



United States Department of the Interior

FISH AND WILDLIFE SERVICE

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June 27, 2012

Memorandum

To: Assistant Regional Director, Ecological Services, Hadley, MA

From: Field Supervisor, New York Field Office, Cortland, NY

Subject: Biological Opinion: Incidental Take Permit Application Submitted by National Grid Associated with a Habitat Conservation Plan for Karner Blue Butterfly; Conference Opinion for Frosted Elfin

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of a proposed incidental take permit (ITP) for National Grid (NG) and its effects on the Federally- and State-listed endangered Karner blue butterfly (*Lycaeides melissa samuelis*) (KBB) in accordance with Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*). A conference opinion is also provided for the frosted elfin butterfly (*Callophrys irus*) (FE), listed as threatened by the State of New York, and which could be included in the ITP at a later time if such species becomes listed under the ESA.

After reviewing the current status of the KBB and FE, the environmental baseline for the action area, the effects of the proposed activities, and the cumulative effects, the Service has concluded that the action, as proposed, is not likely to jeopardize the continued existence of the KBB or FE.

These biological and conference opinions are based on information provided in NG's application, information obtained from the scientific and commercial literature, telephone conversations, meetings, and discussions with the New York State Department of Environmental Conservation (NYSDEC). A complete administrative record of this consultation is on file in the Service's New York Field Office, Cortland, New York. Analyses supporting these conclusions follow.

Description of the Proposed Action

As defined in the ESA section 7 regulations (50 CFR 402.02), "action" means "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas." The direct and indirect effects of the action must be considered in conjunction with the effects of other past and present Federal, State, or private

activities, as well as the cumulative effects of reasonably certain future State or private activities within the action area.

In this case, the proposed action is the Service's issuance of a 50-year ITP to NG. The ITP will authorize take of the KBB, and will also authorize take of the FE should they become Federally-listed in the future, associated with NG's operations and maintenance and new construction of electric and natural gas facilities in northeastern New York. Issuance of the ITP is predicated upon the Service's approval of NG's Habitat Conservation Plan (HCP). In addition, the Service and NG have developed an Implementing Agreement (IA) for the HCP.

The consultation was initiated on May 6, 2009, when the Service received NG's ITP application dated April 30, 2009. A complete consultation history can be found in Appendix A. NG had been conducting the same activities as addressed in the HCP in areas with KBB and FE under a Service 10(a)(1)(A) permit (Permit No. TE813745-1) for 12 years. That permit was originally associated with a project researching impacts of right-of-way (ROW) management on KBBs. Subsequently, the Service determined that an ITP was appropriate for ongoing and future take of KBB and FE associated with NG activities.

The proposed action is fully described in the HCP and IA which are incorporated by reference. The following provides a summary of key aspects of the action including covered lands, covered activities, avoidance and minimization measures, mitigation, enhancement, monitoring, reporting, and adaptive management.

Covered Lands

Covered lands are described in Section 1.2 of the HCP and encompass all of the lands where NG has requested authorization for incidental take of KBB and FE and lands where mitigation is proposed. These lands are found within Albany, Oneida, Saratoga, Schenectady, and Warren Counties in New York (Figure 1 - from HCP). The covered lands include the following NG infrastructure:

- Sixteen 115kV overhead electric transmission lines and one 230 kV overhead electric transmission line for a total of 80.4 miles;
- Seven 34.5kV sub-transmission lines for a total of 77.7 miles;
- One electric substation;
- Electric distribution lines;
- 53.9 miles of natural gas transmission pipelines; and
- 30 acres of non-ROW parcels adjacent to NG ROW.

They specifically include all lands (e.g., ROWs, easements, and NG-owned parcels) that were surveyed during the 2006 Wild Blue Lupine Baseline Survey (hereafter Baseline Survey) and which contain surveyed wild blue lupine populations. Covered lands also include areas where wild blue lupine habitat was observed during 2006 baseline surveys, areas where additional surveys are needed, mitigation areas, and enhancement areas. During the Baseline Survey, 33.03 acres of lupine were documented within the covered lands. Because all distribution lines have

not been surveyed to date, it is possible that additional lupine plants occur within the covered lands. To address this potential, NG and the Service assume at least one additional acre of yet undiscovered lupine for a total of 34.03 acres.

