Biological Evaluation

Eversource X178-2 Transmission Line Rebuild Project

Pemigewasset Ranger District
White Mountain National Forest

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Introduction

The purpose of this document is to review the proposed project in sufficient detail to determine potential impacts on U.S. Fish and Wildlife Service (USFWS) Endangered, Threatened and Proposed species and USDA Forest Service (FS) Region 9 Regional Forester Sensitive Species (RFSS).

Project Description

Project Location Information

Table 1. Project Location Summary

Quad(s):	Lincoln, Mount Moosilauke, and Sugar Hill
Location (Town, County):	Woodstock, Lincoln, and Easton, Grafton County, NH
Elevation:	700 to 2600 ft

Proposed Action

Eversource, the current permit holder for utility lines across the White Mountain National Forest (WMNF), is proposing to rebuild the X178-2 segment which crosses through about 12.3 miles of WMNF in Woodstock, Lincoln, and Easton, NH. The proposed work will involve replacing about 140 wooden utility poles (i.e. structures) with steel pole equivalents in the existing ROW, as well as installing about 102,000 linear feet of OPGW. The OPGW is a fiber optic line that facilitates communications between substations and allows for monitoring and identification of the location of potential ground fault outages on the transmission system. Structure heights, which average about 52 feet, will increase up to 12 feet on average which is required to meet current National Electric Safety Code standards. The proposed project will not add any new lines within the ROW and Eversource is not proposing to expand the width of the ROW.

Constructability: Access to each structure will be required, as well as a work pad around each structure in order to stage equipment and vehicles during construction. Where access and work pads are proposed within wetlands with slopes less than approximately 10 percent, Eversource will use temporary timber matting in order to minimize rutting and compaction in wetlands. Individual timber mats are about four by sixteen feet and will be placed in adjoining segments in order to span wetlands. Upon completion of work, temporary timber matting will be removed. The maximum temporary timber mat work pad in wetlands will be about 100 by 100 feet in size. Helicopters may be used to transport materials and assist with installation of new structures. The usage of helicopters may allow for flexibility in difficult to reach work zones which would allow for a reduction in work pad size. Throughout construction, the principles of avoidance and minimization to sensitive natural resource areas (i.e. wetlands, riparian areas) will be implemented to the extent practicable. Some permanent grading will be required in wetlands with slopes greater than 10 percent before installation begins to facilitate safe construction, matting installation and better allow for future maintenance of the transmission infrastructure. Upon completion of work, original contours will be restored to the extent feasible. Temporarily displaced soils will be segregated and reapplied in a manner to maintain appropriate preexisting

soil horizon structure. Erosion control best management practices such as application of straw mulch, biodegradable wattles, and erosion control blankets will be instituted throughout the ROW corridor. Regrowth of native vegetation will be monitored and if deemed necessary, native wetlands seed mix may be applied in some areas. Disturbed wetlands will be monitored to confirm that adequate wetlands hydrology is maintained, and revegetation is achieved.

In upland areas, Eversource is proposing grading and construction of gravel access roads about 16 feet wide and gravel work pads about 100 by 100 feet in size at all structure locations except for those with steep topography or areas using micropile foundations. These access roads are required to maintain a safe access and minimize erosion and sedimentation during construction. Upon completion of work, Eversource is proposing to leave gravel access roads and 30 by 60 foot gravel work pads in uplands in order to facilitate access to structures for future maintenance. The upland areas outside the 30 by 60 foot gravel pads will be restored by regrading to original contours to the greatest extent feasible and adding native or naturalized seed and weed-free mulch to exposed soils. As part of required erosion control monitoring, routine inspections will be completed by erosion control professionals during construction and restoration activities.

Once new structures have been erected, existing wood pole structures will be cut at the base, either flush or below ground surface, and all original wood structure elements and associated hardware will be removed by helicopter or by ground vehicle from the ROW corridor. Used wood poles are placed into dumpsters and disposed of offsite in accordance with legal disposal requirements.

Existing conductors and static wire (the top wire on the poles that assist in lightning protection) are removed in their entirety, by means of a spooling process. Conductor and static wire are unclipped at each structure and threaded through blocks temporarily installed on each structure that allow for the existing wires to be pulled through a series of structures by mechanical spools staged at various locations within the ROW and for new conductor and OPGW to be pulled into place.

Helicopter Installation Methods: Eversource is proposing to use helicopters to assist in the installation of structures in locations that are difficult to replace using traditional methods. Eversource is proposing to use helicopter assistance to drill and set poles for proposed Structures 252 through 275. This structure span includes structures within a large peatland located between Harvard Brook and Eliza Brook, and the area near Kinsman Trail connecting to Reel Brook Trail.

One or more freight helicopters would transport transmission structures, drilling and ground equipment, as well as assist with structure installation during construction. Transport helicopters will be used to transport transmission structure segments and associated hardware to the structure installation locations. For most structures the vertical transmission poles consist of two segments and others three. Depending on weights, the vertical segments will be preassembled in a laydown area outside of the WMNF or remain in segments and will be flown to the structure installation locations. The pole segments may be directly mounted onto the foundations or onto the lower segment already in place via helicopter with the support of ground crews or may be temporarily laid down adjacent to the installation location on cribbing for a temporary basis prior to erection or at a laydown area within the ROW. Ground crews will support rigging activities for pole segments and other structure hardware items that are temporarily laid down in the ROW.

Smaller helicopters will be used to transport personnel to various work locations in the ROW corridor. Multiple temporary landing locations within the existing cleared ROW corridor will be used. Fat Trucks, a four wheeled, low ground pressure (1.6 PSI), amphibious off-road vehicle that

has oversized rubber tires that can be variably inflated depending on ground conditions, may be used to transport personnel and or equipment to structure installation locations within the ROW roughly along the travel paths shown on the current plan set, with its utility being most advantageous in the Bog Pond area.

Off ROW Access: About nine miles of the ROW have no road crossings, from the entrance into the WMNF off Lost River Road in Woodstock near existing Structure 193 to Easton Valley Road in Easton near existing Structure 296. The terrain in between these two roads crossing through the WMNF is steep and varying, resulting in potentially dangerous work conditions for construction crews. Additional access routes within the nine miles of WMNF that are off the ROW serve to enhance safety in the event of an emergency during construction, by providing an additional path out of the ROW to the nearest crossroad and to avoid steep terrain and open ledge face conditions within the ROW where possible.

Eversource has identified two off ROW access routes within the WMNF. The first off ROW access route is located in the Town of Woodstock and follows portions of Crooked Pike Road – comprised of an unnamed trail, portion of Crooked Pike Spur A, and Crooked Pike Spur B. The second off ROW access route begins in the Town of Woodstock and exits the ROW near Gordon Pond Brook, and contains a portion of Primary 156 Snowmobile Trail, then connects to Halftrack Trail where it crosses into the Town of Lincoln, and enters into the ROW in various spurs, and fully reenters the ROW near the Boles Brook crossing. Eversource is proposing to widen and build up these trails as part of the proposed project. Up to 539 trees greater than three inches diameter at breast height may need to be removed to support safe access for construction equipment. Project activities are scheduled to begin in fall 2025 and would take about one year to complete. Tree cutting or trimming will not occur between April 15 and October 31.

Note: while this project proposal covers only the 12.3 miles of transmission line on NFS land, the entirety of the project area (i.e., the full 20.8 miles of transmission line that crosses ownership boundaries) is considered under an analysis of cumulative effects for each species discussed below.

Federally-listed Species

According to the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) website, the northern long eared bat (*Myotis septentrionalis*) and Canada lynx (*Lynx canadensis*) may occur in the action area. The tricolored bat (*Perimyotis subflavus*) may also occur here. A summary of the habitat requirements, likelihood of presence in the action area, and determination of effects for these species can be found in Table 2.

Table 2. Federally-listed species with potential to occur in the action area (according to IPaC) and summary of effects determinations.

