

Special-Status Species Study

Mongaup River Hydroelectric Projects:

Swinging Bridge Hydroelectric Project (No. 10482)

Mongaup Falls Hydroelectric Project (No. 10481)

Rio Hydroelectric Project (No. 9690)

February 2019

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List of Acronyms

°F	degrees Fahrenheit
CFR	Code of Federal Regulations
CUI	Controlled Unclassified Information
ECOS	Environmental Conservation Online System
FERC or Commission	Federal Energy Regulatory Commission
FPA	Federal Power Act
GIS	geographic information systems
GPS	global positioning system
ILP	Integrated Licensing Process
ISR	Initial Study Report
NOI	Notice of Intent
NPS	National Park Service
NWI	National Wetlands Inventory
NYSDEC	New York State Department of Environmental Conservation
NYNHP	New York Natural Heritage Program
PAD	Pre-Application Document
Projects	Mongaup River Hydroelectric Projects
PSP	Proposed Study Plan
RSP	Revised Study Plan
SPD	Study Plan Determination
USFWS	U.S. Fish and Wildlife Service

1.0 Introduction and Background

Eagle Creek Hydro Power, LLC; Eagle Creek Water Resources, LLC; and Eagle Creek Land Resources, LLC (collectively and hereinafter "Eagle Creek") are the Licensees of the Swinging Bridge Hydroelectric Project (FERC No. 10482), the Mongaup Falls Hydroelectric Project (FERC No. 10481), and the Rio Hydroelectric Project (FERC No. 9690) (collectively "Mongaup River Projects" or "Projects"). Collectively, the Projects are located on Black Lake Creek, Black Brook, and the Mongaup River in Sullivan and Orange Counties, New York.

On April 14, 1992, the Federal Energy Regulatory Commission ("FERC" or "Commission") issued three original and separate licenses for the operation of the Projects in accordance with the Commission's delegated authority under the Federal Power Act. Each Project's original license was issued for a term of 30 years and expires on March 31, 2022. Consequently, Eagle Creek is pursuing new licenses for the Projects and has opted to use the Commission's Integrated Licensing Process (ILP), as detailed at 18 Code of Federal Regulations (CFR) Part 5 of the Commission's regulations.

In accordance with 18 CFR §5.15, Eagle Creek has conducted studies as provided in Eagle Creek's January 10, 2018 Revised Study Plan (RSP) as modified and approved in the Commission's February 9, 2018 and June 10, 2019 Study Plan Determinations (SPDs). This report describes the methods and results of the Special-Status Species Study conducted in 2018 and 2019 support of obtaining new licenses for the Projects.

2.0 Goals and Objectives

The goal of this study was to obtain additional information to supplement the existing information necessary to address the potential effects of the Projects' operations and maintenance, land management activities, and recreation use on the presence of special-status wildlife and plant species and their habitat.

3.0 Study Area

The study area included areas influenced by Project operations and formal Eagle Creek-owned recreation facilities within the Projects' FERC project boundaries, as well as downstream river and stream reaches that are outside of the established FERC project boundaries. These reaches consisted of Black Lake Creek (from Toronto Dam to the confluence with the Mongaup River), Black Brook (from the upstream end of the Black Brook Dam impoundment to the confluence with the Mongaup River), and the portions of the Mongaup River from Swinging Bridge Dam to the Delaware River that are not included in the project boundaries.

4.0 Methodology

The Special-Status Species Study consisted of agency consultation, review of existing information, habitat analysis, and field surveys.

4.1 Agency Consultation

In support of the relicensing process, Eagle Creek requested information from the U.S. Fish and Wildlife Service (USFWS), New York State Department of Environmental Conservation (NYSDEC), and New York Natural

Heritage Program (NYNHP) regarding federal and state-listed rare, threatened, and endangered species; critical habitat; sensitive natural communities; and species of special concern within the vicinity of the Projects.

