does not extend to its habitat. Land alteration activities, such as water diversion, mowing, grazing and the legal application of pesticides and herbicides are still permitted to occur within bog turtle habitat in the species southern range.

Bog turtles are closely associated with sphagnaceous bogs, marshy meadows and pastures characterized by small, shallow streams or trickles with soft bottoms and by various sedges and other aquatic and semi-aquatic plants (Palmer and Braswell 1995). Most of the known localities are disjunct with small, isolated populations. Because of their local occurrence and highly specific habitat requirements, in places often drained or otherwise altered adversely by humans, many populations of bog turtles are threatened with extinction. Much of the Bog turtles range in Virginia and North Carolina is scattered along a narrow belt located in and along the Blue Ridge Parkway. Within the Parkway, the bog turtle is found in only four Virginia counties, and in North Carolina, only three.

Bog turtle populations are believed to be declining throughout their range (Carter 1997; USFWS 1997). This population decline is believed to be the result of illegal collection for the pet trade, and loss of habitat through ditching, draining and filling in of wetlands for development and agriculture (Mitchell, 1994). However, other factors including the species' low reproductive rates, isolation of individual populations, predation, flooding of habitat by beaver, mortality due to vehicles, livestock grazing, and pollution may also be contributing to the bog turtle's decline (USFWS 1997).

Consequently, wetlands along the Blue Ridge Parkway are important to protection of bog turtles, offering one of the last refuges where both the bog turtle and its habitat are protected. Wetlands along the Blue Ridge Parkway, however, are not pristine and many have been impacted by past agricultural activities and development. Impacts to bog turtles from the MST trail may include increased poaching, damage to wetland plants, disruption of dispersal activity, and changes in wetland hydrology.

While there are no documented occurrences of bog turtles along this section of the Parkway, they have been found both to the north and south along the Parkway.

The MST Trail will be routed around wetlands or located on the opposite side of the Parkway throughout this section to minimize any possible impacts to undiscovered populations. Proper trail engineering and placement should result in no impact.

Dendroica cerulea (DECE) (Cerulean Warbler)

Cerulean warblers are listed as significantly rare in NC and as a federal species of concern. Hamel (1992) reports that their breeding range overall is decreasing but that in the northeastern US their range is expanding as they move into second growth forests in abandoned agricultural areas (Hamel 2000). Land-use changes brought about by increasing human populations in the breeding, migratory, and winter ranges of this species appear to be the underlying cause of the population decline of the bird in this century.

Cerulean warblers are considered an uncommon transient on the Parkway during spring migration in April and early May and again during fall migration from late July through mid-September. During the breeding season they are found at mostly low and middle elevations (1,200 to 4,000 feet) in mature open deciduous forest, particularly where large tulip popular trees dominate in cover hardwood forests (Simpson 1992). During nesting, cerulean warblers favor the canopy of mature hardwood forests with an open understory (Potter, *et al.* 1980). They prefer canopies with horizontal heterogeneity (Hamel 2000) and, in the mountains, hilly to steep slopes (Hamel 1992). The species is area-sensitive, generally using only large tracts of land, though it has been observed breeding in sites as small as 10ha in Ontario (Hamel 2000).

There is no comment in the literature concerning sensitivity to human disturbances and so the impact of a trail through their breeding territory is unclear. Summer populations have been found adjacent to the Parkway for many years and it may be safe to assume that foot traffic on the trail would have no more impact on their breeding activities than does the Parkway motor traffic.

Felis concolor cougar (Eastern Cougar)

Parkway employees and other land management agencies continue to receive occasional reports of cougar sightings. While many of these reports most likely involve bobcats, dogs or other large animals, some come from people who are familiar enough with large mammals to be considered credible sources. Many biologists have assumed that even if these were valid reports of cougars that they were of cats that were raised as pets and were released into the wild as the owner realized the work and difficulty in keeping an animal of this size. The assumption being that even if there were cougars living in the Southern Appalachians that they were not a reproducing population. Recently, however, there have been report sightings of cougar kittens, suggesting that a wild population is being established.

Mountain lions are a secretive animal, occupying large forested areas and seemingly at home in coastal swamps as well as on mountain slopes. They occur primarily in undisturbed habitats that support healthy populations of their primary prey species, the white-tailed deer. (Biggs 1985) Abundant prey allows cougars to survive on smaller areas at higher densities and stable prey populations permit a more stable cat population (Macdonald 1993).

While suitable habitat and prey are found along the MST Trail route it is unlikely that cougars would consider this to be good quality habitat due to its proximity to the Parkway motor road. Cougars prefer areas with less development and activity and would generally tend to avoid the lands covered under this EA.

Helonias bullata (Swamp pink)

Swamp pink is a member of the Lily family and was listed as federally threatened throughout its range on September 9, 1988. *Helonias* is considered moderately threatened with a high recovery potential (USFWS 1991). The plant is widely scattered in its range with the largest concentration in New Jersey and surrounding states and populations in Virginia and in southern North Carolina. One population in northwest North Carolina is separated from its nearest neighbors by at least 150km.

Helonias is found in perennially saturated, spring fed shrub swamps and forested wetlands. It requires stable water levels and can tolerate only brief or infrequent flooding. The major threat to the species is loss and degradation of its wetland habitat due to encroaching development, sedimentation, succession, and wetland drainage (USFWS 1991).

The MST Trail is not expected to impact swamp pink or its habitat along this proposed route. The trail will be located away from wetlands to prevent direct impacts and to reduce the likelihood of a hiker picking the flowers or poaching the entire plant.

Isotria medeoloides (Small Whorled Pogonia)

Isotria medeoloides was listed as endangered on October 12, 1982. The small whorled pogonia life cycle and habitat requirements are widely varied, but in the southern Appalachians, it typically emerges in April and flowers in late April to mid-May. It occurs on upland sites generally within second- or third-growth mixed-deciduous or mixed deciduous/coniferous forests. Soils are moderately high in soil moisture, highly acidic, and generally nutrient poor. Small whorled pogonia occurs in both young and old forests with relatively open understory, moderate

ground cover, and near features that "create long-persisting breaks in the forest canopy" (Recovery Plan 1992).

I. medeoloides is known from one location on the Parkway. While habitat for this plant exists between Mileposts 248 and 291 there have been no records of *Isotria* being found during previous fieldwork. Surveys were conducted along the proposed trail route during the summer 2001 and no plants were found during these surveys.

Neotoma magister (Allegheny Woodrat)

Alleghany woodrats occur along the Parkway in isolated populations and it is likely that there are other locations not yet found. This North Carolina and federal species of concern is found in rocky places in deciduous or mixed forests in the northern mountains and in the Piedmont (LeGrand and Hall 1999). Their nests are built in horizontal cracks in rock faces where they are protected from the weather. They have not been documented below 3500 feet except in the Linville Gorge (McGrath, pers. comm.).

The routing of the MST Trail will avoid rock outcrops where woodrats may nest. In other locations human activities have not appeared to bother their nesting activities. Being a nocturnal animal, woodrats should not be bothered by the generally day-time use of the trail. No camping areas are located near woodrat locations and none are planned which will further minimize any impact to them.

Sphyrapicus varius appalachiensis (Appalachian Yellow-bellied Sapsucker)

While yellow-bellied sapsuckers (*Sphyrapicus variu*) are considered fairly common to common throughout the Southeast, the southern Appalachian population (*Sphyrapicus varius appalachiensis*) is Significantly Rare in North Carolina during breeding season and listed as a species of concern federally.

They are permanent residents along the Parkway, found at elevations above 3500 feet during the summer and are considered "rare to uncommon, local and erratic" (Simpson 1992). During breeding season sapsuckers prefer open high elevation deciduous forests with dead trees, such as burned, diseased or wind-blown areas and along forest edges (Hamel 1992). Sapsuckers are known to nest in several areas on the Parkway south of Blowing Rock. No nests have been found in the section of the Parkway covered by this report.