Species and Status	Habitat Description	Habitat Present or Known Occurrence in Action Area	Determination of Effect	Comments
Canada lynx *(Lynx Canadensis)* Threatened	Denning habitat is spruce-fir 120+ years old, white pine / hemlock 150+ years old, and Mixed wood 120+ years old. Foraging habitat is spruce-fir, coniferous, mixed wood forests and brushy wetlands frequented by snowshoe hare and red squirrel. Travel corridors include ridges, saddles, and riparian corridors.	Kinsman Ridge likely serves as a travel corridor for the occasional wandering lynx.	May affect but is not likely to adversely affect.	Lynx are only known to wander through the WMNF during the breeding season. Project activities would have no effect on existing lynx habitat.
Northern long-eared bat *(Myotis septentrionalis)* Endangered	Winter hibernacula include caves and mines. Summer roost sites include tree cavities and under loose bark; may take shelter in outbuildings and human dwellings. Studies on the WMNF found that NLEB prefer to roost in hardwoods <2,000 feet in elevation.	Habitat present	May affect but is not likely to adversely affect.	Tree removal and trimming would only pose minor indirect effects to roosting habitat since it would not occur during the active season.
Tricolored bat *(Perimyotis subflavus)* Proposed endangered	Hibernates in caves, mines, and other structures. Roosts in live or dead foliage of deciduous trees. Forages in woodland and edge habitats.	Habitat present	May affect but is not likely to jeopardize the species.	Tree removal and trimming would only pose minor indirect effects to roosting habitat since it would not occur during the active season.

Species and Status	Habitat Description	Habitat Present or Known Occurrence in Action Area	Determination of Effect	Comments
Monarch butterfly *(Danaus plexippus)* Proposed threatened	Breeding and foraging habitat occurs in openings and fields with abundant milkweed and wildflowers.	Habitat present in the powerline ROW; species reasonably expected to be present.	May affect but is not likely to jeopardize the continued existence of the species.	Activities performed in the ROW during the active season could impact individuals.

Species Evaluations and Effects Determinations

Canada lynx

Life History and Occurrence Information

A comprehensive review of the life history and occurrence information of the Canada lynx is included in the project record (USDA Forest Service 2023a). Important habitat requirements are outlined above in Table 2. It is important to note that while the WMNF will continue to have lynx moving through the highlands (above 2700 feet in elevation), individuals will likely not linger for long periods of time due to the geography's limited food sources. Lynx observed on the WMNF are likely individuals wandering during the breeding season (USDA Forest Service 2023a, Hillman 2023).

Habitat Suitability and Analysis of Effects

At the highest elevation of the project area (approximately 2600 feet above sea level), the ROW crosses the Kinsman Ridge near where lynx have been observed in the past. This ridge may serve as a travel corridor and likely provides foraging opportunities for wandering lynx. Since lynx are only sporadically seen on the WMNF, the likelihood of an individual being present during project activities is low. However, it is possible that transient lynx may wander through the action area during project activities. These individuals would likely change their courses slightly to avoid the activity, resulting in immeasurable direct effects. Negative effects to travel corridor habitat would be small in scale and temporary.

The project will occur within a non-forested ROW. This habitat type does not serve as denning or foraging habitat for lynx. While the upper reaches of the project area may cross a travel corridor, the project would not change the existing condition of the habitat. All proposed widening of access roads would not take place in lynx habitat. The project would also not violate any of the Forest Plan Standards and Guidelines (pp. 2-14 to 2-16; USDA Forest Service 2005) in place to protect lynx habitat. Given all of this, indirect impacts to lynx due to habitat alteration are not anticipated.

Other activities that could impact lynx in the cumulative effects analysis area primarily involve recreation and the maintenance of recreation infrastructure at higher elevations. Given the small scale and temporary impacts to travel corridor habitat that are only periodically used by wandering lynx, it is not anticipated that this project would contribute any meaningful cumulative effects to the species.

Determination of Effects

This project may affect, but is not anticipated to adversely affect, the Canada lynx.

Northern long-eared bat

Life History and Occurrence Information

A summary of the northern long-eared bat's (NLEB) life history and occurrence information is available in the project record (USDA Forest Service 2023b) and a brief overview of key habitat requirements is included in Table 2.

Northern long-eared bats have been documented throughout the WMNF. The general vicinity (within one mile) of the action area has been acoustically surveyed in the past and individuals were observed. Roosting habitat exists in the forested areas adjacent to the ROW and access roads while the ROW and access roads themselves may serve as foraging and commuting habitat. Given this, the presence of the northern long-eared bat within the action area is reasonably expected during the species' active season (April 15 through October). There are no hibernacula within the action area, although there is one approximately 1.4 miles from the southern edge of the ROW.

Habitat Suitability and Analysis of Effects

This effects analysis assumes that all Forest Plan Standards and Guidelines, particularly those applicable to wildlife reserve trees (USDA Forest Service 2005, p. 2-35), and all Conservation Measures of the Bat Conservation Strategy (BCS) would be followed (USDA Forest Service 2024).

While the project would involve tree removal and some degree of trimming to facilitate access to the ROW, none of this would occur between April 15 and October 31 while bats are active on the landscape and roosting in trees. Therefore, no direct effects on anticipated. By prohibiting tree removal and trimming during that time span, the project would comply with the BCS Conservation Measure restricting tree removal for projects leading to the permanent conversion of forest habitat from the start of the active season until the end of the maternity season.

Given the abundance of NLEBs observed in the nearby hibernaculum, the BCS requires limiting certain activities within 0.85 miles of the hibernaculum. Since the closest point of the action area to the hibernaculum is 1.4 miles away, no activities would occur within the buffer and the project would have no effect on the hibernaculum.

Even though all tree removal and trimming would occur while the NLEB is hibernating, the project would still pose indirect effects due to a loss of potential roosting habitat. Across the WMNF, there is evidence to support that the northern long-eared bat is not limited by the availability of roosting habitat (Sease and Prout 2015). Also, tree roosts are ephemeral in nature and bats are well-adapted to losing preferred roosts. Therefore, any impacts resulting to loss in roosting habitat would be minor and would amount to subtle changes in distribution during the active season.

The project is unlikely to result in indirect effects to foraging or commuting habitat since the ROW and access roads are already being managed in an open state and the utility poles and transmission lines are already present.

The additional work that would occur along the transmission line away from NFS land must be considered in an analysis of cumulative effects. The effects would be the same as those on NFS land and would only involve minor impacts to roosting habitat.

Determination of Effects

This project may affect, but is not likely to adversely affect, the northern long-eared bat.

Tricolored bat

Life History and Occurrence Information

A summary of the tricolored bat's life history and occurrence information is available in the project record (USDA Forest Service 2023c) and a brief overview of key habitat requirements is included in Table 2.

Tricolored bats have been documented on the WMNF, although far less frequently than the other species of bat considered in this document. This species was likely rare, or at least uncommon compared to other species, even before the advent of white-nose syndrome. The species has been documented via acoustic surveys within 1.25 miles of the ROW and there is a known hibernaculum within 1.4 miles of the southern end of the action area.

Roosting and foraging habitat does exist within the action area. Given this, low numbers of the tricolored bat within the action area are reasonably expected during the species' active season (April 15 through October).

Habitat Suitability and Analysis of Effects

Like the NLEB, the tricolored bat also roosts in trees, although it typically roosts among the foliage in the canopy. The analysis of effects detailed above for the northern long-eared bat also pertains to the tricolored bat. The time-of-year restriction on tree clearing and trimming would protect the tricolored bat. No direct effects are anticipated and indirect effects due to a small decrease in potential roosting habitat would be minor. The nearby hibernaculum is also subject to a 0.85-mile buffer for protection of the tricolored bat per the BCS, but no project activities would occur within this radius.

Determination of Effects

The Proposed Action may affect the tricolored bat, but it is not likely to jeopardize the continued existence of the species.