4.2 Habitat/Life History Analysis and Mapping

Based on the information received from the USFWS, NYSDEC, and NYNHP, Eagle Creek compiled information regarding the habitat requirements and life history for the identified special-status species that may occur in the study area pursuant to a review of the following (but not limited to) resources:

- NYSDEC Endangered Species website (NYSDEC Undated a)
- NYNHP website (NYSDEC Undated b)
- USFWS Environmental Conservation Online System (ECOS) (USFWS Undated)
- Ecological Communities of New York State (Second Edition) (Edinger et al. 2014)
- Aquatic and Wetland Plants of Northeastern North America (Volumes One and Two) (Crow and Hellquist 2000)
- Flora of the Northeast – A Manual of the Vascular Flora of New England and Adjacent New York (Magee and Ahles 1999)
- Indiana bat (*Myotis Sodalis*) fact sheet (USFWS 2018a)
- Northern long-eared bat (*M. septentrionalis*) fact sheet (USFWS 2015)
- Small whorled pogonia (*Isotria medeoloides*) fact sheet (USFWS 2018b)
- Northeastern bulrush (*Scirpus ancistrochaetus*) fact sheet (USFWS 2006)
- New York Rare Plant Status Lists (Young 2017)
- Online conservation guide for *Ranunculus hispidus* var. *nitidus* (NYNHP 2017)

Additionally, the record locations of special-status species identified through resource agency consultation were positioned on high-resolution geographic information systems (GIS) maps for Sullivan and Orange Counties in relation to the Projects' FERC project boundaries. The maps were subsequently evaluated to determine if a species location record existed in or adjacent to the Projects' FERC project boundaries. For those species that record locations, or species-specific habitat exists within the study area, Eagle Creek evaluated whether operations and maintenance, land management activities, or recreation use at formal Project recreation facilities could affect the identified species or habitat.

4.3 Field Surveys

Based on the results of the consultation, habitat/life history evaluation, and mapping activities, Eagle Creek performed field surveys for the species in which record locations or species-specific habitat exists within the study area, and where Project operations, maintenance, land management, or use of formal recreation areas

may affect the species. Prior to beginning the field survey, a collector's permit was obtained from the NYSDEC (License to Collect or Possess, Scientific #2368 and Endangered/Threatened Species #438).

Field surveys were performed by two qualified biologists. During the field surveys, if special-status species or habitat(s) were observed, photo documentation, global positioning system (GPS) location, ambient conditions, habitat description, morphological or botanical descriptions, and other pertinent information regarding the species and/or site was collected.

5.0 Results

5.1 Agency Consultation

In support of this study, Eagle Creek reviewed the information obtained through previous consultation in 2016 and early 2017 as part of initial relicensing activities for the Projects. Via letter dated December 2, 2016, Eagle Creek requested the identification of existing, relevant, and reasonably available information related to the Projects, including special-status species information. Via email dated January 4, 2017, the USFWS directed Eagle Creek to use the USFWS' ECOS to obtain relevant information for rare, threatened, and endangered species identified within the study area. On February 14, 2017, HDR, on behalf of Eagle Creek, submitted a request for threatened and endangered species information via email to the NYNHP. On February 16, 2017, NYNHP responded to this data request and provided a report of rare or state-listed animals and plants occurring in the Projects' vicinity. Copies of this correspondence is provided in Attachment 1, which is being filed separately as Controlled Unclassified Information (CUI)/Privileged Information based on the sensitivity of species locations.

In order to obtain updated information and more detailed species/suitable habitat occurrence information, Eagle Creek consulted with the National Park Service (NPS), USFWS, NYSDEC, and NYNHP via letters dated May 16, 2018. Via letters dated June 14, 2018, and June 26, 2018, the NYNHP and the USFWS provided the requested information, respectively. Copies of this correspondence is provided in Attachment 1, which is being filed separately as CUI/Privileged Information based on the sensitivity of species locations. A list of the identified species is provided in Table 5-1.

5.2 Habitat/Life History Analysis and Mapping

The record locations of special-status species identified through resource agency consultation were positioned on high-resolution GIS maps for Sullivan and Orange Counties in relation to the Projects' FERC project boundaries. The maps were subsequently evaluated to determine if a species location record existed in or adjacent to the Projects' FERC project boundaries and could be affected by operation, maintenance, land management activities, or recreation use at the Projects. A summary of the species identified during resource agency consultation, their associated status, the potential to be located within the study area and affected by the Projects, and determination on the need for associated field surveys to confirm the species occurrence or suitable habitat is provided in Table 5-1.