Sapsuckers at Bass Lake have nested in trees along the carriage road in several recent years. Heavy visitor traffic, dogs and maintenance activities nearby have not noticeably affected these birds. Persons hiking along the MST Trail should not impact sapsuckers if the sapsuckers were to nest along the trail (McGrath, NC Wildlife Resources Commission non-game biologist, pers. comm.)

Spiraea virginiana (Virginia Spiraea)

Virginia spiraea consists of 31 stream populations in seven states from West Virginia and Ohio to Georgia. The plant is threatened by small population size, a paucity of sexual reproduction and dispersal, and manipulation of riverine habitat. The species was listed as threatened on June 15, 1990 (Ogle 1992). *Spiraea virginiana* is a perennial shrub that has a modular growth form. The species is clonal, with a root system and vegetative characteristics that allow it to thrive under appropriate disturbance regimes. *Spiraea virginiana* is found along the banks of high gradient sections of second and third order streams, or on meander scrolls and point bars, natural levees, and other braided features of lower reaches (often near the stream mouth).

The MST Trail is not expected to impact *Virginia spirea* or its habitat along the proposed route. The trail will be located away from wetlands to prevent direct impacts and to reduce the likelihood of a hiker picking the flowers or poaching the entire plant.

Sylvilagus obscurus (Appalachian Cottontail)

Appalachian cottontail is a relatively newly described species, separated from *Sylvilagus transitionalis* just in 1992 (Chapman *et al.* 1992). This species is listed as Significantly Rare in North Carolina and federally is a species of concern. It is probable that Appalachian cottontails are found along the proposed trail route, though difficulties in identifying this species make it hard to determine their population numbers and distribution.

Llewellyn and Handley (1945) state that Appalachian cottontail are associated with dense cover and conifers at higher elevations along the Appalachian mountain chain, while Chapman and Morgan (1973) describe the habitat as conifers and heath habitat, especially *Kalmia* sp. and *Vaccinium* sp., in high elevation arboreal environments. Krautwurst (2001) writes that the Appalachian cottontail lives at about 2,500 feet in mountain forests with thick laurel, rhododendron and blueberry. The Natural Heritage Program simply states "dense cover of montane woods and thickets" (LeGrand and Hall 1999).

It is unlikely that foot traffic on the trail would have an impact on Appalachian cottontails. More of a concern would be to open *S. obscurus* habitat to *S. transitionalis* and increase the chances of competition or hybridization (McGrath, pers. comm.)

Thryomanes bewickii altus (THBE) (Appalachian Bewick's Wren)

While still quite common in the western United States, populations of Bewick's wrens in the east are declining in most areas and are a species of concern federally.

In North Carolina, where it is possible that this species is extirpated (Hamel 1992), they are listed as endangered during breeding season.

In the early 1900's Bewick's wrens nested in towns and farmyards in mountain valleys and at higher elevations. Competition from house sparrows and starlings may have forced these wrens from areas around development and now they are limited to high elevation sites in rural areas (Potter *et al.* 1980). Their preferred nesting sites are in high elevation brushy places and woodpiles (Potter *et al.* 1980) or along woodland borders or openings, farmlands or brushy fields at high elevations (LeGrand and Hall 1999).

No Bewick's wrens have been reported from the Blue Ridge Parkway in recent years and they are likely extirpated from this area (McGrath, pers. comm.).

Several state-listed species are found in streams or rivers and will not be affected by this project due to protection actions taken to minimize impacts and the small amount of habitat involved. None of these species is known to occur on Parkway lands. These species include:

Ascetocythere cosmeta Grayson's Crayfish Ostracod
Attaneuria ruralis Golden Banded-skipper
Bolotoperla rossi A stonefly
Ceraclea mentiea A caddisfly
Ceraclea sloosona A caddisfly
Cryptobranchus alleganiensis Hellbender
Elliptio dilatata Spike
Etheostoma kanawhae Kanawha Darter
Exoglossum laurae Tounge-tied Minnow
Gomphus lineatifrons Splendid Clubtail
Gomphus viridifrons Green-faced Clubtail
Heterocloeon petersi A mayfly
Isoperla frisoni A stonefly
Lasmigona subviridis Green Floater
Leptaxis dilatata Spotted Spreadwing
Neurocordulia yamaskanensis Stygian Shadowdragon
Ophiogomphus aspersus Brook Snaketail
Ophiogomphus howei Pygmy Snaketail
Ophiogomphus mainensis Maine Snaketail
Percina caprodes Logperch

Percina oxyrhynchus Olive Darter
Phenacobius teretulus Kanawha Minnow
Zapada chila A stonefly

Several of the state-listed animals occur in habitat-types found along the proposed trail route. Work on the trail will only be allowed during non-nesting times and the impact from trail use is not expected to have an impact on these species.

Accipiter striatus Sharp-shinned Hawk
Ambystoma talpoideum Mole Salamander
Autochton cellus Golden Banded-skipper
Catocala dulciola Sweet Underwing
Celastrina neglectamajor Appalachian Azure
Erora laeta Early Hairstreak
Euphydryas phaeton Baltimore Checkerspot
Fixsenia favonius ontario Northern Oak Hairstreak
Loxia curvirostra pop 1 Red Crossbill – Southern Appalachian population
Passerculus sandwichensi Savannah Sparrow
Vermivora chrysoptera Golden-winged Warbler
Vermivora pinus Blue-winged Warbler
Vireo gilvus Warbling Vireo

The following species may occur along the proposed trail route. The precautions taken during planning and construction of the trail, and the small area of disturbance, will prevent any significant impacts to any of these species.

Crotalus horridus Timber Rattlesnake
*Inflectarius subpalliatu*s Velvet Covert
Myotis leibii Eastern Small-footed Bat
Myotis septentrionalis Northern Long-eared Bat
Paravitrea andrewsae High Mountain Supercoil
Plethodon wehrlei Wehrle's Salamander
Plethodon welleri Weller's Salamander
Polygonia faunus smythi Smyth's Green Comma
Satyrium caryaevorum Hickory Hairstreak
Sorex palustris punctulatus Southern Water Shrew
Speyeria diana Diana Fritillary
Speyeria idalia Regal Fritillary
Stylurus scudderi Zebra Clubtail
Sympetrum obtrusum White-faced Meadowhawk
Ventridens coelaxis Bidentate Dome

Impacts to Neotropical Migrants and Other Birds

The vegetation within the proposed project area is diverse but primarily contains mature second-growth mixed hardwood forests and agricultural grasslands. Birds that have been observed and are relatively common to these Parkway habitats along this section of the Parkway are listed in Appendix 3.

Forest breeding birds, such as black-throated blue warbler, rose-breasted grosbeak, yellow-bellied sapsucker, veery and other northern hardwood associates should not be adversely impacted by the proposed project since the trail would be installed outside of breeding season. No high elevation forests or spruce/fir forests are located along the trail route so birds using these habitats should not be affected.

Golden-winged warbler and ground-nester and the veery, both shrub and ground nesting, should be protected since there would be minimal removal of rhododendron and other shrubs.

The trail will not be routed through agricultural fields so grassland birds, such as bobolinks and meadowlarks, should not be impacted.