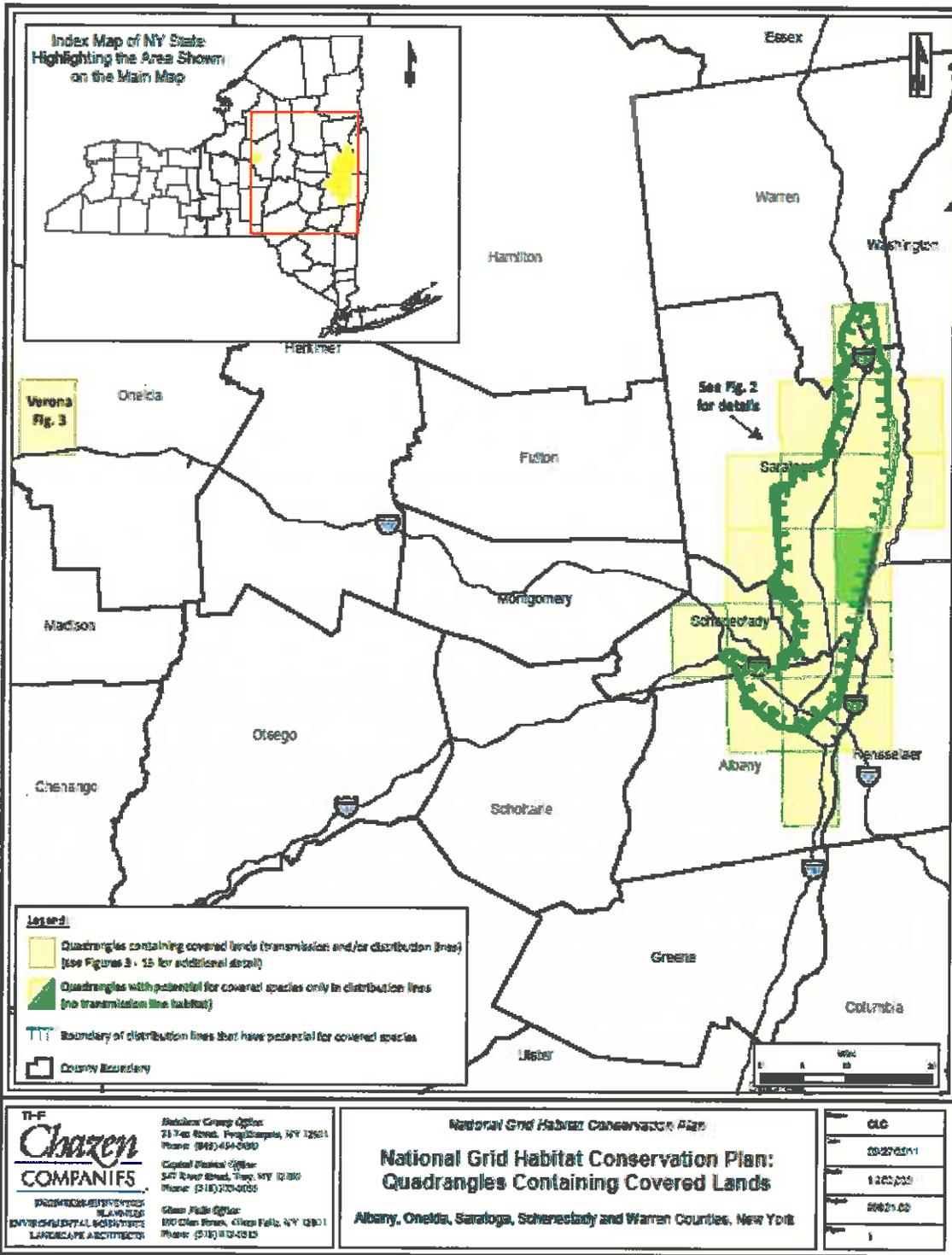


Figure 1. HCP Covered Lands.

The following is a summary of the covered lands, broken into three larger categories:

Locations where covered species are known to be present.

These include “Covered Lands - ROW with Covered Species” and are broken into two subsets: “Covered Lands A” totaling 34 acres, of which 33 acres are where wild blue lupine are known to be present and one additional acre where lupine may also occur; and “Covered Lands B”, estimated at 330 acres in size, that are associated with a 200-meter buffer area around lupine patches containing nectar or grass species. These locations are illustrated in HCP Appendix C, Figures 3 through 15. “Covered Lands A and B” may occur anywhere throughout the covered lands, depending upon local habitat conditions and while initially illustrated with red or blue hatching, “Covered Lands A and B” may shift throughout plan implementation.

Locations where covered species may be present.

These include “Covered Lands - ROW for Survey, and Distribution Lines” within the boundaries shown on Figure 2 in HCP Appendix C. In these areas, wild blue lupine is either not known to be present based on the 2006 Baseline Survey, or, for the Distribution Lines, was not surveyed. The ROW areas are shown with blue hatch marks in HCP Appendix C, Figures 3 through 15.

Locations where mitigation or enhancement is proposed.

These include mitigation associated with “Covered Lands C and E”, in the Queensbury and Albany Pine Bush areas, where new areas of wild blue lupine habitat will be encouraged, and enhancement associated with “Covered Lands D1 and D2” in the Queensbury Area. These locations are illustrated in HCP Appendix C, Figures 16 through 20.

Covered Activities

Covered activities are described in Section 2 of the HCP and include all actions within the covered lands that are likely to result in incidental take of KBB and FE, are reasonably likely to occur over the life of the ITP, and for which NG has some form of control. The covered activities addressed in the HCP include NG’s operations and maintenance (O&M), reconstruction and new construction activities associated with its electric transmission, sub-transmission and distribution facilities, and its natural gas pipeline facilities. With regard to electric and natural gas distribution facilities operated by NG along shared easements, mainly adjacent to public road or highway ROWs or on private properties, the HCP only addresses NG’s activities within such ROWs and does not cover activities conducted by other entities within those same ROWs. NG contractors will be required to comply with the HCP in the same manner as NG personnel, and this requirement was taken into consideration in the assessment of take.

Covered activities include:

- Electric transmission, sub-transmission, and distribution maintenance activities,
- Electric substation maintenance activities,

- Natural gas pipeline and associated facilities maintenance activities,
- General ROW maintenance activities,
- Vegetation management/maintenance, including maintenance for wild blue lupine habitat and thus KBB,
- ROW repair, regrading, and revegetation,
- Access road O&M activities,
- Facility inspection activities,
- Land clearing,
- Vegetation disposal,
- Earthwork,
- Access road construction,
- Electric and natural gas facility installation,
- Regrading, stabilization, and restoration, and
- Spill occurrence, prevention, containment, and control.

The covered activities are conducted to maintain electric and natural gas service to customers through vegetation management, installation, maintenance, repair, replacement, reconstruction, and new construction and often involve the use of vehicular, heavy equipment, and power equipment as well as foot traffic. A majority of these activities have been occurring and undertaken on existing ROWs under the current management of NG.

Biological Goals and Objectives

The biological goal for the HCP is to complement existing conservation efforts in the state of New York for the KBB and FE. NG will further expand upon their best management practices and vegetative management protocols in an effort to meet this goal. The following objectives will be the focus of the conservation strategy.