**TABLE 5-1
LIST OF SPECIAL-STATUS SPECIES THAT MAY OCCUR IN THE VICINITY OF THE PROJECTS**

Species		Federal Status	State Status	NYNHP Status	Potential Habitat Present in Study Area	Species Potentially Present in the Study Area	Field Survey Required
Common Name	Latin Name						
Dwarf Wedgemussel	<i>Alasmidonta heterodon</i>	Endangered	Endangered	--	Yes	Yes	Yes, but not as part of the Special-Status Species Study. Mussel surveys were performed pursuant to the Mussel Study.
Northeastern bulrush	<i>Scirpus ancistrochaetus</i>	Endangered	Endangered	--	Yes	Yes	Yes, pursuant to June 26, 2018 letter from USFWS (Attachment 1).
Indiana Bat	<i>Myotis sodalis</i>	Endangered	Endangered	--	Yes	Yes	No. No tree clearing proposed; therefore, no direct Project effect and no field survey required.
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Threatened	Threatened	--	Yes	Yes	No. No tree clearing proposed; therefore, no direct Project effect and no field survey required.
Bog turtle	<i>Glyptemys mühlenbergii</i>	Threatened	Endangered	--	No	No	No, per June 26, 2018 letter (Attachment 1), USFWS does not expect suitable habitat in the Projects' areas and, therefore, does not recommend field surveys for this species.
Small Whorled Pogonia	<i>Isotria medeoloides</i>	Threatened	Endangered	--	Yes	Yes	Yes, pursuant to June 26, 2018 letter from USFWS (Attachment 1).
Brook floater	<i>Alasmidonta varicosa</i>	Under Review	Threatened	--	Yes	Yes	Yes, but not as part of the Special-Status Species Study. Mussel surveys were performed pursuant to the Mussel Study.
Swamp Buttercup	<i>Ranunculus septentrionalis</i> var. <i>nitidus</i>	Not Listed	Endangered	Critically Imperiled	Yes	Yes	Yes, pursuant to species occurrence information provided by NYNHP.
Riverbank Quillwort	<i>Isoetes riparia</i>	Not Listed	Endangered	Critically Imperiled	Yes	No	No. No direct project effect anticipated and, therefore, no field survey required.
Peregrine falcon	<i>Falco peregrinus</i>	MBTA	Endangered	--	Yes	Yes	No. However during the bald eagle surveys, field staff will note peregrine falcon nests or observations.

Species		Federal Status	State Status	NYNHP Status	Potential Habitat Present in Study Area	Species Potentially Present in the Study Area	Field Survey Required
Common Name	Latin Name						
Golden eagle	<i>Aquila chrysaetos</i>	BGEPA; MBTA	Endangered	--	Yes	Yes	Yes, but not as part of the Special-Status Species Study. Golden eagle surveys will be performed pursuant to the separate Bald Eagle Study.
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA; MBTA	Threatened	--	Yes	Yes	Yes, but not as part of the Special-Status Species Study. Bald eagle surveys will be performed pursuant to the separate Bald Eagle Study.
Timber Rattlesnake	<i>Crotalus horridus</i>	Not Listed	Threatened	--	Yes	Yes	No. No direct Project effect anticipated and, therefore, no field survey required.
Dwarf Sand-cherry	<i>Prunus pumila</i> var. <i>depressa</i>	Not Listed	Threatened	Imperiled	Yes	No	No. No direct project effect anticipated and, therefore, no field survey required.
Cerulean warbler	<i>Setophaga cerulea</i>	MBTA	Species of Special Concern	--	Yes	Yes	No. No tree clearing proposed; therefore, no direct Project effect and no field survey required.
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	MBTA	Species of Special Concern	--	Yes	Yes	No. No tree clearing proposed; therefore, no direct Project effect and no field survey required.
Delaware River Clubtail	<i>Gomphus septima delawarensis</i>	Not Listed	Species of Special Concern	Critically Imperiled	Yes	Yes	Yes, but not as part of the Special-Status Species Study. Macroinvertebrate surveys were performed pursuant to the separate Macroinvertebrate Study.
Green-faced Clubtail	<i>Gomphus viridifrons</i>	Not Listed	Not Listed	Critically Imperiled	Yes	Yes	Yes, but not as part of the Special-Status Species Study. Macroinvertebrate surveys were performed pursuant to the separate Macroinvertebrate Study.
Rapids Clubtail	<i>Gomphus quadricolor</i>	Not Listed	Not Listed	Vulnerable	Yes	Yes	Yes, but not as part of the Special-Status Species Study. Macroinvertebrate surveys were performed pursuant to the separate Macroinvertebrate Study.