Monarch butterfly

Life History and Occurrence Information

The monarch butterfly (*Danaus plexippus*) is a pollinator species that requires ample floral resources throughout the growing season. Detailed life history information for the monarch (USDA Forest Service 2023h) can be found in the project record. While the action area has never been surveyed, monarchs regularly occur in powerline ROWs and its presence within the action

area is reasonably expected. Monarch butterfly caterpillars are dependent on milkweed (*Asclepias spp.*) which is a common component of ROWs.

Habitat Suitability and Analysis of Effects

The open character of the action area provides habitat for the herbaceous flowering plants on which the monarch depends. Therefore, the occasional presence of adults is reasonably expected when plants are in flower.

If adults are foraging during project activities, they will likely abandon the area and forage elsewhere. Adult mortality is possible but not likely since adults are highly mobile.

Milkweed may be present within the ROW. Therefore, any vegetation management activities conducted where milkweed is present during the summer and early fall would likely lead to mortality of monarchs in the immobile early (larval and egg) life stages.

The cumulative effects associated with the transmission line work that would occur away from NFS land are as described above and would occur throughout the full 20.8-mile length of the project area. Since only a portion of pollinator habitat would be impacted at any given time, ample habitat would remain available for monarchs and it is unlikely the species would be lost from the project area.

Determination of Effects

The Proposed Action may affect the monarch butterfly, but it is not likely to jeopardize the continued existence of the species.

Regional Forester Sensitive Species

The full list of RFSS, habitat descriptions, occurrences, and effects determinations are included in the Appendix.

Eastern small-footed bat, little brown bat, and eastern red bat

Life History and Occurrence Information

Summaries of each species' life history and occurrence information can be found in the project record (USDA Forest Service 2023d, 2023e, 2023f). Like the northern long-eared and tricolored bats, these species can be found throughout the WMNF and their presence within the action area during the active season is reasonably expected. The eastern red bat migrates out of the area in the winter and the little brown and eastern small-footed bat have not been documented in the nearby hibernaculum discussed above.

Habitat Suitability and Analysis of Effects

All three species are known to roost in trees, although the eastern small-footed bat is less likely to be found roosting in the action area because it prefers roosting among exposed rock features. As such, suitable roosting habitat for these bats does exist in the action area. The potential for effects to roosting eastern small-footed and little brown bats are as described above for the northern long-eared bat. The time-of-year restriction on tree clearing and trimming will also help to protect these bats from direct effects. Indirect effects to roosting habitat would be minor.

Determination of Effects

The project may impact individuals of all three species but would not likely cause a trend toward federal listing or loss of viability.

Bicknell's thrush

Life History and Occurrence Information

A summary of the Bicknell's thrush's life history and occurrence information is available in the project record (USDA Forest Service 2023g) and a brief overview of key habitat requirements is included in the Appendix. The species is known to occur in high-elevation (2800 feet above sea level and higher) spruce-fir habitat on the WMNF. The species has been documented approximately 500 feet to the north (South Kinsman Mountain) and 2500 feet to the south (Mount Wolf) of where the ROW crosses the Kinsman Ridge Trail.

Habitat Suitability and Analysis of Effects

While the ROW does not pass through Bicknell's thrush habitat, occupied habitat does exist nearby. The only activity that could potentially impact Bicknell's are helicopter flights. If helicopters were to pass low over active nests, they could disturb nesting birds and cause nest failure.

To minimize or eliminate the chance for these impacts to occur, helicopters should not fly low over known Bicknell's thrush breeding habitat during the breeding season (May 15 through August 15). If any air lifts are required during that time period, helicopters should not approach the site from the higher elevation areas to the north or south along Kinsman Ridge. A Wildlife Biologist can provide a map of the areas that should be avoided.

Determination of Effects

Provided the design feature detailed above is followed, the project would have no effect on the Bicknell's thrush.

Yellow-banded bumblebee and early hairstreak

Life History and Occurrence Information

The yellow-banded bumblebee (*Bombus terricola*) and early hairstreak (*Erora laeta*) are pollinator species that require ample floral resources throughout the growing season. Detailed life history information for the yellow-banded bumblebee (USDA Forest Service 2023i) and early hairstreak (USDA Forest Service 2023j) can be found in the project record. While the action area has never been surveyed for these species, yellow-banded bumblebees regularly occur in ROWs and its presence within the action area is reasonably expected. The early hairstreak is far less common on the WMNF; its likelihood of occurrence within the action area is low. Early hairstreak caterpillars feed on mature American beech (*Fagus grandifolia*), a common component of the forested community lining the ROW and access roads.

Habitat Suitability and Analysis of Effects

The open character of the action area provides habitat for the herbaceous flowering plants on which all three species of pollinator depend. Therefore, the occasional presence of adults of these species is assumed when plants are in flower.

If adults are foraging during project activities, they will likely abandon the area and forage elsewhere. Adult mortality is possible but not likely since adults are highly mobile.

It is possible that, depending on when activities take place, yellow-banded bumblebee colonies or individual overwintering females would be present in rodent burrows, loose soil, or rotting wood during project activities. If any are present, management activities would pose direct impacts in the form of displacement, injury, or mortality.

Early life stage early hairstreaks could be killed if any are present on the leaves of mature beech trees that are trimmed or removed along the margins of the ROW.

The cumulative effects associated with the transmission line work that would occur away from NFS land are as described above and would occur throughout the full 20.8-mile length of the project area. Since only a portion of pollinator habitat would be impacted at any given time, ample habitat would remain available for pollinators and it is unlikely either of these species would be lost from the project area.

Determination of Effects

The proposed project may impact individuals of both species but would not likely cause a trend toward federal listing or loss of viability.

Wood turtle

Life History and Occurrence Information

A summary of the wood turtle's (*Glyptemys insculpta*) life history and occurrence information can be found in the project record (USDA Forest Service 2023k). The wood turtle is known to occur in at least one stream system crossed by the ROW.

Habitat Suitability and Analysis of Effects

While high-quality wood turtle stream and floodplain habitat does not occur where the ROW crosses the WMNF, such habitat does exist close by on private land. Since wood turtles are known to move large distances from their home streams during the summer, it is possible they spend time on National Forest System lands within the action area.

Any activity that involves the use of large vehicles, machines, or equipment in occupied habitat could injure or kill turtles and crush nests. Foot traffic could also harm adults, harm or kill juveniles, or disturb nests. Additionally, wood turtles are wary around humans and will likely alter their activities if present during project activities. The project could also indirectly impact turtles by altering preferred area for basking, nesting, foraging, or brumating.

The permittee and the New Hampshire Fish and Game Department have already agreed to a number of protective measures for the wood turtle that would minimize the chance for, and severity of, the impacts described above (Nelson 2024, pp. 101 – 103). The Forest Service is fully supportive of all of them and they should be followed when working on Forest Service land. No additional measures are necessary.

Determination of Effects

The proposed project may impact individual wood turtles but would not likely cause a trend toward federal listing or loss of viability.

Headwater *Ameletus* mayflies

Life History and Occurrence Information

Two species of mayfly – *Ameletus browni* and *Ameletus tertius* – may occur in streams that pass through the action area, although no surveys have been conducted. For detailed descriptions of the species' life histories and occurrence information, see USDA Forest Service (2023l, 2023m).

Habitat Suitability and Analysis of Effects

A. tertius is typically found in larger streams than *A. browni*, although both may be present within the watercourses impacted by this proposed project. According to Prout (2019), although both species are globally rare, they are common on the WMNF and so presence is possible where potential habitat exists; therefore, presence of both species is reasonably expected within the action area.

It is believed that minimizing sedimentation using best management practices and design features during project implementation is sufficient to protect these species (Prout 2019). While individuals may still be impacted in localized areas (e.g., stream crossings for timber harvests), given the broad distribution of these mayflies across the WMNF, it is unlikely this project would have an adverse effect on the population of an individual stream or on the WMNF population. Indirect effects to habitat would also be localized and temporary.