Objective 1: To focus NG's mitigation/restoration activities:

- a) within the Albany Pine Bush and Queensbury viable KBB and FE population areas. The objective of the activities within the Albany Pine Bush Preserve area is to enhance ROW habitats that act as corridors among existing Preserve populations. This will be accomplished by linking existing populations of wild blue lupine habitat. The objective of the activities in the Queensbury area is to create and restore wild blue lupine habitat within the ROWs, to serve as primary habitat for the KBBs and FEs. There are currently no other existing wild blue lupine habitat units to link together in the general area of the ROWs. Efforts will also be expanded in the Queensbury area to provide supplemental KBB breeding populations through translocation efforts to increase the reproductive and colonization capacity of the species;
- b) on strategically selected portions of NG's fee-title owned ROWs, adjacent NG property, and on easement lands only where permission has been granted by the landowner;

c) in areas where ROWs are essential for providing strategic connectivity among isolated populations; and

d) on or adjacent to ROWs near larger KBB and FE management units.

Objective 2: To locate and work with existing non-governmental organizations (NGOs) having an interest in conserving and managing KBB and FE habitat (i.e., restore additional habitat near existing conservation lands).

Objective 3: To avoid and/or minimize negative effects and actions (i.e., ATV use within ROWs) that are already occurring to the covered species habitat.

Objective 4: To promote education/outreach regarding the covered species and conservation of their habitat.

Objective 5: To improve and expand upon the 2006 Baseline Survey habitat acreage and also ensure that the amount of habitat for the covered species within the covered lands will not drop below the 2006 Baseline Survey habitat acreage of 34 acres.

To meet the above-listed objectives, the HCP includes measures to avoid, minimize, and mitigate potential adverse effects of project implementation on the KBB and FE. It also provides additional enhancement measures beyond what is required to compensate for impacts from the project.

Avoidance and Minimization Measures

NG has developed and follows multiple environmental guidance (EG) documents to minimize environmental impacts from their work. All NG personnel and contractors are required to follow these documents. The following documents are applicable to work in the covered lands:

- EG-301NY – Project Planning and Permitting
- EG-302NY – Protected Waters
- EG-303 – ROW Access, Maintenance and Construction Best Management Practices (BMPs)
- EG-304 – Migratory Birds
- EG-305NY – Rare and Endangered Species
- EG-3067NY – Cultural, Historic and Other Natural Resources
- EG-307NY – Herbicide and Pesticide Use
- EG-308NY – Unauthorized Dumping
- EG-501NY – Release Notification
- EG-502NY – Spill and Release Cleanup

In addition to these standard measures, NG, the Service, and NYSDEC developed specific measures to avoid or minimize impacts to the KBB and FE. Sections 4.1 through 4.3 of the HCP identify the implementation personnel from NG, and identify avoidance and minimization

measures (AMMs) for NG's vegetation maintenance, all other covered activities, and restricting illegal trespass. Many of these same AMMs have been previously implemented by NG during the 12-year duration of their previous 10(a)(1)(A) permit.

In advance of field work, NG will instruct applicable employees and contractors involved in covered activities about the presence and status of the covered species, the identification of wild blue lupine habitat and KBB and FE, the HCP, and the importance of implementing AMMs. When a work order is issued, NG will also check the location against current mapping to determine where the work order is located in relationship to the covered lands identified above, and what level of AMMs are identified for the type of covered lands present.

Within "Covered Lands - ROW for Survey and Distribution Lines," NG Environmental Management personnel will ensure that NG personnel conducting covered activities have knowledge of the HCP, understand suitable habitat conditions for lupine, and will be able to recognize lupine plants.

Within covered lands with KBB and FE populations (Specifically Covered Lands A and B – but also nested within Covered Lands C, D1, D2, and E), additional AMMs apply. To minimize the potential impacts from vegetation management activities, the following practices will be instituted:

- a) Mowing, tree-trimming, and herbicide application activities will occur on a rotational sequence (every 3 to 5 years) from September 1 through March 31. Vegetation maintenance activities will not be performed between April 1 and August 31. This AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, field crews, and foresters.
- b) During mowing activities, blades of mowers and brush hogs shall be set at least eight inches above ground level. This AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, field crews, and foresters.
- c) Mowing shall be conducted no more than once a year. In rare occasions where mowing occurs annually, mowing will not be conducted more than once in a year. This AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, field crews, and foresters.
- d) Tree girdling may be completed any time of the year. Hand-pulling of individual shrubs/trees, which do not uproot wild blue lupine plants, may occur at any time of the year. This AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, field crews, and foresters.
- e) Herbicide Application. This AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, field crews, and foresters.

- Herbicides shall be applied by personnel who are pesticide-certified and trained in identifying wild blue lupine populations and KBB and FE. All applicators shall be instructed to avoid stepping on wild blue lupine and/or accidentally spraying wild blue lupine or nectar species.
- Herbicide treatment shall be applied when conditions do not permit drift (i.e., wind speeds are ≤ 5 m.p.h.). This measure is currently enacted by NG.
- Herbicides shall not be applied using an open container. This will reduce the risk of spills.
- Filling and emptying of herbicide containers shall occur at a distance of greater than 250 feet from KBB and FE habitat.
- All herbicide applicators shall carry or have a spill kit immediately available (on person or in vehicle).
- All herbicide application equipment (i.e., hoses, tanks, clamps) shall be inspected prior to use each treatment day.

Avoidance and minimization measures associated with all other activities:

- a) Vehicle use shall be minimized whenever possible (i.e., conduct patrols by foot). This AMM is the responsibility of all HCP Implementation personnel.
- b) Walking/driving directly through wild blue lupine/nectar plants shall be avoided unless absolutely necessary. This AMM is the responsibility of all HCP Implementation personnel.
- c) As outlined in NG's EG-303 document, "ROW Access, Maintenance and Construction Best Management Practices (BMPs)," abandoning pipe and construction debris (leaving on surface) will be avoided. This AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, field crews, and foresters.
- d) NG will not intentionally introduce invasive plant species into the covered lands. Areas that are disturbed during O&M activities will be revegetated with indigenous, non-invasive species, preferably nectar species suitable for KBB and FE habitat. This AMM is the responsibility of all HCP Implementation personnel.
- e) Piling, stacking, chipping, or dragging of vegetation will be avoided to the greatest extent possible. If vegetative disposal cannot be avoided, the vegetation will be removed by the least intrusive method. This AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, field crews, and foresters.
- f) Prior to conducting painting or other chemical applications to poles or other structures, tarps or other lightweight protective cloth barriers will be placed over any nearby wild blue lupine populations so that paint or chemicals will not fall onto the plants. This

AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, field crews, and foresters.