Species		Federal Status	State Status	NYNHP Status	Potential Habitat Present in Study Area	Species Potentially Present in the Study Area	Field Survey Required
Common Name	Latin Name						
Southern Pygmy Clubtail	<i>Lanthis vernalis</i>	Not Listed	Not Listed	Critically Imperiled	Yes	Yes	Yes, but not as part of the Special-Status Species Study. Macroinvertebrate surveys were performed pursuant to the separate Macroinvertebrate Study.
Spine-crowned Clubtail	<i>Gomphus abbreviatus</i>	Not Listed	Not Listed	Critically Imperiled	Yes	Yes	Yes, but not as part of the Special-Status Species Study. Macroinvertebrate surveys were performed pursuant to the separate Macroinvertebrate Study.
Blacknose Shiner	<i>Notropis heterolepis</i>	Not Listed	Not Listed	Imperiled	Yes	Yes	Yes, but not as part of the Special-Status-Species Study. Fish surveys were performed pursuant to the Fisheries Study.
Alewife Floater	<i>Anodonta implicata</i>	Not Listed	Not Listed	Critically Imperiled	Yes	Yes	Yes, but not as part of the Special-Status Species Study. Mussel surveys were performed pursuant to the Mussel Study.
Black-capped chickadee	<i>Poecile atricapillus</i>	MBTA	Not Listed	--	Yes	Yes	No. No tree clearing proposed; therefore, no direct Project effect and no field survey required.
Canada warbler	<i>Cardellina canadensis</i>	MBTA	Not Listed	--	Yes	Yes	No. No tree clearing proposed; therefore, no direct Project effect and no field survey required.
Prairie warbler	<i>Setophaga discolor</i>	MBTA	Not Listed	--	Yes	Yes	No. No tree clearing proposed; therefore, no direct Project effect and no field survey required.
Wood thrush	<i>Hylocichla mustelina</i>	MBTA	Not Listed	--	Yes	Yes	No. No tree clearing proposed; therefore, no direct Project effect and no field survey required.
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	MBTA	Not Listed	--	Yes	Yes	No. No tree clearing proposed; therefore, no direct Project effect and no field survey required.

BGEPA = Bald and Golden Eagle Protection Act.

MBTA = Migratory Bird Treaty Act.

5.3 Field Surveys

Based on the results of the resource agency consultation and desktop evaluation, special-status plant surveys were performed on September 6-7, 2018 on approximately 33.1 acres over seven sites to search for two rare plant species, northeastern bulrush (2 sites; 5.1 ac) and small whorled pogonia (5 sites; 28.0 ac). Weather during the survey period ranged from mostly clear to periods of light-to-moderate rain, with daytime temperatures ranging from 70 degrees Fahrenheit (°F) to 85 °F. No specimens of either species were identified during the field surveys and no suitable habitat was identified for northeastern bulrush. However, suitable habitat was identified for small whorled pogonia in portions of each site surveyed for this species. Additionally, during relicensing studies performed in June 2018, biologists surveyed areas suitable for the growth of swamp buttercup (*Ranunculus hispidus* var. *nitidus*).

Subsequent to filing the Initial Study Report (ISR) with the Commission on February 8, 2019, the USFWS issued comments on the ISR via letter dated April 10, 2019 requesting Eagle Creek perform additional field surveys for small whorled pogonia during the plant's blooming season (e.g., May to mid-June). Accordingly, on May 30 and June 12, 2019, surveys were performed on a total of 19.77 acres across three sites (SWP-2, 3, and 5 as described below) based on the estimated percentage of habitat determined to be potentially suitable for small whorled pogonia during the 2018 survey. The survey dates were chosen based on a consideration of the weather that occurred in May 2019 (i.e., above average rainfall and below average temperatures). During the 2019 surveys, no specimens of small whorled pogonia were observed; although, suitable habitat for the species was present on all three sites surveyed.

A description of each survey site, by species, and a summary of findings is provided below. Species occurrence locations indicating the areas that were field surveyed are shown on figures provided in Attachment 2, which is being filed separately as CUI/Privileged Information based on the sensitivity of species locations.