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EXECUTIVE ORDERS

Executive Order 11988 (Floodplain Management)

Executive Order 11990 (Protection of Wetlands)

Executive Order 11593 (Cultural Resources)

Executive Order 12898 (Environmental Justice)

Executive Order 13186 (Migratory Birds)

NPS DIRECTOR'S ORDERS

DO-2 (Planning Process Guidelines)

DO-12 (Conservation Planning, Environmental Impact Analysis, & Decision-making)

DO-28 (Cultural Resource Management)

DO-45 (National Trails System Act)

DO-52 (Park Signage)

US FEDERAL GOVERNMENT

1916 National Park Service Organic Act, as amended

16 U.S.C. National Park Service General Authorities Act

1958 Fish and Wildlife Coordination Act, as amended

1963 Clean Air Act, as amended

1966 National Historic Preservation Act, as amended

1969 National Environmental Policy Act (NEPA)

1972 Noise Control Act, as amended

1973 Endangered Species Act, as amended

1974 Archeological and Historic Preservation Act (88 Stat. 174)

1976 General Authorities Act (90 Stat 1939)

1977 Clean Water Act, as amended

1979 Archeological Resources Protection Act

1984 Farmland Protection Policy Act

1987 *“Archeological Overview and Assessment of the Blue Ridge Parkway,”*
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1990 Americans with Disabilities Act (ADA) (104 Stat. 327)

1990 Native American Graves Protection and Repatriation Act

1995 Programmatic Agreement among the National Park Service (U.S. Department
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36 Code of Federal Regulations, §4.30 (a)

ACRONYMS AND GLOSSARY

A

affected environment: The existing biological, physical, cultural, social, and economic conditions of an area that are subjected to both direct and indirect changes, as a result of actions described within alternatives under consideration.

air quality: A measure of health and visibility-related characteristics of air, often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

alternatives: A reasonable range of options that can accomplish an agency's objectives.

aquatic species: A group of closely related and interbreeding living things, living or growing in, on, or near the water.

archeological resources: Any material remains or physical evidence of past human life or activities, which are of archeological interest, including the record of the effects of human activities on the environment. Such resources are capable of revealing scientific or humanistic information through archeological research.

B

BLRI: Blue Ridge Parkway

bollard: One of a series of posts preventing vehicles from entering an area.

C

Cherokee Indian Reservation: A Native American people formerly inhabiting the southern Appalachian Mountains from the western Carolinas and eastern Tennessee to northern Georgia, with present-day populations in western North Carolina.

Council on Environmental Quality (CEQ): The President's Council on Environmental Quality was established by the National Environmental Policy Act NEPA and is the agency responsible for the oversight and development of national environmental policy.

critical habitat: Habitat approved in the *Federal Register* as critical for a particular listed species under section 4 of the Endangered Species Act. (1) The specific areas within the geographical area occupied by the species at the time it is listed, on which are found those physical or biological features (a) essential to the conservation of the species and (b) which may require special management or protection (2) Specific areas outside the geographical area occupied by the species at the time it is listed that are considered essential to the conservation of the species.

crosscut: A path more direct than the main path; a shortcut; a course or cut going crosswise.

cultural landscape: A geographic area (including both cultural and natural resources) associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

cultural resource: An aspect of a cultural system that is valued by or significantly representative of a culture or that contains significant information about a culture. Properties such as landscapes or districts, sites, buildings, structures, objects, or cultural practices that are usually greater than 50 years of age and possess architectural, historic, scientific, or other technical value. By their nature, cultural resources are nonrenewable.

cumulative effects (impacts): Effects on the environment that result from the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (federal or nonfederal) or person undertakes such actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

D

deciduous: Shedding or losing foliage at the end of the growing season.

degradation (natural resources): Refers to negative impact(s) to natural resources or natural processes. The impact may be singular or cumulative; the extent may be local or ecosystemwide. The term degradation is used broadly and may refer to: reduction in habitat size, reduction in extent of plant populations, declining species vigor exhibited as reduced population numbers, reduced reproductive success, increased mortality rates, and/or decreased percent of available habitat utilized.

denuded: To divest of covering; make bare.

E

EA: Environmental Assessment

environmental assessment: A detailed statement required by the National Environmental Policy Act (NEPA) when an agency proposed a major action that could significantly affect the quality of the human environment.

environmental consequences: A section of an environmental assessment that is the scientific and analytic basis for comparing alternatives. This discussion includes the environmental effects of the alternatives, any adverse effects that cannot be avoided, and short-term, long-term and cumulative effects.

endangered species: Any species, which is in danger of extinction throughout all or a significant portion of its range. The U.S. Fish and Wildlife Service list these species.

Endangered Species Act of 1973 (amended) (ESA): The Endangered Species Act ensures that no federal action will jeopardize the continued existence of federally listed or proposed threatened or endangered species of plant or animal.

erosion: The group of natural processes, including weathering, dissolution, abrasion, corrosion, and transportation, by which material is worn away from the earth's surface.

ESA: Endangered Species Act

exotic plants: Plant or animal species introduced into an area where they do not occur naturally; non-native species.

F

facilities: Refers to buildings, houses, campgrounds, picnic areas, visitor-use areas, operational areas, and associated supporting infrastructure such as roads, trails, and utilities.

fauna: Animals, especially the animals of a particular region or period, considered as a group.

floodplain: Land on either side of a stream or river that is submerged during floods. Typically discussed in terms of 50, 100, or 500-year events.

100-year floodplain: The land adjacent to a river corridor that would be covered by water during a 100-year flood event. A 100-year flood event has a 1% probability of occurring during any given year.

foraging: The act of looking or searching for food or provisions.

Finding of No Significant Impact (FONSI): The public document following the preparation of a final environmental assessment that reflects the agency's final decision, rationale behind the decision, and commitments to monitoring and mitigation.

flora: Plants considered as a group, especially the plants of a particular country, region, or time.

FWS: U.S. Fish and Wildlife Service

G

General Management Plan (GMP): The first tier plan for NPS units that provides overall broad management direction.

GPRA: *Government Performance and Results Act of 1993*

Government Performance and Results Act: one of the most recent and comprehensive of a number of laws and executive orders directing federal agencies to implement performance management systems already embraced by private industry and many local, state, and national governments.

GRSM: Great Smoky Mountains National Park

greenway: A corridor of undeveloped land, as along a river or between urban centers that is reserved for recreational use or environmental preservation.

groundwater: All water found below the surface of the ground.

H

ha: Hectare.

headwaters: The water from which a river rises; a source.

historic district: A geographically definable area, urban or rural, possessing a significant concentration, linkage or continuity of sites, landscapes, structures, or objects, united by past events or aesthetically by plan or physical developments. A

district may also be composed of individual elements separated geographically but linked by association or history.

hydrology: A science dealing with the properties, distribution and circulation of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere.

I

impacts: Effects, both beneficial and adverse, of an action on the human environment. Direct effects are those occurring at the same time and place as the action itself. Indirect effects occur later in time or are farther removed in distance from the action, yet are reasonably foreseeable.

invasive native and exotic plants: A species that takes over a new habitat where it was not previously found, often to the detriment of species, which were there before.

invertebrate species: Animals without backbones, such as an insect or mollusk.

L

localized: confined to a small area.

M

microhabitat: A very small, specialized habitat, such as a clump of grass or a space between rocks.

mitigation: An activity designed to avoid, minimize, rectify, reduce or compensate the severity of, or eliminate impacts from the proposed project. A mitigation measure should be a solution to an identified environmental problem.

monitoring: To keep track of systematically with a view to collecting information.

MST: Mountains to Sea Trail

memorandum of agreement: An arrangement between parties regarding a course of action.

museum collection: Objects, works of art, historic documents, and natural history specimens collected according to a rational scheme and maintained so they can be preserved, studied, and interpreted for public benefit.

N

National Environmental Policy Act of 1969 (NEPA): a law enacted on January 1, 1970 that established a national policy to maintain conditions under which humans and nature can exist in productive harmony and fulfill the social, economic and other requirements of present and future generations of Americans.