- g) An outreach program will be implemented to nearby landowners. The program will emphasize the importance of protecting KBB and FE habitat and the need to eliminate ATV usage and dumping (i.e., garbage, lawn clippings, etc.) on ROW easements. This AMM is the responsibility of NG environmental management personnel and security and asset management personnel.
- h) NG will continue to conduct security patrols and to request local law enforcement participation in areas where ATV trespass is a known concern. This AMM is the responsibility of NG environmental management personnel and security and asset management personnel.
- i) NG will contact local ATV associations (i.e., Albany-Greene ATV Association, Inc., All County ATV Club) to communicate the importance of staying off NG land and ROWs and other private property. This AMM is the responsibility of NG environmental management personnel and security and asset management personnel.
- j) NG will support the Service's and NYSDEC's environmental enforcement actions and local law enforcement efforts to prosecute illegal ATV and other types of trespass upon NG land and ROWs. This AMM is the responsibility of NG environmental management personnel and security and asset management personnel.
- k) When working within the covered lands identified in this Section, NG employees will have fuel oil and spill kits immediately available. This AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, field crews, and foresters.
- l) During any pipeline hydrostatic testing events, no water will be discharged into the covered lands identified in this Section. This AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, and field crews.
- m) Snow plowing will be minimized along ROW access roads. Blades will be lifted when they are off pavement. In off-access road areas, blades should be elevated to heights that leave approximately six inches of snow cover remaining. This AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, and field crews.
- n) Salt applications will be minimized. If possible, clean sand without weed seed will be used in place of salt. This AMM is the responsibility of NG environmental management personnel, engineers, planners, operation managers, field supervisors, and field crews.

- o) Signs that alert personnel that they are working in a sensitive area will be posted. This AMM is the responsibility of NG environmental management personnel.
- p) NG will instruct all individuals involved in O&M activities about the presence and status of the Covered Species and their associated habitat in NG ROWs. All O&M personnel will be trained to identify wild blue lupine and KBBs and FEs and advised of the importance for proper implementation of AMMs while completing field work in or near KBB and FE habitats. This AMM is the responsibility of NG environmental management personnel.
- q) NG will not permit incompatible uses of fee-owned ROWs that have surveyed wild blue lupine patches (i.e., Covered Lands A). This AMM is the responsibility of NG environmental management personnel and security and asset management personnel.
- r) NG will not grant use of their ROWs for activities (i.e., temporary or permanent roads) that pose adverse impacts to the covered species and their habitat. This would include potentially damaging or incompatible uses. Exceptions to this AMM would only be made with the explicit approval of the Service and NYSDEC, and would be for activities like the Town of Queensbury or the Albany Pine Bush Preserve Commission (APBPC) requesting access to adjacent habitat that is identified for improvement or management. Access would be granted in those cases with the approval of the Service and NYSDEC and conditioned that access is not through lupine patches and that nectar and grass areas are avoided. This AMM is the responsibility of NG environmental management personnel and security and asset management personnel.
- s) For future subdivisions with access routes that cross ROWs, developers will be required to install and insure maintenance of fencing and gates. This AMM is the responsibility of NG environmental management personnel and security and asset management personnel.

NG will also target illegal ATV use and other ROW encroachments. NG will attempt to stop and reduce the amount of illegal ATV trespass by restricting access, where practicable, and pursuing enforcement actions along the Spier-Queensbury #5-Ogden Brook Substation Tap 115kV ROW in the Town of Queensbury, Warren County (see Appendix C, Figure 20, and HCP Section 4.3.3). NG will also attempt to stop illegal lawn waste dumping identified by the NYSDEC at the Queensbury-Henry Street #14 34.5kV ROW and an approximately 1-mile segment of the Spier-Queensbury #17/5 115kV ROW running east-west and crossing Dixon Road.

The above-listed measures greatly reduce the likelihood of take of KBB and FE from many NG activities and many of these measures have been in place and used by NG for years. However, because of the close connection between KBB and FE and their habitat and the periodic need for work within their habitat for emergency or routine operations, take cannot be completely avoided.

Mitigation

The mitigation efforts are described in Section 4.4 of the HCP. To compensate or mitigate for the impact of the take of KBBs and FEs associated with the covered activities, NG proposes two actions: creation of a 5-acre off-ROW preserve (Covered Lands C) and restoration and management of a 23-acre portion of ROW (Covered Lands E). To mitigate for impacts to KBB and FE associated with permanent habitat impacts from O&M or new construction activities, NG will create a 5-acre off-ROW preserve on a NG-owned parcel. Approximately 3.3 acres of this parcel and a portion of the adjacent NG ROW are currently populated with a large wild blue lupine population while the remaining portion of the preserve area is currently forested. NG will selectively clear and remove undesirable tree species from about 1.25 acres of the forested portion of the preserve to provide more favorable growing conditions for wild blue lupine and enhanced habitat conditions for the KBB and FE. In addition, wild blue lupine and native nectar plants will be planted within the preserve. KBB and FE habitat will be protected and maintained at the site in perpetuity. NG will execute and record the easement within 30 months of permit issuance in accordance with a schedule described in the permit conditions.

In addition, NG will provide the Service with written monthly progress updates on the conservation easement development and scheduled milestones until the conservation easement has been officially recorded. In the event that scheduled milestones identified are not met by NG, no further HCP covered activities that will result in incidental take of KBB or FE through permanent habitat impacts may proceed until a Service-approved conservation easement is officially recorded. If unanticipated circumstances arise such that the final conservation easement is not approved by involved third parties and thus NG cannot meet the scheduled milestones, NG and the Service will reach mutual agreement on a revised schedule, or NG will provide for alternative permanent mitigation commensurate with the HCP obligations.