Past, present, and future activities that occur or occurred near streams, including vegetation management and road and trail maintenance and construction, may have impacted or may impact individuals and habitat, but these impacts would also be localized and temporary.

Determination of Effects

The proposed action may impact individual *Ameletus* mayflies but would not likely cause a trend toward federal listing or loss of viability.

Subarctic darner, sedge darner, and ringed emerald

Life History and Occurrence Information

The sedge darner is known to occur in the action area on Bog Pond and its surrounding wetlands. While neither the subarctic darner nor the ringed emerald have been observed here, they share habitat with the sedge darner and may also be present. For detailed descriptions of the species' life histories and occurrence information, see USDA Forest Service (2023n, 2023o, 2023p).

Habitat Suitability and Analysis of Effects

The sedge darner, and possibly the other two species, likely breed in Bog Pond and adjacent wetlands. Therefore, project activities that occur within the wetlands and herbaceous margins could result in the trampling off eggs, larva, or teneral adults. Adults are very mobile and can more easily avoid vehicles and equipment. Project activities may also have long-lasting impacts on breeding and natal habitat.

Best Management Practices in place to protect wetlands and the use of helicopters to bring in materials around Bog Pond would limit impacts to these species and their habitat. There is likely no way to eliminate the potential for impacts to these species since wetlands would be impacted to some degree.

Determination of Effects

The proposed action may impact individual RFSS dragonflies but would not likely cause a trend toward federal listing or loss of viability.

Other Documentation

Table 3. Additional species, methods, and recommendations.

Other Species or Habitat of Concern:	None	
Habitat Assessment Methods (check all that apply):	X	Aerial photography
		Field verification
	X	General familiarity
	X	GIS
		Other maps
Field Visit Dates:	None	
Protocol Survey Results:	None	
Management Requirements	1. The permit conditions required by the New Hampshire Fish and Game Department to protect the wood turtle should be followed when working on National Forest System lands. 2. To minimize or eliminate impacts to the Bicknell's thrush, helicopters should not fly low over known breeding habitat during the breeding season (May 15 through August 15). If any air lifts are required during that time period, helicopters should not approach the site from the higher elevation areas to the north or south along Kinsman Ridge. A Wildlife Biologist can provide a map of the areas that should be avoided.	

References

Hillman, B. 2023. The status of the Canada lynx on the WMNF and the potential for Forest Service activities to impact the species. 3 pp.

Nelson, K. (Manager of Licensing and Permitting, Eversource). 2024. Personal communication via email to Jasmin Faunce, Realty Specialist, Supervisor's Office, WMNF. June 28, 2024.

Prout, M. (Fisheries Biologist, Supervisor's Office, WMNF). 2019. Personal communication via email to Brett Hillman, Assistant District Ranger - Wildlife, Pemigewasset Ranger District, WMNF. April 19, 2019.

Sease, J. and L. Prout. 2015. Biological assessment for ongoing project activities with determinations of no effect or may affect, not likely to adversely affect for the northern long-eared bat on the Green Mountain and White Mountain National Forest. Unpublished report, White Mountain National Forest, Campton, NH. 2 March 2015. 120 pp.

USDA Forest Service. 2024. Bat Conservation Strategy for Forest Service-managed lands in the eastern United States. 167 p.

USDA Forest Service. 2023a. Species abstract – Canada lynx. 29 pp.

USDA Forest Service. 2023b. Species abstract – northern long-eared bat. 21 pp.

USDA Forest Service. 2023c. Species abstract – tri-colored bat. 19 pp.

USDA Forest Service. 2023d. Species abstract – little brown bat. 18 pp.

USDA Forest Service. 2023e. Species abstract – eastern small-footed bat. 22 pp.

USDA Forest Service. 2023f. Species abstract – eastern red bat. 14 pp.

USDA Forest Service. 2023g. Species abstract – Bicknell's thrush. 15 pp.

USDA Forest Service. 2023h. Species abstract – monarch butterfly. 14 pp.

USDA Forest Service. 2023i. Species abstract – yellow-banded bumblebee. 14 pp.

USDA Forest Service. 2023j. Species abstract – early hairstreak. 11 pp.

USDA Forest Service. 2023k. Species abstract – wood turtle. 20 pp.

USDA Forest Service. 2023l. Species abstract – *Ameletus browni*. 10 pp.

USDA Forest Service. 2023m. Species abstract – *Ameletus tertius*. 12 pp.

USDA Forest Service. 2023n. Species abstract – Sedge darner. 10 pp.

USDA Forest Service. 2023o. Species abstract – Subarctic darner. 11 pp.

USDA Forest Service. 2023p. Species abstract – Ringed darner. 10 pp.

USDA Forest Service. 2005. "White Mountain National Forest Land and Resource Management Plan." Campton, NH.

Appendix: Effects Evaluation Summary

Animals

Species	Status	Taxa	Habitat requirements	Suitable habitat/Known occurrences within the action area	Effects determination	Comments
Canada lynx *(Lynx canadensis)*	Threatened	Mammal	Denning habitat is spruce-fir 120+ years old, white pine / hemlock 150+ years old, and Mixed wood 120+ years old. Foraging habitat is spruce-fir, coniferous, mixed wood forests and brushy wetlands frequented by snowshoe hare and red squirrel. Travel corridors include ridges, saddles, and riparian corridors.	Some travel corridor habitat does exist within the action area. The White Mountain National Forest will continue to have lynx moving through the highlands, but they will likely never linger for long periods of time due to the geography's limited food sources (USDA Forest Service 2019).	May affect but not likely to adversely affect	See detailed analysis in main body of BE.
Northern long-eared bat *(Myotis septentrionalis)*	Endangered	Mammal	Winter hibernacula include caves and mines. Summer roost sites include tree cavities and under loose bark; may take shelter in outbuildings and human dwellings. Studies on the WMNF found that NLEB prefer to roost in hardwoods <2,000 feet in elevation.	Habitat present; species reasonably expected to be present.	May affect but is not likely to adversely affect.	See detailed analysis in main body of BE.

Species	Status	Taxa	Habitat requirements	Suitable habitat/Known occurrences within the action area	Effects determination	Comments
Tri-colored bat *(Perimyotis subflavus)*	Proposed endangered	Mammal	Hibernates in caves, mines, and other structures. Roosts in live or dead foliage of deciduous tree.	Habitat present; species reasonably expected to be present.	May affect but is not likely to jeopardize the continued existence of the species.	See detailed analysis in main body of BE.
Monarch butterfly *(Danaus plexippus)*	Proposed threatened	Insect	Breeding and foraging habitat occurs in openings and fields with abundant milkweed and wildflowers.	Habitat present; species reasonably expected to be present.	May affect but is not likely to jeopardize the continued existence of the species.	See detailed analysis in main body of BE.
Eastern small-footed bat *(Myotis leibii)*	RFSS	Mammal	Uses caves, mines and old buildings for winter hibernacula. Uses rock outcrops and crevices in cliffs exposed to sun, buildings and bridges. Most likely forages in openings and along forest roads and wetlands.	Habitat present; species reasonably expected to be present.	The project may impact individuals but would not likely cause a trend toward federal listing or loss of viability.	See detailed analysis in main body of BE.
Little Brown Bat *(Myotis lucifugus)*	RFSS	Mammal	Hibernates in abandoned caves and mines. Roosts in barns, attics, outbuildings, and tree cavities. Feeds over wetlands and still water. Unlikely to occur in high elevation forests.	Habitat present; species reasonably expected to be present.	The project may impact individuals but would not likely cause a trend toward federal listing or loss of viability.	See detailed analysis in main body of BE.