National Historic Landmark: A district, site, building, structure, landscape, or object of national historical significance, designated by the Secretary of the Interior under authority of the Historic Sites Act of 1935 and entered in the National Register of Historic Places.

National Historic Preservation Act of 1966 (NHPA): This act required federal agencies to give consideration to historic properties determined significant (properties listed on or determined to be eligible for the National Register of Historic Places) prior to expending funding for, authorizing, or licensing a federal project or permit.

National Natural Landmark Register: A program that seeks to identify and encourage the preservation of areas that illustrate the ecological and geological character of the United States.

National Park Service (NPS): An agency in the Department of the Interior responsible for protection and preservation of 384 natural and cultural units throughout the United States.

National Register of Historic Places: The comprehensive list of districts, sites, buildings, structures, and objects of national, regional, state, and local significance in American history, architecture, archeology, engineering, and culture kept by the National Park Service under authority of the National Historic Preservation Act of 1966.

natural resources: Features and values that include plants and animals, water, air, soils, topographic features, geologic features, paleontological resources, natural quiet and clear night skies.

Nature Conservancy: nonprofit organization established in 1951 to preserve or aid in the preservation of natural environments.

NEPA: National Environmental Policy Act

NCWRC: North Carolina Wildlife Resources Commission

NHA: Natural Heritage Area

NHPA: National Historic Preservation Act

no action alternative: An alternative in an environmental assessment that continues current management direction. A no action alternative is a benchmark against which action alternatives are compared.

nonnative species: Species of plants or animals that do not naturally occur in a particular area and of often interfere with natural biological systems. Also known as alien, introduced, or exotic species.

O

Organic Act (NPS) – the 1916 law (and subsequent amendments) that created the National Park Service and assigned it responsibility to manage the national parks.

overlook: To look over or at from a higher place, especially so as to afford a view.

overstory: The uppermost layer of foliage that forms a forest canopy.

P

preservation (cultural resource): The act or process of applying measures to sustain the existing form, integrity, and material of a historic structure, landscape, or object. Work may include preliminary measures to protect and stabilize the property, but generally focuses on the ongoing preservation maintenance and repair of historic materials and features rather than extensive replacement and new work.

preservation (natural resource): The act or process of preventing, eliminating, or reducing human-caused impacts to natural resources and natural processes.

PwL: Parkway Left - when traveling south of the Parkway, anything on the left side of the road is considered “Parkway Left.”

PwR: Parkway Right - when traveling south of the Parkway, anything on the right side of the road is considered “Parkway Right.”

R

rehabilitation (cultural resources): The act or process of making possible an efficient compatible use for a historic structure or landscape through repair, alterations, and additions while preserving the portions or features which convey the historical, cultural and architectural values.

rehabilitation (natural resources): All activities conducted to improve the quality or biologic function of an impacted natural resource. The term rehabilitation connotes a less extensive process than restoration. Site impacts may preclude a full restoration but project work is undertaken to enhance the extent or function of natural processes.

Reservation: Qualla Boundary Reservation of the Eastern Band of Cherokee Indians

restoration (cultural): The act or process of accurately depicting the form, features, and character of an existing historic structure, landscape, or object as it appeared at a particular period of time, by removing modern additions and replacing lost portions of historic fabric, paint, or other elements.

restoration (natural): Work conducted to remove impacts to natural resources and restore natural processes, and to return a site to natural conditions.

revegetation: Replacement or augmentation of native plants in an area largely or entirely denuded of vegetation.

S

schematic: A structural or procedural diagram.

Section 7 Consultation: Section 7 of the Endangered Species Act requires consultation with the U.S. Fish and Wildlife Service if the habitat of a threatened or endangered plant or animal may be affected by a federally authorized action.

silt: A sedimentary material consisting of very fine particles intermediate in size between sand and clay.

Strategic Plan: a Service - wide, 5 - year plan required by GPRA (5 USC 306) in which the NPS states (1) how it plans to accomplish its mission during that time, and (2) the value it expects to produce for the tax dollars expended. Similarly, each park, program, or central office has its own strategic plan, which considers the Service - wide mission plus its own particular mission. Strategic plans serve as “performance agreements” with the American people.

surface water: Water that naturally flows or settles on top of natural landforms and vegetation, often as rivers, springs, seeps streams, lakes, ponds, and other bodies of water.

switchback: A road or trail that follows a zigzag course on a steep incline.

T

terminus: The final point; the end of the trail.

terrestrial: Living or growing on land; not aquatic

threatened species: Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

TNC: The Nature Conservancy

topography: The surface features of a place or region.

trailhead: The place where a trail begins.

tributary: A stream that flows into a larger stream or other body of water.

turbidity: Having sediment or foreign particles stirred up or suspended; muddy.

U

understory: An underlying layer of vegetation, especially the plants that grow beneath a forest's canopy.

USGS: United States Geological Survey

V

vertebrate species: Animals that have a spinal cord enclosed in a backbone.

visitor experience: The perceptions, feelings, and interaction a park visitor has in relationship with the environment.

W

watershed: The region draining into a river, river system, or body of water.

wetland: Areas that are inundated by surface or groundwater with a frequency sufficient to support, under normal circumstances, vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

LIST OF AGENCIES, ORGANIZATIONS, & INDIVIDUALS TO WHOM COPIES OF THE EA WERE SENT

Congressional Offices

Honorable John Edwards, NC District Office, Asheville, NC

Honorable Charles Taylor, NC District Office, Asheville, NC

Federal Agencies

Department of the Army

Army Corps of Engineers, Regulatory Division, Wilmington, NC

Army Corps of Engineers, Asheville Field Office, NC

Department of Interior

Fish and Wildlife Service, Asheville Field Office, NC

Department of Agriculture

Forest Service, Asheville District Office, NC

Soil Conservation Service, Raleigh, NC

State Agencies

Department of Historic Resources

NC State Historic Preservation Office, Raleigh

NC Department of Cultural Resources, Raleigh

NC Division of Archives & History, Asheville

Department of Agriculture

NC Plant Conservation Program, Raleigh

Department of Environment, Health & Natural Resources, Asheville, NC

Department of Environment, & Natural Resources, Asheville, NC

Department of Natural Resources

NC Division of Environmental Management, Raleigh

NC Natural Heritage Program, Raleigh

NC Wildlife Resources Commission, State Road

Division of Parks and Recreation

Stone Mountain State Park, Roaring Gap

Department of State Clearinghouse

NC Environmental Review, Raleigh, NC

Universities/Cooperating Professionals

Appalachian State University, Boone, NC

Blue Ridge Parkway Foundation, Winston-Salem, NC

Friends of the MST, Raleigh, NC

University of North Carolina, Department of Environmental Studies,
Asheville, NC

Western Carolina University, Department of Biology, Cullowhee, NC

Western North Carolina Alliance, Asheville, NC

Individuals

Russ Hanes, Glendale Springs, NC

LETTERS OF CONCURRENCE

APPENDIX 1
(prepared in 2002)

Known species along route from a query of all element occurrences (EO's) in or around Parkway between Mileposts 237 and 291.