The restoration, management, and permanent protection of the 5-acre preserve will compensate for the impact of the take (in the forms of harm and/or death) of all KBB and FE within an estimated 3.5 acres of permanent habitat loss over the anticipated 50-year ITP duration. While there will be a period of time after permit issuance for NG to secure this conservation easement (up to 30 months), NG will be taking measures during this period to address issues of trespass and ATV use at the site.

To mitigate for take of KBB and FE associated with temporary habitat disturbance-related impacts from vegetation management and O&M activities, NG will enter into an agreement with the APBPC to restore approximately 23 acres of wild blue lupine habitat within two segments of fee-owned ROW, located within the Albany Pine Bush Preserve adjacent to APBPC lands. NG will fund initial restoration and provide access rights and habitat management rights for others to maintain the ROW annually for the duration of the ITP. Such efforts will help link KBB and FE habitat that occurs on each side of these ROWs and to increase the habitat acreage for the KBB and FE by approximately 23 acres. Should APBPC not be able to conduct agreed-upon management activities at any time throughout the life of the ITP, NG will contract with another suitable entity to conduct the management activities or may conduct the activities themselves with additional compliance monitoring responsibilities. While NG will have 90 days from the

time of ITP issuance to secure the contract for this component of the mitigation, NG and the Service do not anticipate that many covered activities impacting KBB or FE will occur over this short period. This is based on NG's past experience of conducting limited work in KBB and FE habitat.

In summary, the restoration, management, and permanent protection of the 5-acre preserve will compensate for the impact of the take (in the forms of harm and/or death) of all KBB and FE within an estimated 3.5 acres of permanent habitat loss over the anticipated 50 year ITP duration. The restoration and management of 23 acres of ROW for the life of the ITP will compensate for the impact of take (in the form of death) of a small percentage of KBB and FE within approximately 34 acres of lupine associated with periodic, temporary habitat disturbances.

Enhancement

NG has committed to conducting the following enhancement activities that are above and beyond required mitigation and are described in Section 4.5 of the HCP:

- *Covered Lands D1 – Spier-Queensbury #17/5 115 kV ROW:* This ROW is approximately 12 acres in size; it is anticipated that approximately 6 acres of woody vegetative removal will be undertaken in this area. NG will modify existing vegetation management techniques within this ROW to create a grassland community that will favor the natural expansion of the wild blue lupine populations and other nectar plant species. The primary focus of “Covered Lands D1” is the elimination of woody shrubs and low-growing trees, the associated vegetation layer that would otherwise shade-out wild blue lupine and nectar species to the point that they cannot survive. Periodic soil disturbances will also be carried out in conjunction with vegetation management activities. Undesirable plant species such as poison ivy, black locust, scrub oak, and non-native grasses that have become established in areas prone to yard waste dumping will also be removed to increase the potential for wild blue lupine and other nectar plant growth. This effort is described in greater detail in Section 4.5.1 of the HCP.
- *Covered Lands D2 - Spier-Queensbury #17/5 115 kV ROW and Spier-Queensbury #5-Ogden Brook Tap 115 kV ROW:* The focus of this effort is to restore approximately 25 acres of suitable habitat along these ROWs as an enhancement measure following successful cessation of ATV trespass (an additional enhancement measure). The effort associated with “Covered Lands D2” is described in greater detail in Section 4.5.2 of the HCP.
- *Translocate Karner Blue Butterflies:* NG will provide access across their ROW to lands owned by others, will pay for butterfly translocation, and will contract with the APBPC to implement this enhancement measure involving a KBB translocation program. A one-time contractual payment of \$15,000 will be paid to the APBPC to hire an intern for three summers. NG will also provide a one time, \$5,000 contractual payment to the Town of Queensbury or NYSDEC or APBPC for habitat management services at the candidate release site, for the translocation efforts. The APBPC will hire and manage a

summer intern to help facilitate translocation of KBBs to an approximately 2-acre parcel owned by the Town of Queensbury and currently managed by the NYSDEC. The parcel is located at the intersection of the Spier-Queensbury #17/5 and the Spier-Queensbury #5-Ogden Brook Substation Tap ROWs in the Town of Queensbury, Warren County. All efforts associated with this enhancement measure will be undertaken by others; NG's responsibility is only to fund this activity and to provide access across its ROW, as needed.

- *Conduct Public Outreach:* NG will conduct periodic outreach efforts to promote awareness of NG's HCP and the effects of ROW trespass and unauthorized uses upon the covered species and their ROW habitats. Targeted entities will include owners of properties located adjacent to ROWs with identified trespass problems and within the priority focus areas, any local ATV clubs or organizations, local media, and local law enforcement authorities.

Monitoring, Reporting, and Adaptive Management

Section 5.0 of the HCP describes the monitoring, reporting, and adaptive management program. The program will document implementation of AMMs; document compliance with mitigation requirements; develop data and reporting strategies; provide data and reports; evaluate effectiveness of mitigation measures; identify methods for improving the program over time (adaptive management program); and document implementation of adaptive management strategies.

NG will monitor compliance with the biological goals and objectives, AMMs, and required mitigation measures through its own environmental personnel or through direct use of an environmental consultant. The monitoring will also help to identify any areas where continued education or training is necessary to meet the terms of the HCP. If necessary, NG will provide additional training. The HCP administrator will track and record the amount and location of disturbances to the covered lands and document the mitigation acreage that is created. This information will be stored in a database maintained by NG environmental management personnel. The database will periodically be reviewed to ensure proper documentation of the measures that were conducted. NG will report this information in the annual HCP monitoring report.