Species	**Status**	**Taxa**	**Habitat requirements**	**Suitable habitat/Known occurrences within the action area**	**Effects determination**	**Comments**
Eastern red bat *(Lasiurus borealis)*	RFSS	Mammal	Migratory species; spends the winters south of the WMNF. Roosts in the foliage of trees and forages primarily in edge and open habitats.	Habitat present; species reasonably expected to be present.	The project may impact individuals but would not likely cause a trend toward federal listing or loss of viability.	See detailed analysis in main body of BE.
Northern bog lemming *(Synaptomys borealis sphagnicola)*	RFSS	Mammal	Uses sedge meadows, bogs, riparian areas, openings, krummholz, and softwoods. Requires moist to wet loose soils and dense herbaceous or mossy understory & burrows.	No suitable habitat within action area.	No effect.	No Further Analysis Required.
Bicknell's thrush *(Catharus bicknelli)*	RFSS	Bird	Occupied habitats are characterized by high numbers of standing dead conifers with a dense understory of red spruce, black spruce balsam fir, birch, and krummholz communities of high elevations >2,500 feet.	Habitat present; species reasonably expected to be present.	No effect, provided adherence to conservation measures.	See detailed analysis in main body of BE.
American peregrine falcon *(Falco peregrinus anatum)*	RFSS	Bird	Nests on high rocky cliffs and forages in open areas.	It's possible adults forage for prey in the ROW on occasion, but activities would not impact individuals or their habitat.	No effect.	No Further Analysis Required.

Species	**Status**	**Taxa**	**Habitat requirements**	**Suitable habitat/Known occurrences within the action area**	**Effects determination**	**Comments**
Common loon *(Gavia immer)*	RFSS	Bird	Nests on lakes greater than 6.5 ha (16 ac) but prefer lakes smaller than 24 ha (60 ac) with clear water, small islands, and an irregular shoreline. Also found on major rivers. Requires prey base of small fish and amphibians for young.	No suitable habitat within action area.	No effect.	No Further Analysis Required.
Osprey *(Pandion haliaetus)*	RFSS	Bird	Nests in dead snags, living trees, cliffs, utility poles, wooden platforms on poles usually near or above rivers, lakes, ponds, & water bodies. Typically feed on fish.	No suitable habitat within action area.	No effect.	No Further Analysis Required.
Pied-billed grebe *(Podilymbus podiceps)*	RFSS	Bird	Freshwater marsh & water bodies usually ≥12 acres (5 hectares) with open water & emergent vegetation Requires prey base of fish, amphibians and invertebrates.	No suitable habitat within action area.	No effect.	No Further Analysis Required.
American goshawk (*Accipiter atricapillus*)	RFSS	Birds	Nests in large, forested areas containing more mature timber than generally present in the landscape; smaller forest tracts are seldom used. Forages in closed canopy forests with open understories where prey is accessible.	No suitable habitat within action area. Goshawks are not likely to nest adjacent to ROWs.	No effect.	No Further Analysis Required.

Species	Status	Taxa	Habitat requirements	Suitable habitat/Known occurrences within the action area	Effects determination	Comments
Wood turtle *(Glyptemys insculpta)*	RFSS	Reptile	Found along permanent low gradient streams and rivers and in forest, pasture, shrub-land and riparian margins. Eggs are laid in open sunny areas sandy or gravelly soil, commonly in clearings. Overwintering occurs in bottoms or banks of streams.	Habitat present; species reasonably expected to be present.	The project may impact individuals but would not likely cause a trend toward federal listing or loss of viability.	See detailed analysis in main body of BE.
Brown's ameletus mayfly *(Ameletus browni)*	RFSS	Insect	Larvae prefer erosional areas in cold, fast moving, well-oxygenated headwater streams of relatively high pH, with canopy cover, rocks or boulders present	Habitat present; species reasonably expected to be present.	The project may impact individuals but would not likely cause a trend toward federal listing or loss of viability.	See detailed analysis in main body of BE.
Third ameletus mayfly *(Ameletus tertius)*	RFSS	Insect	Larvae found in well oxygenated small & large streams with high pH, canopy cover & rocks or eroding banks in depositional areas & submerged grasses & detritus along margins of riffles & transitional areas	Habitat present; species reasonably expected to be present.	The project may impact individuals but would not likely cause a trend toward federal listing or loss of viability.	See detailed analysis in main body of BE.
White mountain fritillary *(Bolaria chariclea montina)*	RFSS	Insect	Lush, moist areas near sheltered spots, wet springs, & rocky outcrops > 4,500 feet in Presidential Range. Alpine goldenrod food. Larval host maybe blueberry, violets or willow.	No suitable habitat within action area.	No effect.	No Further Analysis Required.

Species	**Status**	**Taxa**	**Habitat requirements**	**Suitable habitat/Known occurrences within the action area**	**Effects determination**	**Comments**
Yellow-banded bumblebee *(Bombus Terricola)*	RFSS	Insect	Frequent meadows, crop fields, orchards, gardens, wetlands and other locations with flowering plants. They require loose soil and decomposing logs for overwintering as well as abandoned burrows for their underground nests.	Habitat present; species reasonably expected to be present.	The project may impact individuals but would not likely cause a trend toward federal listing or loss of viability.	See detailed analysis in main body of BE.
Appalachian tiger beetle *(Cicindela ancocisconensis)*	RFSS	Insect	Open sand or mix of sand and cobble of mid-sized rivers; feed & live on the sandy areas exposed by receding rivers.	No suitable habitat within action area.	No effect.	No Further Analysis Required.
White Mountain butterfly *(Oenesis melissa semidea)*	RFSS	Insect	It inhabits alpine and subalpine communities above 4,900 feet, specifically the dwarf shrub/sedge-rush meadow community.	No suitable habitat within action area.	No effect.	No Further Analysis Required.
Early hairstreak *(Erora laeta)*	RFSS	Insect	Inhabits mature northern hardwood forest with beech trees, and associated openings such as roadsides and field margins.	Habitat present; species reasonably expected to be present.	The project may impact individuals but would not likely cause a trend toward federal listing or loss of viability.	See detailed analysis in main body of BE.

Species	**Status**	**Taxa**	**Habitat requirements**	**Suitable habitat/Known occurrences within the action area**	**Effects determination**	**Comments**
Subarctic darner *(Aeshna subarctica)*	RFSS	Insect	Generally found in fens and bogs with abundant sphagnum and other mosses. On the WMNF, they are found in cold, boggy environments at high elevations. Occupied ponds are ringed with herbaceous vegetation	Habitat present; species reasonably expected to be present.	The project may impact individuals but would not likely cause a trend toward federal listing or loss of viability.	See detailed analysis in main body of BE.
Sedge darner *(Aeshna juncea)*	RFSS	Insect	Generally found in extensive sedge marshes and mossy fens. They also occur in lakes and ponds. On the WMNF, they are found in cold, boggy environments at high elevations. Occupied ponds are ringed with herbaceous vegetation.	Habitat present; species reasonably expected to be present.	The project may impact individuals but would not likely cause a trend toward federal listing or loss of viability.	See detailed analysis in main body of BE.
Ringed emerald *(Somatochlora albicincta)*	RFSS	Insect	All NH sites are small high-elevation ponds ranging from 1750’ to 5000’, with an average of 3000’. All ponds are located in rock basins and are surrounded by high elevation coniferous forest or alpine tundra, depending on elevation. Ponds may have a limited peat margin, but this is not usually a significant component of this species’ habitat.	Habitat present; species reasonably expected to be present.	The project may impact individuals but would not likely cause a trend toward federal listing or loss of viability.	See detailed analysis in main body of BE.

Species	**Status**	**Taxa**	**Habitat requirements**	**Suitable habitat/Known occurrences within the action area**	**Effects determination**	**Comments**
Scarlet bluet *(Enallagma pictum)*	RFSS	Insect	Found in acidic, sandy ponds with floating vegetation, often with water lilies. The species has a coastal plain distribution and does not occur on the Pemigewasset Ranger District.	No suitable habitat within action area.	No effect.	No Further Analysis Required.
Incurvate emerald *(Somatochlora incurvata)*	RFSS	Insect	Breeds in bogs, fens, and similar peatlands, usually in sphagnum moss.	No suitable habitat within action area.	No effect.	No Further Analysis Required.