Sname	Scomname	Elclass	Sprot	Usesa	Srank	Grank
CLEMMYS MUHLENBERGII	BOG TURTLE	Animal	T	T(S/A)	S2	G3
DENDROICA CERULEA	CERULEAN WARBLER	Animal	SR	FSC	S2B,SZN	G4
FALCO PEREGRINUS	PEREGRINE FALCON	Animal	E		S1B,S2N	G4
POOECETES GRAMINEUS	VESPER SPARROW	Animal	SR		S2B,S2N	G5
CAROLINA HEMLOCK BLUFF	CAROLINA HEMLOCK BLUFF	Community			S2	G2G3
CHESTNUT OAK FOREST	CHESTNUT OAK FOREST	Community			S5	G5
LOW ELEVATION ROCKY SUMMIT	LOW ELEVATION ROCKY SUMMIT	Community			S2	G2
MONTANE ACIDIC CLIFF	MONTANE ACIDIC CLIFF	Community			S3	G4
PINE--OAK/HEATH	PINE--OAK/HEATH	Community			S4	G5
SOUTHERN APPALACHIAN BOG (NORTHERN SUBTYPE)	SOUTHERN APPALACHIAN BOG (NORTHERN SUBTYPE)	Community			S1	G1T1
SPRAY CLIFF	SPRAY CLIFF	Community			S2	G2

Sname	Scomname	Elclass	Sprot	Usesa	Srank	Grank
SWAMP FOREST-BOG COMPLEX (TYPIC SUBTYPE)	SWAMP FOREST-BOG COMPLEX (TYPIC SUBTYPE)	Community			S2	G2G3T2
CELASTRINA NEGLECTAMAJOR	APPALACHIAN AZURE	Insect	SR		S3?	G4
ERORA LAETA	EARLY HAIRSTREAK	Insect	SR		S2S3	G4
SPEYERIA DIANA	DIANA FRITILLARY	Insect	SR	FSC	S3	G3
BARBILOPHOZIA BARBATA	A LIVERWORT	Non-Vascular	SR		S1	G4?
CEPHALOZIELLA SPINICAILIS	A LIVERWORT	Non-Vascular	C		S1	G3G4
CIRRIPHYLLUM PILIFERUM	A MOSS	Non-Vascular	SR		S1	G5
COSCINODON CRIBROSUS	COPPER GRIMMIA	Non-Vascular	C		S1	G3?
RHACHITHECIUM PERPUSILLUM	BUDDING TORTULA	Non-Vascular	C		S1S2	G3?
ASPLENIUM PINNATIFIDUM	LOBED SPLEENWORT	Plant	SR		S1	G4
CALTHA PALUSTRIS	MARSH MARIGOLD	Plant	SR		S1	G5
CHELONE CUTHBERTII	CUTHBERT'S TURTLEHEAD	Plant	SR		S3?	G3?
DALIBARDA REPENS	ROBIN RUNAWAY	Plant	E		S1	G5

Sname	Scomname	Elclass	Sprot	Usesa	Srank	Grank
EPILOBIUM CILIAM	PURPLELEAF WILLOWHERB	Plant	SR		S2	G5
FILIPENDULA RUBRA	QUEEN-OF-THE-PRAIRIE	Plant	E		S1	G4G5
HELIANTHEMUM PROPINQUUM	CREEPING SUNROSE	Plant	C		S1	G4
HELONIAS BULLATA	SWAMP PINK	Plant	T-SC	LT	S2	G3
LILIUM GRAYI	GRAY'S LILY	Plant	T-SC	FSC	S3	G3
MINUARTIA GROENLANDICA	GREENLAND SANDWORT	Plant	C		S2	G5
PLATANThERA PERAMOENA	PURPLE FRINGELESS ORCHID	Plant	C		S1	G5
PRENANTHES ROANENSIS	ROAN RATTLESNAKEROOT	Plant	SR		S3	G3
SANGUISORBA CANADENSIS	CANADA BURNET	Plant	SR		S3	G5
SAXIFRAGA CAROLINIANA	CAROLINA SAXIFRAGE	Plant	C	FSC	S2	G2
SILPHIUM PERFOLIATUM	NORTHERN CUP-PLANT	Plant	SR		S1	G5
SPARTINA PECTINATA	FRESHWATER CORDGRASS	Plant	SR		S1	G5
SPIRAEA VIRGINIANA	VIRGINIA SPIRAEA	Plant	E	LT	S1	G2

Sname	Scomname	Elclass	Sprot	Usesa	Srank	Grank
STENANTHIUM ROBUSTUM	BOG FEATHERBELLS	Plant	SR		S1	G?
VACCINIUM MACROCARPON	CRANBERRY	Plant	C		S2	G4
WOODSIA APPALACHIANA	APPALACHIAN CLIFF FERN	Plant	SR		S1	G4
WOODSIA ILVENSIS	RUSTY CLIFF FERN	Plant	SR		S1	G5

APPENDIX 2
(Prepared in 2002)

FEDERALLY LISTED T&E ANIMAL SPECIES			
Scientific Names	Common Names	Habitat	
<i>Clemmys muhlenbergii</i>	Bog Turtle	Bogs, wet pastures, wet thickets (T-S/A)	Species discussed in EA
<i>Corynorhinus townsendii virginianus</i>	Virginia Big-eared Bat	Roosts in caves (rarely mines) especially in limestone areas	Habitat not found in project review area
<i>Felis concolor cougar</i>	Eastern Cougar	Extensive forests, remote areas (E)	Species discussed in EA
<i>Glaucomys sabrinus coloratus</i> (GLSA)	Carolina Northern flying squirrel	High elevation forests, mainly Spruce-Fir (E)	Habitat not found in project review area

STATE LISTED T&E ANIMAL SPECIES			
Scientific Names	Common Names	Habitat	
<i>Accipiter striatus</i> (SR)	Sharp-shinned Hawk	Forests and woodlands (for nesting) [breeding evidence only]	Species discussed in EA
<i>Aegolius acadicus</i> (SC - PT)	Northern Saw-whet Owl – Southern App. Population	Spruce-fir forests or mixed hardwood/spruce forests	Habitat not found in project review area
<i>Ambystoma talpoideum</i> (SC)	Mole Salamander	Breeds in fish-free semi-permanent woodland ponds, forages in adjacent woodlands	Species discussed in EA
<i>Ascetocythere cosmeta</i> (SR)	Grayson's Crayfish Ostracod	Symbiotic on crayfish in sub-surface waters of burrows	Species discussed in EA
<i>Attaneuria ruralis</i> (SR)	A stonefly	Rivers and creeks in the mountains; South Fork New River	Species discussed in EA
<i>Autochton cellus</i> (SR)	Golden Banded-skipper	Moist woods near streams, host plant hog peanut	Species discussed in EA
<i>Bolotoperla rossi</i> (SR)	A stonefly	Eight streams and rivers in the mountains	Species discussed in EA
<i>Catocala dulciola</i> (SR)	Sweet Underwing	Forests with hawthorns	Species discussed in EA
<i>Celastrina neglectamajor</i> (SR)	Appalachian Azure	Rich deciduous forests; host plant - black cohosh	Species discussed in EA
<i>Ceraclea mentiea</i>	A caddisfly	Rivers in the mountains	Species

(SR)		and upper Piedmont	discussed in EA
Scientific Names	Common Names	Habitat	
<i>Ceraclea slossonae</i> (SR)	A caddisfly	Rivers in the mountains	Species discussed in EA
<i>Certhia americana</i> (SR – PSC)	Brown Creeper	High elevation forests, favoring spruce-fir mixed with hardwoods	Habitat not found in project review area
<i>Coccyzus erythrophthalmus</i> (SR)	Black-billed Cuckoo	Deciduous forests, mainly at higher elevations	Habitat not found in project review area
<i>Crotalus horridus</i> (SR – PSC)	Timber Rattlesnake	Rocky, upland forests	Species discussed in EA
<i>Cryptobranchus alleganiensis</i> (SC)	Hellbender	Large and clear fast-flowing streams	Species discussed in EA
<i>Cyclonaias tuberculata</i> (SR)	Purple Wartyback	New River	Habitat not found in project review area
<i>Dendroica cerulea</i> (SR)	Cerulean Warbler	Mature hardwood forests; steep slopes and coves in mountains	Species discussed in EA
<i>Dendroica magnolia</i> (SR)	Magnolia Warbler	Spruce-fir forests, especially in immature stands [breeding season only]	Habitat not found in project review area
<i>Elliptio dilatata</i> (SC)	Spike	Little Tennessee, New River drainages	Species discussed in EA
<i>Empidonax alnorum</i> (SR)	Alder Flycatcher	High elevation shrub/sapling thickets [breeding season only]	Habitat not found in project review area
<i>Erora laeta</i> (SR)	Early Hairstreak	Deciduous forests, especially along roads or edges at high elevations; host plant – mainly American beech	Species discussed in EA
<i>Etheostoma kanawhae</i> (SR)	Kanawha Darter	New River drainage - May be in smaller streams per McGrath. Probably 3 rd order and larger.	Species discussed in EA
<i>Euphydryas phaeton</i> (SR)	Baltimore Checkerspot	Bogs, marshes, wet meadows; rarely in upland woods; host plants turtlehead and false foxglove	Species discussed in EA
<i>Exoglossum laurae</i>	Tounguetied Minnow	New River drainage	Species