To monitor the effectiveness of the HCP, NG will fund surveys of lupine populations and KBB and FE. Surveys of KBB and FE will be conducted every two years and surveys of wild blue lupine populations (excluding distribution lines)¹ will be conducted every five years. Should portions of the covered lands not have any lupine after two consecutive survey periods (10 years), NG can remove those ROW segments from the covered lands in accordance with minor amendment procedures found in HCP Section 5.5.1.

¹ Distribution lines will not be routinely surveyed. However, if any lupine is discovered along distribution lines, those patches will become part of the surveys.

NG will prepare and submit annual reports to the Service and NYSDEC no later than April 30 of each year. In Section 5.2 of the HCP, NG proposed including the following in their annual reports:

- a) summarized results of all wild blue lupine and KBB and FE surveys on covered lands (excluding Distribution Lines/Easements) (to be conducted every five years and two years, respectively), including any locations where additional adaptive management tasks are completed in established mitigation areas. A summary table depicting changes in the size of wild blue lupine patches will be included;
- b) a list of any surveyed wild blue lupine populations that were directly involved with any covered activities and a description of any known disturbances to the populations that occurred during completion of covered activities within or adjacent to these locations;
- c) a list of any adaptive management recommendations NG feels may be required to improve the conservation strategies included in the HCP (see Section 5.3);
- d) a summary of mitigation and enhancement measures implemented during the year. This may include the amount of wild blue lupine planted within Covered Lands C and E, number of devices installed to restrict illegal ROW trespass, and/or the status of public outreach, and KBB translocation efforts. Information provided by the APBPC, The Nature Conservancy (TNC), or other NGO within whom NG has established a conservation easement or similar cooperative agreement may also be provided; and
- e) confirmation that funding is available or committed for the full implementation of the HCP for the ensuing year.

The Service has developed additional reporting requirements as part of the ITP conditions.

The HCP includes an adaptive management program and it will be implemented by NG, in coordination with the Service and NYSDEC, with the support of all involved NGOs, and with input from contributing environmental consultants. NG will consult with the Service and NYSDEC biologists in proposing any adaptive management changes, and will seek their concurrences with same, before implementing them. The adaptive management program will consist of the following activities:

- a. evaluating monitoring data and results to support effective implementation of the HCP's conservation strategies;
- b. assessing the effectiveness of established AMMs for minimizing impacts during covered vegetative maintenance and O&M activities and modifying or developing new AMMs, as appropriate; and
- c. recommending changes to the approved conservation strategies of the HCP that may require modification of the ITP.

The adaptive management program has been designed to address the following areas of uncertainty associated with NG activities: ATV minimization measure effectiveness, effectiveness of landowner outreach, and habitat restoration/management effectiveness (mitigation lands and Covered Lands A). The goal of NG's ATV minimization measures is to avoid damage to KBB and FE from ATVs. If NG's efforts are insufficient, further responses are addressed in Section 5.4.1. The goal of landowner outreach is to avoid damage to KBB and FE from intrusions on NG ROWs. If NG's efforts are insufficient, further responses are addressed in Section 5.4.1. As discussed in the HCP, appropriate responses include:

- Increased landowner outreach (personal visits),
- Increased signage placed on site,
- Increased security patrols of ROWs and additional enforcement efforts,
- Installation of additional barriers (see Section 4.3),
- Use of new types of restrictive devices, and
- Restoration of disturbed areas (see Section 4.5.2)

The goal of habitat restoration efforts on mitigation lands are to meet or exceed habitat parameters described as "Good" in TNC's Viability Assessment Criteria for Karner Blue Butterfly (Bried 2009, Gifford and O'Brien 2010). NG will continue to manage mitigation areas until the parameters are met. This may include actions like replanting wild blue lupine seed or application of herbicide to invasive species. Finally, the goal of habitat efforts for "Covered Lands A" is to maintain and expand this area within the covered lands. If the acreage of "Covered Lands A" drops below 34 acres, NG will restore habitat back to at least 34 acres. In addition, while a working assumption is that improving the acreage and quality of habitat should result in improvements in KBB and FE population size, NG will monitor KBB and FE populations every two years to determine if the HCP program is effective.

In summary, the proposed action is the Service's issuance of a 50-year ITP to NG authorizing take of the KBB, and FE should they become Federally-listed in the future, associated with NG's operations and maintenance and new construction of electric and natural gas facilities in northeastern New York. Associated with their application for an ITP, NG developed an HCP that describes the covered lands, covered activities, biological goals and objectives, avoidance and minimization measures, mitigation, enhancement, and monitoring and adaptive management program.

Species Not Considered Further in This Opinion

There is one other Federally-listed species known to occur in the covered lands counties, but is not anticipated to be impacted by the proposed project. The Federally endangered Indiana bat (*Myotis sodalis*) is known to overwinter in very low numbers in hibernacula in Albany and Warren Counties. However, both hibernacula are located outside the covered lands. To date, there are no summer records of Indiana bats within the covered lands. Furthermore, the vast majority of trees likely to be removed during covered activities are young and small due to the routine vegetation management schedules NG employs. Due to scarcity, or perhaps complete absence, of this species in the action area and the infrequency of management actions that could

affect any individuals that might be present, effects of the proposed action on Indiana bats are discountable. This species is not considered further in this biological opinion.

I. BIOLOGICAL OPINION FOR KARNER BLUE BUTTERFLY

When evaluating the impacts of a proposed action on Federally-listed species, we consider the rangewide status of the species, the status of the species within the action area (environmental baseline), and the effects of the action on individuals, populations, and the species as a whole.

Rangewide Status of the Species

Listing Status

The KBB was listed as endangered under the ESA in 1992 due to ongoing threats from direct habitat loss and fragmentation, as well as habitat modification from fire suppression. Many subpopulations were small and isolated putting them at risk of extirpation from improper management or stochastic events. The KBB has also been listed as endangered by the State of New York since April 1977. No critical habitat has been designated for this species.

Life History

The following is a summary of KBB life history. The Karner Blue Butterfly Recovery Plan (Recovery Plan) (Service 2003) provides a comprehensive summary of KBB life history and is incorporated by reference.