Plants

Effects evaluation summary for Regional Forester Sensitive Species (plants). List current as of September 2024.

Species	Status	Natural community	Habitat requirements	Suitable habitat, known occurrences within the action area	Effects determination	Comments
Small-whorled pogonia *(Isotria medeoloides)*	Threatened	Hardwood and mixed forests	Primarily in maturing stands of deciduous or mixed deciduous-coniferous forests (often with an oak component); also, often on soils with hardpan or occasionally shallow bedrock, but not very dry or enriched. Less than 1,500 feet in elevation on southerly aspects (west to south to east).	No suitable habitat within action area.	No effect.	No further analysis required.
Autumn coral-root *(Corallorhiza odontorhiza*)	RFSS[1]	Hardwood and mixed forests	Can be found in a variety of deciduous and mixed forest habitats. Requires mycorrhizal host but details unknown.	No suitable habitat within action area.	No effect.	No further analysis required.
Three-birds orchid (*Triphora trianthophora*)	RFSS	Hardwood and mixed forests	Mid-elevation beech hardwoods usually on south-facing slopes. Deep leaf litter with humus.	No suitable habitat within action area.	No effect.	No further analysis required.
Climbing fumatory (*Adlumia fungosa*)	RFSS	Rich hardwood forests and talus slopes	In northern New England, primarily in mesic to dry-mesic, enriched hardwood forests, including rich talus and other rocky slopes; reports in the region of occurrence on burned sites (not known on White Mountain National Forest presently).	No suitable habitat within action area.	No effect.	No further analysis required.
Smooth rock-cress *(Arabis laevigata)*	RFSS	Rich hardwood forests and talus slopes	Rocky, open forests and woodlands of rich mesic or dry-mesic slopes, particularly on talus slopes on southern side of the forest. Typically, south or west-facing slopes below 1,500 feet elevation.	No suitable habitat within action area.	No effect.	No further analysis required.

Missouri rock-cress (*Arabis missouriensis*)	RFSS	Rich hardwood forests and talus slopes	Likely restricted on the White Mountain National Forest to semi-open conditions of richer sites, particularly on talus slopes on southern side of national forest. Typically, south or west-facing slopes below 1,500 feet elevation. Associated species include red oak, ash, basswood, sugar maple.	No suitable habitat within action area.	No effect.	No further analysis required.
Canada rock-cress (*Arabis drummondii = Boechera stricta*)	RFSS	Rich hardwood forests and talus slopes	Talus slopes, rich hardwood forests, cliffs and cliff-bases. Semi-rich conditions are probably typical for this species.	No suitable habitat within action area.	No effect.	No further analysis required.
Cutleaf toothwort *(Cardamine concatenata*)	RFSS	Rich hardwood forests and talus slopes	Rich woods species. In Maine, typical habitats are rich woods, wooded bottoms and calcareous rocky banks. In New Hampshire, habitats include nutrient rich mesic forests, talus slopes, and cliffs and ledges. Often growing in association with other spring ephemerals such as spring beauty (*Claytonia caroliniana*) and trout lily (*Erythronium americanum*).	No suitable habitat within action area.	No effect.	No further analysis required.
Pubescent sedge (*Carex hirtifolia*)	RFSS	Rich hardwood forests and talus slopes	Mesic, typically rich, upland and riparian, deciduous forests; possibly in meadows.	No suitable habitat within action area.	No effect.	Only known occurrences of this species located on the eastern edge of the national forest in calcium rich soil. No further analysis required.
Fogg's goosefoot (*Chenopodium foggii*)	RFSS	Rich hardwood forests and talus slopes	Cliff bases, rocky talus slopes and outcrops, and in sparsely wooded areas; apparently associated with circumneutral habitats.	No suitable habitat within action area.	No effect.	No further analysis required.
Greater yellow lady's-slipper (*Cypripedium parviflorum var. pubescens)*	RFSS	Rich hardwood forests and talus slopes	Rich forests and wetlands. In New Hampshire, occurs in dry-mesic to wet, nutrient-rich forests, woodlands, and seepage wetlands.	No suitable habitat within action area.	No effect.	No further analysis required.
Goldie's woodfern (*Dryopteris goldiana*)	RFSS	Rich hardwood forests and talus slopes	Damp woods in rich mesic hardwood forests.	No suitable habitat within action area.	No effect.	No further analysis required.

Butternut (*Juglans cinerea)*	RFSS	Rich hardwood forests and talus slopes	Rich, moist, alluvial soils and dry, rocky hillsides (talus) influenced by calcium-rich bedrock. Old farmsteads.	No suitable habitat within action area.	No effect	No further analysis required.
Mountain Sweet-Cicely *(Osmorhiza berteroi)*	RFSS	Rich hardwood forests and talus slopes	Rich to semi-rich, moist, deciduous, montane woods in northern New Hampshire; also, roadside embankments within these forests.	No suitable habitat within action area (out of range).	No effect.	No further analysis required.
American Ginseng (*Panax quinquefolius*)	RFSS	Rich hardwood forests and talus slopes	Moist, rich or semi-rich deciduous woods often rocky or on thick humus in colluvial settings.	Suitable habitat exists but limited in extent; known from the project area at one site. Other suitable habitat searched but no populations found.	May affect undetected individuals, but not likely to result in a trend toward federal listing or affect the viability of the species.	Population is protected in a reserve area with appropriate buffer.
Three-leaved Black Snake Root *(Sanicula trifoliata)*	RFSS	Rich hardwood forests and talus slopes	Limy deciduous woods below 1,500 feet. Most occurrences on steep slopes. Appears associated with dense, lush ground cover and relatively closed canopy but has been found near clearcuts and cliffs which may indicate tolerance of gap conditions.	No suitable habitat within action area.	No effect.	No further analysis required.
Northern Comandra (*Geocaulon lividum*)	RFSS	High-elevation spruce-fir forests	High elevation boggy habitats and damp humus in high-elevation balsam fir and spruce-fir forests, typically with peaty/mossy cover and semi-open canopy (including fir waves). Most sites (8 out of 10 sites) are at 3,300 to 4,300 feet elevation; and 2 are at 2,200 to 2,400 feet.	No suitable habitat within action area.	No effect.	No further analysis required.
Boreal Bedstraw (*Galium kamtschaticum*)	RFSS	Forest seeps and swamps (mostly above 2,000 feet elevation)	Prefers cool, somewhat rich seep habitat in the mountains with non-channelized flowing near-surface water within wet hardwood, mixed, or conifer woods, swamps, and streamsides.	No suitable habitat within action area.	No effect.	Seeps are too far south and low elevation. No further analysis required.
Broad-leaved Twayblade (*Listera*	RFSS	Forest seeps and swamps (mostly	Wet, cold woods, usually in deep shade; peaty glades, spruce/fir woods; thickets, nutrient poor mossy-	No suitable habitat within action area.	No effect.	Seeps too far south and low elevation. No further analysis required.