(SR)			discussed in EA
Scientific Names	Common Names	Habitat	
<i>Falco peregrinus</i> (E)	Peregrine falcon	Cliffs (for nesting) [nesting evidence]	Habitat not found in project review area
<i>Fixsenia favonius ontario</i> (SR)	Northern Oak Hairstreak	Oak-dominated woods, usually dry sites; hosts - oaks	Species discussed in EA
<i>Gomphus lineatifrons</i> (SR)	Splendid Clubtail	Rivers	Species discussed in EA
<i>Gomphus viridifrons</i> (SR)	Green-faced Clubtail	Rivers	Species discussed in EA
<i>Heterocloeon petersi</i> (SR)	A mayfly	Rivers in mountains and extreme upper Piedmont	Species discussed in EA
<i>Inflectarius subpalliatu</i> (SC)	Velvet Covert	Central mountains	Species discussed in EA
<i>Isoperla frisoni</i> (SR)	A stonefly	Streams and rivers in the mountains	Species discussed in EA
<i>Lasmigona subviridis</i> (E)	Green Floater	New and Watauga River drainages	Species discussed in EA
<i>Leptaxis dilatata</i> (T)	Seep Mudalia	New River drainage in Ashe, Allegheny and Watauga Counties	Species discussed in EA
<i>Lestes congener</i> (SR)	Spotted Spreadwing	Small ponds and vernal pools	Species discussed in EA
<i>Loxia curvirostra pop 1</i> (SR – PSC)	Red Crossbill – Southern Appalachian population	Coniferous forests, preferably spruce-fir [breeding season only]	Species discussed in EA
<i>Myotis leibii</i> (SC)	Eastern Small-footed Bat	Roosts in hollow trees (warmer months), in caves and mines (winter)	Species discussed in EA
<i>Myotis septentrionalis</i> (SC)	Northern Long-eared Bat	Roosts in hollow trees and buildings (warmer months), in caves and mines (winter)	Species discussed in EA
<i>Neotoma magister</i> (SC)	Allegheny Woodrat	Rocky places and abandoned buildings in deciduous or mixed forests in the northern mountains	Species discussed in EA
<i>Neurocordulia yamaskanensis</i> (SR)	Stygian Shadowdragon	Rivers	Species discussed in EA
<i>Ophiogomphus aspersus</i> (SR)	Brook Snaketail	Rapids of rivers and streams	Species discussed in EA

Scientific Names	Common Names	Habitat	
<i>Ophiogomphus howei</i> (SR)	Pygmy Snaketail	Rivers	Species discussed in EA
<i>Ophiogomphus mainensis</i> (SR)	Maine Snaketail	Rapids of rivers and streams	Species discussed in EA
<i>Palaeagapetus clesus</i> (SR)	A caddisfly	Wilson Creek and Boone Fork	Habitat not found in project review area
<i>Paravitrea andrewsae</i> (SC)	High Mountain Supercoil	Northern half of mountains	Species discussed in EA
<i>Passerculus sandwichensis</i> (SR)	Savannah Sparrow	Grassy fields and pastures [breeding season only]	Species discussed in EA
<i>Percina caprodes</i> (T)	Logperch	Tennessee and New River drainages	Species discussed in EA
<i>Percina oxyrhynchus</i> (SC)	Olive Darter	New River drainage	Species discussed in EA
<i>Phenacobius teretulus</i> (SC)	Kanawha Minnow	New drainage	Species discussed in EA
<i>Plethodon wehrlei</i> (SC)	Wehrle's Salamander	Upland forests (low mountains near Virginia border)	Species discussed in EA
<i>Plethodon welleri</i> (SC)	Weller's Salamander	High elevation forests in northern mountains, mainly in spruce-fir, and to a lesser degree in northern hardwood forests	Species discussed in EA
<i>Polytonia faunus smythi</i> (SR)	Smyth's Green Comma	Spruce, fir, or hemlock forests, where mixed with hardwoods – host plants varied, mainly birches	Species discussed in EA
<i>Poocetes gramineus</i> (SR)	Vesper Sparrow	High elevation pastures and grassy fields	Habitat not found in project review area
<i>Satyrium caryaevorum</i> (SR)	Hickory Hairstreak	Mid- to high elevation deciduous forests; host plants - hickories	Species discussed in EA
<i>Sorex palustris punctulatus</i> (SC)	Southern Water Shrew	Stream banks in montane forests	Species discussed in EA
<i>Speyeria diana</i> (SR)	Diana Fritillary	Rich woods and adjacent edges and openings; host plants - violets	Species discussed in EA
<i>Speyeria idalia</i> (SR)	Regal Fritillary	Wet or dry meadows, bogs, open hilltops; host	Species discussed in EA

		plants – violets	
Scientific Names	Common Names	Habitat	
<i>Spyhrapicus varius appalachiensis</i> (SR-PSC)	Appalachian Yellow-bellied Sapsucker	Mature, open hardwoods with scattered dead trees [breeding season only]	Species discussed in EA
<i>Stenelmis gammoni</i> (SR)	Gammon's Stenelmis Riffle Beetle	South Fork New River	Habitat not found in project review area
<i>Stylurus scudderi</i> (SR)	Zebra Clubtail	Streams and rivers	Species discussed in EA
<i>Sylvilagus transitionalis</i> (SR)	New England Cottontail	Dense cover of montane woods and thickets	Species discussed in EA
<i>Sympetrum obtrusum</i> (SR)	White-faced Meadowhawk	Boggy or marshy ponds	Species discussed in EA
<i>Thryomanes bewickii altus</i> (E)	Appalachian Bewick's Wren	Woodland borders or openings, farmlands or brushy fields, at high elevations	Species discussed in EA
<i>Tritogonia verrucosa</i> (E – PEX)	Pistolgrip	New River near the Virginia border	Habitat not found in project review area
<i>Ventridens coelaxis</i> (SC)	Bidentate Dome	Northern mountains	Species discussed in EA
<i>Vermivora chrysoptera</i> (SR)	Golden-winged Warbler	Old fields and successional hardwoods [breeding season only]	Species discussed in EA
<i>Vermivora pinus</i> (SR)	Blue-winged Warbler	Low elevation brushy fields and thickets [breeding season only]	Species discussed in EA
<i>Vireo gilvus</i> (SR)	Warbling Vireo	Groves of hardwoods along rivers and streams [breeding season only]	Species discussed in EA
<i>Zapada chila</i> (SR)	A stonefly	Rivers and streams in the mountains	Species discussed in EA