The KBB has two broods, or adult flight periods, each year. Eggs that have overwintered from the previous year hatch in April. The larvae feed on wild blue lupine leaves and mature rapidly. Near the end of May, the larvae pupate and adult KBB emerge very late in May in most years. The adults are typically in flight for the first 10 to 15 days of June when the wild lupine is in bloom. Female KBB lay eggs on or near wild lupine plants. The eggs hatch in about one week and the larvae feed for about three weeks. They then pupate and the second brood of adults appear about the first or second week of July. This flight of adults lay their eggs among leaf litter or on grass blades at the base of lupines or on lupine pods or stems; these eggs do not hatch until the following spring (Schweitzer 1989, Dirig 1979). Generally, by late August, no adults remain. Cold and/or rainy weather can delay the two flight periods of the butterfly.

In addition to wild lupine, the KBB generally requires tall grass for late afternoon basking and overnight roosting, some shading vegetation to prevent overheating, a source of water, and nectar sources for the adults. A variety of understory plants serve as nectar sources for the adults (Service 2003).

Since the only known food plant for KBB larvae is wild lupine, the distribution of the KBB is closely tied to the distribution of habitats that support the wild lupine. In eastern New York and in New Hampshire, this habitat typically occupies sandplain communities and grassy openings within very dry pitch pine/scrub oak barrens. In the mid-western states, the habitat is also dry,

sandy openings, including openings in oak savannas, jack pine (*Pinus banksiana*) stands, and dune or sandplain communities.

Literature on the historic distribution of the KBB suggests that this species occurred as shifting clusters of populations distributed across a vast fire-swept landscape covering thousands of acres. While the fires resulted in localized extirpations, vegetative succession following these fires maintained suitable habitat and allowed rapid population expansion (Schweitzer 1989). The habitat of the butterfly is maintained by periodic disturbance that serves to create or maintain openings in forest canopies that are necessary for wild lupine to thrive.

The KBB is an example of a species for which suitable habitat occurs in relatively small areas (or patches) distributed over larger areas. Like other species whose habitat occurs in patches rather than large continuous tracts of land, populations of the KBB exist as dynamic collections of subpopulations that are interconnected genetically by dispersal. Collectively these interconnected subpopulations make up a metapopulation. Metapopulations continually shift in distribution across the landscape as habitat patches change from suitable to unsuitable habitat. This change in habitat suitability is due to varying stages of disturbance and succession (Givnish et al. 1988, Schweitzer 1989). Three theoretical metapopulation structures that KBBs may exhibit are core-satellite, patchy, and true metapopulation structures; refer to Appendix E of the Recovery Plan (Service 2003).

To preserve species with patch distributions, it is necessary to maintain: (1) existing patches of suitable habitat, (2) the processes that create new habitat patches, and (3) the corridors that allow a species to migrate between habitat patches (Harrison et al. 1988). Research has shown dispersal of the KBB to range from about 200 yards (about 600 feet) to about 2 miles. Open linear areas such as road and railroad ROWs, utility corridors, and forest roads and trails can serve as dispersal corridors for the KBB allowing them to re-colonize or colonize wild lupine patches. Refer to Appendix G of the Recovery Plan (Service 2003) for more information on dispersal of the KBB.

Distribution and Status

Historically, the KBB occurred in a narrow geographic area that extended from eastern Minnesota, across portions of Iowa, Wisconsin, Illinois, Indiana, Massachusetts, Michigan, Ohio, Pennsylvania, New York, New Hampshire, Maine, and the province of Ontario, Canada. Over the past 100 years, the KBB have declined significantly throughout the species' range. At the time of listing, KBB occurred in eight states and was considered extirpated in Iowa, Pennsylvania, Massachusetts, and Maine, as well as the province of Ontario. As of the summer of 2011, KBB are known to occur in six states, are considered extirpated in Illinois and the status is uncertain in Minnesota. In Illinois, very low numbers of KBB were observed only twice (in 1992 and 2001) at one site and not seen since. In Minnesota, for the first time, in 2011, no KBBs were found at that state's only known site; however, further surveys are needed to determine whether KBB are still present (Service unpublished data). Overall, the rangewide distribution of KBB has not changed much since the species was listed.

The distribution of KBBs in each state has also generally remained the same. An exception is in Michigan and Wisconsin where the range and number of KBB occurrences has increased. In addition, in New York, KBB are no longer known from Schenectady County due to the loss of one small, isolated occurrence.

Across the species range, loss of habitat due to natural succession and development are primary threats, and global climate change an emerging threat.

The following information is from the Service's 2011 Recovery Data Call.

“Preliminary data indicates a significant increase in population counts in WI in 2011 compared to 2010. Data from other states in 2011 indicates a mix of decreasing and increasing populations at various sites compared to 2010 which likely reflects natural population fluctuations (KBB population numbers can fluctuate up or down 4-5x from year to year depending on weather and other variables). Reintroductions are on-going at Concord (NH), in northwest OH (Toledo Metroparks and Kitty Todd Nature Preserve), and southeast MI (Petersburg State Game Area); population augmentation continues in the Albany Pine Bush (NY) and at Indiana Dunes National Lakeshore (IN). Habitat management and restoration activities are on-going at recovery sites. Some slight increases in threats were reported but these do not appear widespread. ATV use and lupine damage are new threats at 2 sites in Ohio. Invasive species continues to be a major threat at Fort McCoy (which supports the largest KBB sites in WI) and likely other sites, and the effect of weather (or possibly global climate change) on populations remains a concern. In NY, lower KBB numbers in 2011 may have resulted from a third brood of KBBs produced in 2010 [KBBs are considered bivoltine (produce 2 generations per year)]. Overall, as threats have generally remained the same and the population increases and decreases noted likely reflect natural fluctuations in the population, the KBB population range-wide is considered stable.”