convallarioides)		above 2,000 feet elevation)	forested seeps.			
Heartleaf Twayblade *(Listera cordata)*	RFSS	Forest seeps and swamps (mostly above 2,000 feet elevation)	Seeps and wet, cold woods, sphagnum bogs, and ascending to sub-alpine scrub; bases of wet, seepy ledges, outcrops, cliffs, spruce/fir woods on lime.	No suitable habitat within action area.	No effect.	Seeps too far south and low elevation. No further analysis required.
Bailey's Sedge (*Carex baileyi)*	RFSS	Swamps and open wetlands	Wetland species of circumneutral fens, swampy woods and meadows. Ditches and disturbed openings in regions of calcium-rich bedrock.	No suitable habitat within action area.	No effect.	No further analysis required.
Wiegand's Sedge *(Carex wiegandii*)	RFSS	Swamps and open wetlands	Boggy or peaty soils, including montane bogs; acidic soils of drier, shrubby, sometimes disturbed, margins of acidic Sphagnum bogs or poor fens.	No suitable habitat within action area.	No effect.	Not far enough north or high enough elevation for this species. No further analysis required.
Black tupelo; black gum (*Nyssa sylvatica*)	RFSS	Swamps and open wetlands	Forested to partially wooded boggy swamps with limited or stagnant drainage (therefore not in seepage wetlands).	No suitable habitat within action area.	No effect.	No further analysis required.
Northern Adder's Tongue *(Ophioglossum pusillum)*	RFSS	Swamps and open wetlands	Variety of early-successional, seasonally moist to wet habitats, including open fens, bogs, marsh edges, pastures, old fields, grassy shores, wet thickets, cedar and hardwood swamps, floodplain woods, wet swales, damp sand, and roadside ditches. White Mountain National Forest occurrence is in an old log landing that has been mowed during roadside mowing.	No suitable habitat within action area.	No effect.	No further analysis required.
Grass-of-Parnassus *(Parnassia glauca)*	RFSS	Swamps and open wetlands	Open seeps, fens, and mowed wet areas such as pastures and ski slopes. Many sites in the region are calcareous sites.	No suitable habitat within action area.	No effect.	No further analysis required.
Sweet Colt's-foot (*Petasites frigidus var. palmatus*)	RFSS	Swamps and open wetlands	Swampy woods, meadows with circumneutral or rich soils. White cedar swamps.	No suitable habitat within action area.	No effect.	No further analysis required.

Baked appleberry or Cloudberry *(Rubus chamaemorus)*	RFSS	Swamps and open wetlands	Alpine and subalpine bogs, and wet openings in balsam fir forests at high elevation.	No suitable habitat within action area.	No effect.	No further analysis required.
Anderson's sphagnum (*Sphagnum andersonianum*)	RFSS	Swamps and open wetlands	Low hummocks in very poor ericaceous fens. Largely high elevation.	No suitable habitat within action area.	No effect.	No further analysis required.
Angerman's Sphagnum (*Sphagnum angermanicum)*	RFSS	Swamps and open wetlands	Poor fens, including at edges of ponds. Largely high elevation.	No suitable habitat within action area.	No effect.	No further analysis required.
Sphagnum (*Sphagnum flavicomans*)	RFSS	Swamps and open wetlands	Medium to tall hummocks in bogs and poor fens. Occurs in *Sphagnum rubellum, Vaccinium oxycoccus* dwarf heath moss lawn in New Hampshire	No suitable habitat within action area.	No effect.	No further analysis required.
Auricled Twayblade *(Listera auriculata*)	RFSS	Riparian (streams, rivers, alluvium)	Temporarily flooded and seasonally ice-scoured riverbanks with calcareous soils. Stream banks, mossy woods, alder thickets, boggy alluvial woods, cedar swamps, gravel riverbank, and lake and pond shores	No suitable habitat within action area.	No effect.	No further analysis required.
Pink Wintergreen (*Pyrola asarifolia)*	RFSS	Riparian (streams, rivers, alluvium)	Rich or moist woods and swamps; moist alluvial woods of low river terrace forests. In broader region, in calcium-rich soil areas, including northern white cedar swamps	No suitable habitat within action area.	No effect.	No further analysis required.
Piled-up Sedge (*Carex cumulata*)	RFSS	Rocky ridges or sandplains	Open ledges, dry sandy soils; open oak forests or hardwood talus; clearings; burned oak-pine rocky summit woodlands.	No suitable habitat within action area.	No effect.	Best habitat is on open outcrops above action area. No further analysis required.
White Mountain Silverling *(Paronychia argyrocoma)*	RFSS	Rocky ridges or sandplains	Mid-elevation, bare rocky summits, ledges, and cliffs; sand/gravel barrens of Saco River between Bartlett and Fryeberg.	No suitable habitat within action area.	No effect.	No further analysis required.
Canada Mountain Ricegrass *(Piptatherum canadense)*	RFSS	Rocky ridges or sandplains	Dry, rocky openings just below treeline into krummholz zone, and on moderate elevation rocky ridges and talus slopes; sandy deciduous woodlands; early successional plant communities; along sandy roadsides,	No suitable habitat within action area.	No effect.	No further analysis required.

			and on open, sparsely brushy ground.			
Douglas Knotweed *(Polygonum douglasii*)	RFSS	Rocky ridges or sandplains	Prefers exposed rocky-gravelly slopes and hillside ledges in well-drained soil where little other vegetation grows. Can also grow in nutrient-enriched hardwood forests if the canopy is open enough; often associated with rocks even in forest.	No suitable habitat within action area.	No effect.	Best habitat is on open outcrops above and outside the action area. No further analysis required.
Robbins' milkvetch (*Astragalus robbinsii var. minor*)	RFSS	Cliffs	In northern New England, this species is found on calcareous or circumneutral cliffs and ledges, sometimes in riverside settings.	No suitable habitat within action area.	No effect.	No further analysis required.
Fragrant Fern (*Dryopteris fragrans var. remotiuscula*)	RFSS	Cliffs	Prefers cracks on typically cool, seasonally dry, shaded, overhanging cliffs influenced by periodic calcium-rich seepage. Associated species include *Woodsia ilvensis*, *Campanula rotundifolia*, *Cystopteris fragilis*, *C. tenuis*, *Diervilla lonicera* and various calciphilic bryophytes.	No suitable habitat within action area.	No effect.	No further analysis required.
Creeping Juniper (*Juniperus horizontalis*)	RFSS	Cliffs	In New Hampshire, restricted to exposed cliff-tops and faces on calcium-bearing rocks; otherwise mainly coastal in northern New England, including headlands, cliffs, and sandy or rocky fields.	No suitable habitat within action area.	No effect.	No further analysis required.
Prairie Goldenrod (*Oligoneuron album*)	RFSS	Cliffs	Occurs primarily on dry, calcareous cliffs and ledges. May also occur in open fields and roadsides. All known New Hampshire occurrences are on calcium-rich soil or bedrock.	No suitable habitat within action area.	No effect.	No further analysis required.
Alpine Bearberry (*Arctostaphylos alpina)*	RFSS	Mesic or well-drained alpine	Typically, on the exposed end of the dry/mesic heath meadow system of alpine communities. *Arctostaphylos alpina* is usually found in small, isolated populations on ridgelines of the Presidential Range.	No suitable habitat within action area.	No effect.	No further analysis required.
Scirpus-like Sedge	RFSS	Mesic or well-drained	Strongly associated with circumneutral or calcareous rocky	No suitable habitat within action area.	No effect.	No further analysis required.

(*Carex scirpoidea*)		alpine	summits, outcrops, and cliffs. In New Hampshire, only known from open ledges and subalpine habitats.			
Northern woodrush (*Luzula confusa*)	RFSS	Mesic or well-drained alpine	Alpine slopes, ridges, and gullies.	No suitable habitat within action area.	No effect.	No further analysis required.
Sitka clubmoss (*Lycopodium sitchense*)	RFSS	Mesic or well-drained alpine	Alpine to subalpine barrens in open, stony, or well-drained habitats. In Maine alpine, summits of snowbank gullies (*Diphasiastrum sitchense*).	No suitable habitat within action area.	No effect.	No further analysis required.
Mountain Sorrel (*Oxyria digyna*)	RFSS	Mesic or well-drained alpine	Typically occurs in snowbank communities and on rocky slopes and ledges of headwalls. May occur near alpine stream sides. Above 3,500 feet in northern New England.	No suitable habitat within action area.	No effect.	No further analysis required.
Glaucous blue grass *(Poa glauca)*	RFSS	Mesic or well-drained alpine	Alpine slopes and gullies in NH, typically calcareous conditions. Elsewhere in NE on alpine/subalpine cliffs, plateaus, rivershore outcrops, talus, and lake headlands.	No suitable habitat within action area.	No effect.	No further analysis required.
Alpine Meadow Grass (*Poa pratensis ssp. alpigena*)	RFSS	Mesic or well-drained alpine	In New Hampshire, occupies nutrient poor soils in alpine/subalpine dry-mesic heath and meadow communities, including Bigelow sedge meadows.	No suitable habitat within action area.	No effect.	No further analysis required.
Dwarf Cinquefoil; Robbin's Cinquefoil (*Potentilla robbinsiana*)	RFSS	Mesic or well-drained alpine	Alpine zone in Presidential Range of White Mountain National Forest.	No suitable habitat within action area.	No effect.	No further analysis required.
Boott's Rattlesnake Root *(Prenanthes boottii = Nabalus boottii)*	RFSS	Mesic or well-drained alpine	Variety of alpine habitats, moist tundra, steep cirque ledges and crests, and disturbed alpine sites such as trail-sides and hut areas	No suitable habitat within action area.	No effect.	No further analysis required.
Little Yellow Rattle *(Rhinanthus minor ssp. groenlandicus)*	RFSS	Mesic or well-drained alpine	Open alpine habitats: extant locations have moderate human disturbance, although historic locations included natural settings.	No suitable habitat within action area.	No effect.	No further analysis required.