5.3.1 Northeastern Bulrush

Site NB-1 – The USFWS identified an approximately 3.3-acre area that may provide suitable habitat for northeastern bulrush (NB-1 on figures provided in Attachment 2) located on the western shore of the Rio Reservoir. Based on the location of this area in relation to the Rio Reservoir, a field survey was performed across the 3.3-acre area to identify an occurrence or suitable habitat for northeastern bulrush. No occurrences of northern bulrush or suitable habitat was identified at this site during the field survey performed on September 6-7, 2018. Site NB-1 is comprised of a hemlock-hardwood forest with a small, heavily scoured perennial watercourse. There was a closed tree canopy; about 30 percent of the ground surface was exposed bedrock. There was virtually no ground cover except along the stream channel and an unpaved east-west access road; these areas featured a Japanese stiltgrass (*Microstegium vimineum*) monoculture. There were a large number of recently uprooted trees on the site, presumably from the May 2018 windstorm that affected the area.

Site NB-2 - The USFWS identified an approximately 1.7-acre area that may provide suitable habitat for northeastern bulrush (NB-2 on figures provided in Attachment 2) located southwest of the Rio Main Powerhouse. Based on the location of this area in relation to the Rio Main Powerhouse and nearby whitewater boating put-in, a field survey was performed across the 1.7-acre area to identify an occurrence or suitable

habitat for northeastern bulrush. No occurrences of northern bulrush or suitable habitat was identified at this site during the field survey performed on September 6-7, 2018. Site NB-2 is a hemlock-hardwood forest associated with a heavily scoured perennial stream. There were no wetlands or evidence of ponded water on the site. There were several patches of even-aged American beech (*Fagus grandifolia*) saplings growing in clearings created by canopy loss of eastern hemlock (*Tsuga canadensis*) due to hemlock woolly adelgids¹. The ground cover was sparse; dominated by monocultures of Japanese stiltgrass.

5.3.2 Small Whorled Pogonia

Site SWP-1 – The USFWS identified an approximately 6.0-acre area that may provide suitable habitat for small whorled pogonia (SWP-1 on figures provided in Attachment 2), of which a small portion of the area is located within the FERC project boundary along the transmission line for the Rio Project. Based on the location of this area in relation to the Rio Project transmission line within the FERC project boundary, a field survey was performed across a 1.3-acre area to identify an occurrence or suitable habitat for small whorled pogonia. No occurrences of small whorled pogonia identified at this site during the field survey performed on September 6-7, 2018; however, approximately 30 percent of the site was identified as suitable habitat for the species. Site SWP-1 is a dense hemlock-hardwood forest on a steep, east-facing slope. There were no wetlands or other water features observed on the site. Ground cover (Canada mayflower [*Maianthemum canadense*], red maple [*Acer rubrum*] seedlings, and Christmas fern [*Polystichum acrostichoides*]) was absent or very sparse; one American chestnut (*Castanea dentata*) (afflicted with chestnut blight) was observed on the site.

Site SWP-2 – The USFWS identified an approximately 37.1-acre area that may provide suitable habitat for small whorled pogonia (SWP-2 on figures provided in Attachment 2), of which a small portion of the area is located within the FERC project boundary along the transmission line for the Rio Project. Based on the location of this area in relation to the Rio Project transmission line within the FERC project boundary, a field survey was performed across a 10.7-acre area to identify an occurrence or suitable habitat for small whorled pogonia. No occurrences of small whorled pogonia were identified at this site during the field survey performed on September 6-7, 2018; however, approximately 80 percent of the site was identified as suitable habitat for the species. Site SWP-2 is a hemlock-hardwood forest with a closed canopy. Ground cover was sparse or absent. The site was an east-facing slope; about 20 percent of the ground surface was exposed rock or boulders. There was a depressed area about one-third of an acre in size near the westerly edge; vegetation in the depression was a near-monoculture of Japanese stiltgrass.

On May 30 and June 12, 2019, field surveys were performed across a 10.7-acre area at Site SWP-2 to identify an occurrence or suitable habitat for small whorled pogonia. Although suitable habitat for small whorled pogonia was observed at Site SWP-2, no specimens were observed during the 2019 surveys. During the 2019 surveys, four clusters containing specimens (four to seven plants each) of downy rattlesnake plantain (*Goodyera pubescens*) were found on Site SWP-2. There were one or two mature plants (with emerging flower

¹ The hemlock woolly adelgid (HWA) is an invasive, aphid-like insect that attacks North American hemlocks. HWA are very small and often hard to see, but they can be easily identified by the white woolly masses they form on the underside of branches at the base of the needles (NYSDEC Undated c).

stalks) in each cluster with several immature nonflowering plants. One mature plant appeared to have been recently browsed. Rock polypody was common on the boulders and exposed ledges.