E – Endangered

T – Threatened

T-S/A – Threatened by Similarity of Appearance

PT – Proposed Threatened

PEX – Proposed Extirpated

PSC – Proposed Special Concern

SC – Special Concern

SR – Significantly Rare

APPENDIX 3

General Bird List

Birds observed Milepost 248-292

American kestrel
Red-tailed hawk
Red-shouldered hawk
Bald eagle
Red-bellied woodpecker
Hairy woodpecker
Downy woodpecker
Red-breasted nuthatch
Dark-eyed junco
American goldfinch
American crow
Carolina chickadee
Blue jay
Mourning dove
Tufted titmouse
Eastern bluebird
Great blue heron
Ruffed grouse
Great egret
Killdeer
Wild turkey
Bobolink
Indigo bunting
Scarlet tanager
Rose-breasted grosbeak
Black-and-white warbler
Blackburnian warbler
Worm-eating warbler
Hooded warbler
Black-throated green warbler
Cerulean warbler
Kentucky warbler
American redstart
Ring-billed gull
American robin
Eastern meadowlark
Pine warbler
Snipe
Song sparrow
Dark-eyed junco
Doughton Park – Milepost 238-245*

Wood Duck
Sora
Red-tailed hawk
Broad-winged Hawk
Sharp-shinned Hawk
Northern Harrier
Cooper's Hawk
Golden eagle
Great Horned Owl
Barred Owl
Eastern Screech-Owl
Pileated woodpecker
Downy woodpecker
Hairy Woodpecker
White-breasted nuthatch
American goldfinch
American crow
Common Raven
Carolina chickadee
Blue jay
Mourning dove
Tufted titmouse
Acadian Flycatcher
Eastern bluebird
Great blue heron
Great Egret
Ruffed grouse
Killdeer
Wild turkey
Tree Swallow
Barn Swallow
Belted Kingfisher
Indigo bunting
Black-and-white warbler
Worm-eating warbler
Yellow-rumped Warbler
Hooded warbler
Black-throated green warbler
Kentucky warbler
Chestnut-sided Warbler
Yellow Warbler

Prairie Warbler
Canada Warbler
Ovenbird
Black-throated Blue Warbler
Common Yellowthroat
Yellow-breasted Chat
Song sparrow
Chipping Sparrow
Field Sparrow
Dark-eyed junco
Cedar Waxwing
Blue-headed Vireo
Red-eyed Vireo
Eastern Wood-Pewee
Eastern Phoebe
Scarlet Tanager
Rose-breasted Grosbeak
Eastern Towhee
Black Vulture
Turkey Vulture
American Robin
Wood Thrush
Gray Catbird
Carolina Wren
Louisiana Waterthrush

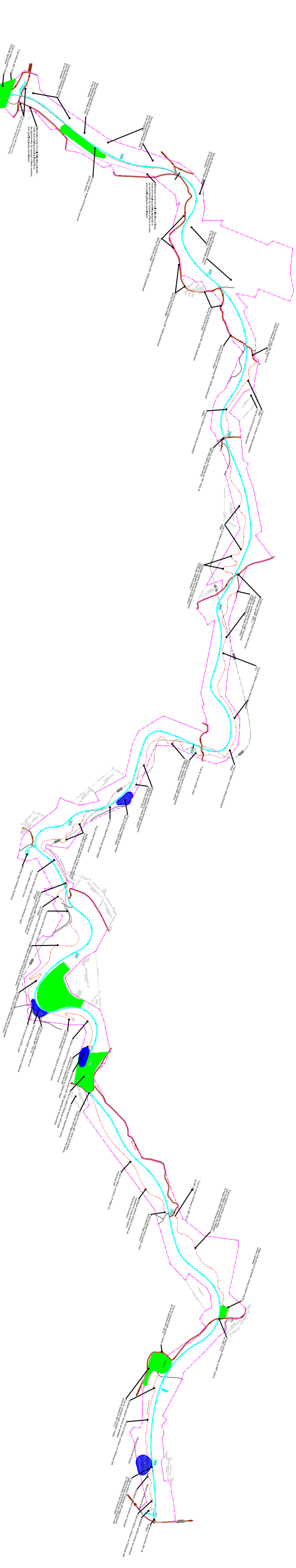
Jeffress Park – Milepost 271.9*

Downy woodpecker
Pileated woodpecker

Eastern wood-pewee
Carolina chickadee
Tufted titmouse
White-breasted nuthatch
Wood thrush
Black-billed cuckoo
Eastern phoebe
Acadian flycatcher
Blue jay
Carolina wren
Blue-headed vireo
Red-eyed vireo
Black-throated green warbler
Black-throated blue warbler
Black-and-white warbler
Cerulean warbler
Ovenbird
Hooded warbler
Canada warbler
American redstart
Scarlet tanager
Eastern towhee
Dark-eyed junco
Indigo bunting

* Source: Simpson, Jr., Marcus B., 1992.
Birds of the Blue Ridge Mountains.
University of North Carolina Press. 354 pp