Moss Campion *(Silene acaulis* var. *exscapa)*	RFSS	Mesic or well-drained alpine	Moist, alpine meadows. Gravelly barrens.	No suitable habitat within action area.	No effect.	No further analysis required.
Cutler's goldenrod *(Solidago cutleri = S. leiocarpa)*	RFSS	Mesic or well-drained alpine	Alpine lawns, meadows, and gravelly trail-sides in higher mountains	No suitable habitat within action area.	No effect.	No further analysis required.
Boreal Blueberry *(Vaccinium boreale)*	RFSS	Mesic or well-drained alpine	Alpine and subalpine meadows, heaths, and bogs, often exposed gravelly or rocky sites.	No suitable habitat within action area.	No effect.	No further analysis required.
Arnica (*Arnica lanceolata*)	RFSS	Wet alpine	Alpine ravines, damp banks and rock ledges. At low elevations on rocky riverbanks, gravel bars, beaches, and alluvial flats of rivers and streams at low elevations.	No suitable habitat within action area.	No effect.	No further analysis required.
Dwarf White Birch *(Betula minor)*	RFSS	Wet alpine	Bogs and wet, rocky alpine slopes, summits and gullies. Acidic rocky barrens and peaks.	No suitable habitat within action area.	No effect.	No further analysis required.
Langsdorf's Blue Joint (*Calamagrostis canadensis var. langsdorfii*)	RFSS	Wet alpine	Wet-mesic snowbank habitat in alpine ravines and near alpine lakes or streams.	No suitable habitat within action area.	No effect.	No further analysis required.
Alpine Bitter Cress *(Cardamine bellidifolia)*	RFSS	Wet alpine	Cold ravines or on wet mossy rocks in the alpine area.	No suitable habitat within action area.	No effect.	No further analysis required.
Black Sedge *(Carex atratiformis)*	RFSS	Wet alpine	In New England, wet alpine or subalpine open habitat, such as wet cliffs, calcareous alpine seeps, river shores, ravines, and open meadows. On White Mountain National Forest, restricted to wet or damp alpine habitats, including brooks and ravine snowbanks.	No suitable habitat within action area.	No effect.	No further analysis required.
Hair-like Sedge (*Carex capillaris)*	RFSS	Wet alpine	New Hampshire plants are ssp. *fuscidula*, which occur in wet-mesic alpine meadows. Elsewhere in the northeast, the ssp. *capillaris* occurs in high-pH boreal cliffs, seeps, and rivershore outcrops.	No suitable habitat within action area.	No effect.	No further analysis required.

Head-like Sedge *(Carex capitata ssp. arctogena)*	RFSS	Wet alpine	Wet, acidic, rocky or gravely soil in the alpine. May also occur in similar dry habitats.	No suitable habitat within action area.	No effect.	No further analysis required.
Pale painted cup *(Castilleja septentrionalis)*	RFSS	Wet alpine	In New Hampshire and Maine, alpine snowbank and rill habitats, particularly on alpine ravine headwalls and brooks; rarely adventive at lower elevations (historically).	No suitable habitat within action area.	No effect.	No further analysis required.
Oakes' Eyebright *(Euphrasia oakesii)*	RFSS	Wet alpine	Alpine. Exposed gravelly slopes or ledges or open ledgy areas.	No suitable habitat within action area.	No effect.	No further analysis required.
Proliferous Fescue *(Festuca prolifera)*	RFSS	Wet alpine	Alpine, in cool, wet snowbank ravine settings, and along alpine brooks.	No suitable habitat within action area.	No effect.	No further analysis required.
White Mountain Avens *(Geum peckii)*	RFSS	Wet alpine	Moist alpine areas. Snowbank, wet meadow, streamside communities in the alpine. Occurs rarely at low elevation sites, in rocky streams.	No suitable habitat within action area.	No effect.	No further analysis required.
Moss Bell-heather *(Harrimanella hypnoides)*	RFSS	Wet alpine	Snowbank communities, wet seeps, and crevices in alpine habitats.	No suitable habitat within action area.	No effect.	No further analysis required.
Alpine Cudweed *(Omalotheca supina)*	RFSS	Wet alpine	Gravelly slopes and ravines at high altitudes; exposed alpine areas and snowbank communities.	No known occurrences within action area.	No effect.	No further analysis required.
Wavy Bluegrass *(Poa laxa ssp. fernaldiana)*	RFSS	Wet alpine	Typically found on high, wet cliffs, especially beneath little overhangs on cliffs; also, in dry/mesic heath meadow system of alpine communities in New Hampshire, which includes an array of *Carex* meadows, strong heaths, *Diapensia* shrublands, fell fields, and barren rock.	No suitable habitat within action area.	No effect.	No further analysis required.
Viviparous Knotweed *(Polygonum viviparum)*	RFSS	Wet alpine	Snowbank communities, wet mossy rocks and seeps, and near streams in alpine and subalpine areas.	No suitable habitat within action area.	No effect.	No further analysis required.
Silverleaf Willow	RFSS	Wet alpine	Moist soils in alpine or subalpine	No suitable habitat	No effect.	No further analysis required.

(Salix argyrocarpa)			streamside, ravine and snowbank habitats.	within action area.		
Dwarf Willow *(Salix herbacea)*	RFSS	Wet alpine	In New Hampshire, typically occurs in cool, wet ravines, snowbank communities, and along alpine brooks. Grassy, sandy, or rocky places in alpine areas; often on thinner soils than other snowbank/wet ravine species.	No suitable habitat within action area.	No effect.	No further analysis required.
White Mountain Saxifrage *(Saxifraga paniculata)*	RFSS	Wet alpine	Typically, alpine areas with exposed calcareous gravel and rocks. Can grow below alpine on limy, seepy, open cliffs.	No suitable habitat within action area.	No effect.	No further analysis required.
Alpine Brook Saxifrage *(Saxifraga rivularis)*	RFSS	Wet alpine	Alpine ravines, wet and mossy areas, wet cliffs, and some dry-mesic heath alpine/subalpine communities. May benefit from reduced competition associated with moderate disturbance. May be a nitrophile.	No suitable habitat within action area.	No effect.	No further analysis required.
Arizona Cinquefoil *(Sibbaldia procumbens)*	RFSS	Wet alpine	Snowbank/wet meadow/streamside alpine communities; only occurrence is at bottom of a snowfield.	No suitable habitat within action area.	No effect.	No further analysis required.
Mountain Hairgrass *(Vahlodea atropurpurea)*	RFSS	Wet alpine	In northern New England, is limited to the alpine/subalpine zone, especially herbaceous snowbanks communities.	No suitable habitat within action area.	No effect.	No further analysis required.
American alpine speedwell *(Veronica wormskjoldii)*	RFSS	Wet alpine	Wet, seepy, and sometimes rocky alpine ravine snowbank settings, including along brooks or rills.	No suitable habitat within action area.	No effect.	No further analysis required.