Site SWP-3 – The USFWS identified an approximately 5.7-acre area that may provide suitable habitat for small whorled pogonia (SWP-3 on figures provided in Attachment 2) located adjacent to the west shore of the lower Mongaup River downstream of the Rio Main Powerhouse. Based on the location of this area in relation to the Mongaup River downstream of the Rio Project, a field survey was performed across a 2.3-acre area (area within 300 feet to Mongaup River) to identify an occurrence or suitable habitat for small whorled pogonia. No occurrences of small whorled pogonia identified at this site during the field survey performed on September 6-7, 2018; however, approximately 80 percent of the site was identified as suitable habitat for the species. Site SWP-3 is a hemlock–hardwood forest with a small eastward-flowing perennial stream tributary to the Mongaup River located on the northern end of the site. An old logging road runs north-south along the western side of the site; there were a number of breaks in the dense tree canopy due to windthrown trees. The groundcover, comprised of cinnamon fern (*Osmundastrum cinnamomeum*), jewelweed (*Impatiens capensis*), and Japanese stiltgrass, was very dense in the clearings and on steep slopes.

On May 30 and June 12, 2019, field surveys were performed across a 2.3-acre area at Site SWP-3 to identify an occurrence or suitable habitat for small whorled pogonia. Although suitable habitat for small whorled pogonia was observed at Site SWP-3, no specimens were observed during the 2019 surveys. During the 2019 surveys, about 20 specimens of a “look-alike” species, Indian cucumber root (*Medeola virginiana*), were found on Site SWP-3 and consisted of non-blooming and blooming plants.

Site SWP-4 – The USFWS identified an approximately 15.0-acre area that may provide suitable habitat for small whorled pogonia (SWP-4 on figures provided in Attachment 2) located adjacent to the west shore of the lower Mongaup River downstream of the Rio Main Powerhouse. Based on the location of this area in relation to the Mongaup River downstream of the Rio Project, a field survey was performed across a 7.0-acre area (area within 300 feet to Mongaup River) to identify an occurrence or suitable habitat for small whorled pogonia. No occurrences of small whorled pogonia identified at this site during the field survey performed on September 6-7, 2018; however, approximately 40 percent of the site was identified as suitable habitat for the species. Site SWP-4 is a hemlock–hardwood forest with a north-south band of palustrine forested wetland at the toe of a steep slope west of the Mongaup River. There were two west-to-east flowing perennial streams that enter the wetland; the resulting watercourse flows south through the center of the wetland. There were some breaks in the canopy in the upland due to hemlock tree kill by woolly adelgids, and some breaks in the wetland due to recent windthrow, presumably resulting from the May 2018 wind storm. The ground cover is dominated by Japanese stiltgrass, jewelweed, cinnamon fern, and sphagnum moss species (*Sphagnum* spp.) observed along the central stream course.

Site SWP-5 – The USFWS identified an approximately 21.9-acre area that may provide suitable habitat for small whorled pogonia (SWP-5 on figures provided in Attachment 2) located adjacent to the west shore of the lower Mongaup River just upstream of the mouth. Based on the location of this area in relation to the Mongaup River downstream of the Rio Project, a field survey was performed across a 6.8-acre area (area within 300 feet to Mongaup River) to identify an occurrence or suitable habitat for small whorled pogonia. No occurrences of small whorled pogonia identified at this site during the field survey performed on September 6-7, 2018; however, approximately 80 percent of the site was identified as suitable habitat for the species. Site SWP-5 is

a hemlock–hardwood forest with a dry stream course at the southern end of the site and a dry, manmade water diversion channel located near the center of the site. A very steep slope runs north to south through the site; a plateau at the crest features a dense canopy of hemlock, chestnut oak (*Quercus prinus*), and white pine (*Pinus strobus*). The hemlocks, particularly the largest trees, had been affected by woolly adelgids; there is a deep leaf litter layer (except on the steep slope) resulting in a very sparse ground cover dominated by eastern hayscented fern (*Dennstaedtia punctilobula*), Japanese stiltgrass, and partridgeberry (*Mitchella repens*).