APPENDIX 4
SCHEMATIC LOCATION MAPS

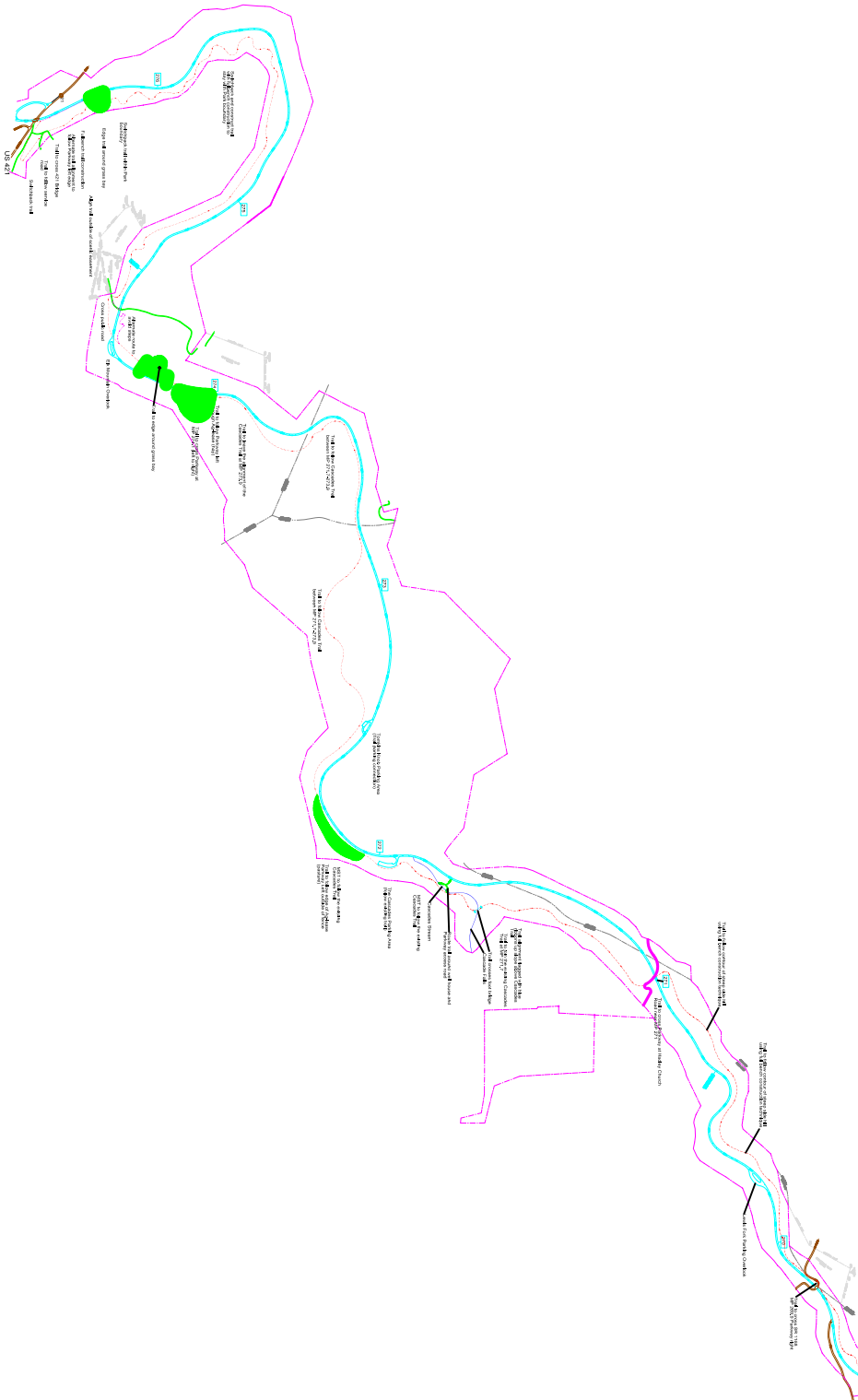
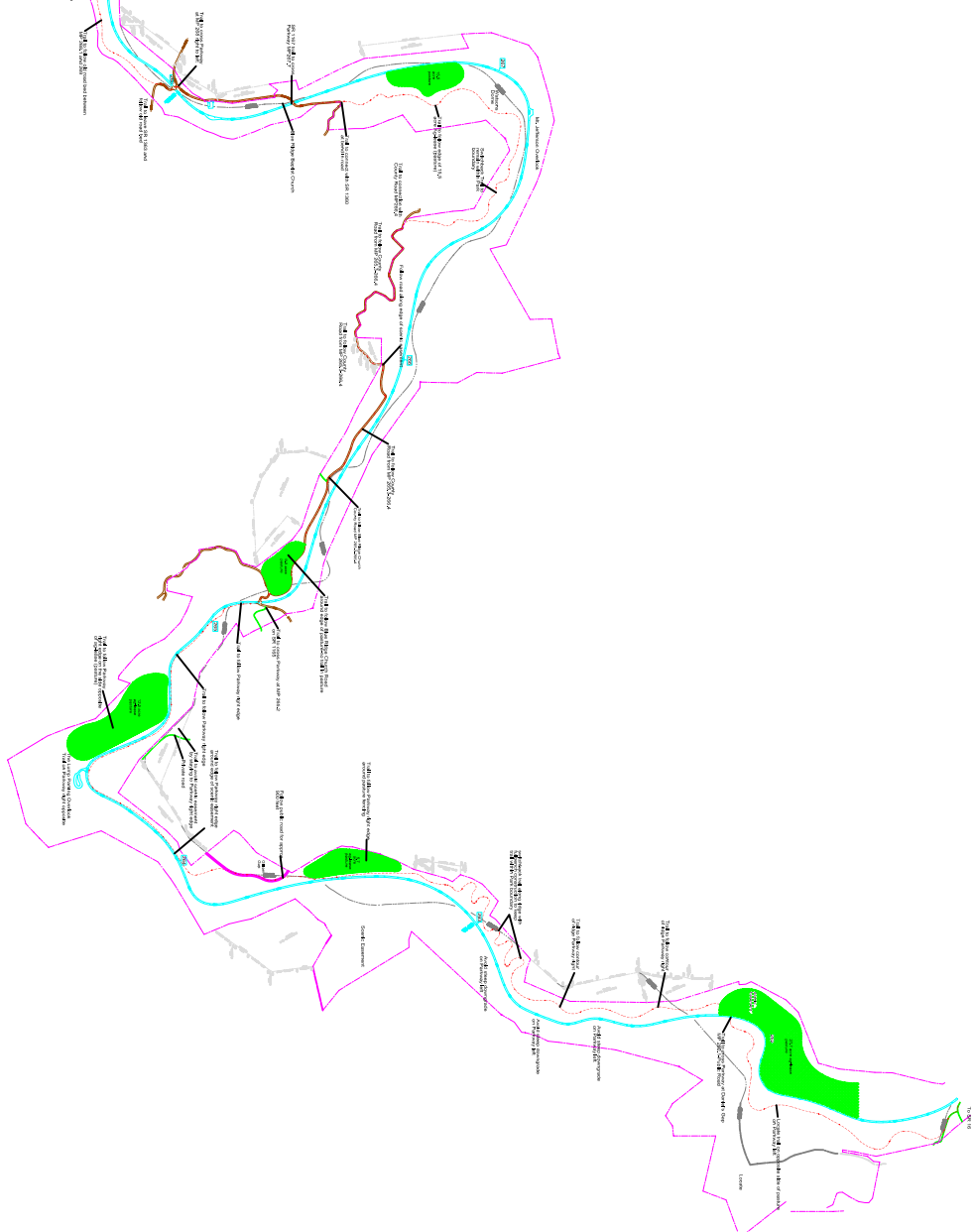


MAP LEGEND

	STREAM OR CREEK
	BLUE RIDGE PARKWAY
	SR OR PUBLIC ROAD
	PASTURE AG-LEASE
	CROP OR HAY AG-LEASE
	WETLAND
	BLUE RIDGE PARKWAY BOUNDARY
	COUNTY LINE BOUNDARY
	PROPOSED MOUNTAINS TO SEA TRAIL ROUTE
	ALTERNATE MOUNTAINS TO SEA TRAIL ROUTE



DESIGNED BY: BLRI/MST	SHEET NO. MAP	TITLE OF SHEET BLUE RIDGE PARKWAY MOUNTAINS TO SEA TRAIL--MP 249-261	EA NO.
DRAWN BY: HUL TQUIST			
REVIEWED 02/05/03	6-10 OF 22	ENVIRONMENTAL ASSESSMENT SECTION 2D-TRAIL ALIGNMENT	EA DATE



MAP LEGEND

-
- Legend:
- STREAM OR CREEK (Blue line)
 - BLUE RIDGE PARKWAY (Blue line)
 - SIR OR PUBLIC ROAD (Orange line)
 - PASTURE AG-LEASE (Green cross-hatch pattern)
 - CROP OR HAY AG-LEASE (Yellow cross-hatch pattern)
 - WETLAND (Blue wavy pattern)
 - BLUE RIDGE PARKWAY BOUNDARY (Blue dashed line)
 - COUNTY LINE BOUNDARY (Red dashed line)
 - PROPOSED MOUNTAINS TO SEA TRAIL ROUTE (Red dashed line)
 - ALTERNATE MOUNTAINS TO SEA TRAIL ROUTE (Red dashed line)

DESIGNED BY: BLR/LJ/AST	<div> <div>TITLE OF SHEET</div> <div>BLU RIDGE PARKWAY</div> </div>	EA NO.
DRAWN BY: HLI TO JUST		<div> <div>EA DATE</div> </div>
REVIEWED 02/05/03		
<div> <div>SHEET NO.</div> <div>MAPS</div> </div>		<div> <div>MOUNTAINS TO SEA TRAIL--MP 261-276</div> <div>ENVIRONMENTAL ASSESSMENT SECTION 2E--TRAIL ALIGNMENT</div> </div>
11-16 OF 22		



MAP LEGEND

-
- Legend:
- STREAM OR CREEK
 - BLUE RIDGE PARKWAY
 - SR OR PUBLIC ROAD
 - PASTURE AGL-EASE
 - CROP OR HAY AGL-EASE
 - WETLAND
 - BLUE RIDGE PARKWAY BOUNDARY
 - COUNTY LINE BOUNDARY
 - PROPOSED MOUNTAINS TO SEA TRAIL ROUTE
 - ALTERNATE MOUNTAINS TO SEA TRAIL ROUTE

DESIGNED BY: BLR/JMST	SHEET NO.	TITLE OF SHEET BLUE RIDGE PARKWAY MOUNTAINS TO SEA TRAIL--MP 27.6-291	EA NO.
DRAWN BY: HILL/JOUST			EA DATE
REVIEWED 02/05/03			
17-22 OF 22			