On May 30 and June 12, 2019, field surveys were performed across a 6.8-acre area at Site SWP-5 to identify an occurrence or suitable habitat for small whorled pogonia. Although suitable habitat for small whorled pogonia was observed at Site SWP-5, no specimens were observed during the 2019 surveys.

5.3.3 Swamp Buttercup

Pursuant to species occurrence information provided by the NYNHP, swamp buttercup may occur at the northern end of the Mongaup Falls Reservoir. While performing relicensing studies in 2018, biologists viewed this area, which was inundated by the Mongaup Falls Reservoir and no swamp buttercup was observed. While performing relicensing studies from June 25 to 27, 2018, field biologists incidentally observed plants within the study area that had physical characteristics similar to swamp buttercup, a state-listed endangered plant (Table 5-1). The plants were observed in riverine (below bank full channel elevation) habitat growing with emergent vegetation along Black Lake Creek downstream of Toronto Reservoir and along the Mongaup River downstream of Swinging Bridge Reservoir and Rio Reservoir. The substrate of the areas was saturated with coarse sand, some gravel, and finer textured soils located in pockets throughout the area.

Biologists were unable to make a positive identification of the observed plants in the field. In an attempt to identify the species, on November 16, 2018, Eagle Creek submitted photographs of the observed plants and a map showing the locations of the observations (SB-1 through SB-4 shown on figures in Attachment 2) to the NYNHP, seeking concurrence of the identification of the potential rare plant species. On November 26, 2018, the NYNHP responded to the November 16, 2018 species identification request letter via email indicating that based on the photographs provided, the NYNHP was unable to make a positive identification of the species. Copies of this correspondence are provided in Attachment 1 and the locations of these observed plants are shown on figures provided in Attachment 2, both of which are being filed separately as CUI/Privileged Information based on the sensitivity associated with species locations.

6.0 Summary

Based on consultation performed in 2018 with the USFWS, NYSDEC, and NYNHP, 28 special-status species (Table 5-1) were identified that are known or could occur in the Projects' vicinity. The 28 special-status species are comprised of 10 birds, 5 insects, 3 mussels, 1 fish, 2 mammals, 2 herptiles, and 5 plants.

Eagle Creek performed a desktop evaluation of the identified species locations provided by the resources agencies along with their associated habitat requirements and life histories to determine if the identified species were located within the study area and could be affected by operation, maintenance, land management activities, or recreation use at the Projects. This desktop evaluation determined the species and areas that were field surveyed.

Based on the results of the resource agency consultation and desktop evaluation, special-status plant surveys were performed on approximately 33.1 acres on September 6 and 7, 2018, at seven sites to search for two rare plant species, northeastern bulrush (2 sites; 5.1 ac) and small whorled pogonia (5 sites; 28.0 ac). Additional special-status species surveys were performed on approximately 19.77 acres on May 30 and June 12, 2019, at three sites to search for small whorled pogonia. No specimens of either northeastern bulrush or small whorled pogonia were identified during the field surveys and no suitable habitat was identified for northeastern bulrush. Suitable habitat was identified for small whorled pogonia in portions of each site surveyed for this species; however, given the location of these areas relative to the Projects, Project operations, maintenance or land use activities are not anticipated to affect these areas.

Additionally, during relicensing studies performed in June 2018, biologists surveyed areas suitable for the growth of swamp buttercup. During these surveys, field biologists incidentally observed plants within the study area that had physical characteristics similar to *Ranunculus hispidus* var. *nitidus* (swamp buttercup), a state-listed endangered plant (Table 5-1). Biologists were unable to make a positive identification of the observed plants in the field. On November 16, 2018, Eagle Creek submitted photographs of the observed plants and a map showing the locations of the observations to the NYNHP, seeking concurrence of the identification of the potential rare plant species. On November 26, 2018, the NYNHP responded to Eagle Creek's November 16, 2018 species identification request letter via email indicating that, based on the photographs provided, the NYNHP was unable to make a positive identification of the species.

7.0 Variances from Approved Study Plan

The Special-Status Species Study was conducted in conformance with the Commission's SPD.

8.0 Literature Cited

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Attachment 1

Agency Consultation and Correspondence

(filed separately as CUI/Privileged Information)

Attachment 2

Special-Status Species Survey Map

(filed separately as CUI/Privileged Information)