The Recovery Plan helps chart a course for the conservation and recovery of the species. The goal of the Recovery Plan is to perpetuate viable metapopulations of the KBB in the major ecological regions throughout its geographic range. To meet this goal, thirteen recovery units are identified (Figure 2) as areas where viable populations are necessary and recovery criteria for each recovery unit are established.

As discussed starting on page 55 of the Recovery Plan, each viable population shall have:

1. a management and monitoring plan that is approved by the Service prior to the fifth consecutive year of monitoring, that will be implemented into the future and include:
 - a. suitable buffering of the metapopulation against adverse disturbance and threats to survival;
 - b. maintenance of a diverse and appropriate successional array of suitable Karner blue habitat; and

- c. identification of appropriate responses to potential metapopulation declines.
2. a sufficient number of individuals in an appropriate metapopulation structure, maintained for at least 5 consecutive years. The number of individuals shall be at least 3,000 first or second brood adults in the final year of evaluation and in four of the five years overall. In all years, the number of adults shall be greater than 1,500 in one of either the first or second brood. In some circumstances the 3,000 level may be too high or too low; and
 3. connectivity between subpopulations so that the average nearest-neighbor distance between subpopulations is no more than 1 kilometer (0.62 mile), and the maximum distance between subpopulations is no greater than 2 kilometers (1.24 miles). In some cases the 1 kilometer dispersal distance may be too far.

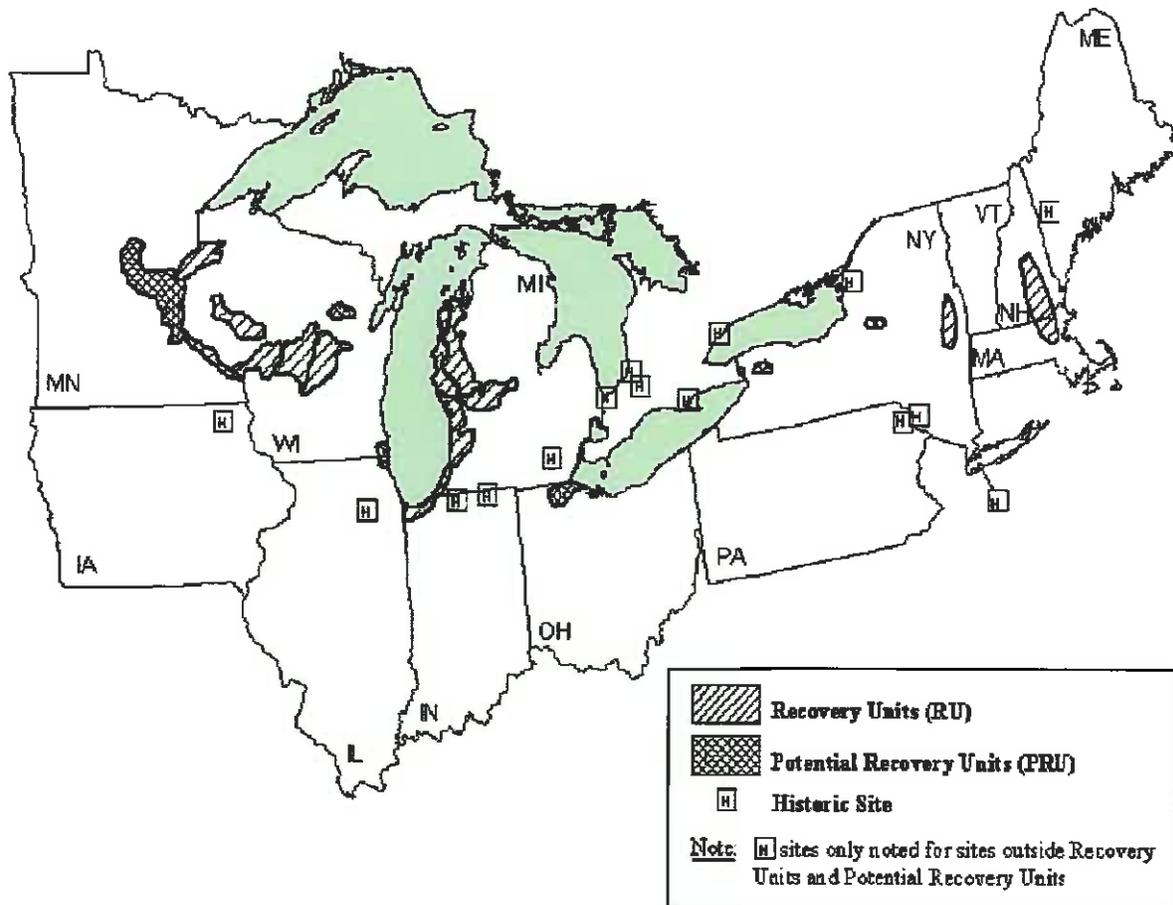


Figure 2. KBB Recovery Units (Service 2003).

One recovery unit, the Glacial Lake Albany Recovery Unit (GLARU), is in New York and includes areas within Albany, Saratoga, Schenectady, and Warren Counties between Glens Falls

and the Albany Pine Bush. Within the GLARU, three viable KBB populations are needed for the conservation of the species.

Two potential recovery units in New York were also identified in the Recovery Plan in the Rome Sand Plains and Tonawanda areas in central and western New York (see map, Appendix B-11) (Service 2003). There are no recovery criteria for potential recovery units as they are not required for meeting the overall conservation needs for the species. However, if a viable KBB population is established in either potential recovery unit, it can count towards one viable population in the GLARU. There are no extant KBB sites in either potential recovery unit in New York. The covered lands are primarily located within the GLARU, but a small segment of NG ROW is located within the Rome Sand Plains Potential Recovery Unit.

Status of the Karner Blue Butterfly within GLARU

There are 29 known KBB subpopulations in GLARU at this time with one to several management sites within each subpopulation (Service unpublished data). The vast majority of management sites in New York are less than 20 acres in size with most less than 10 acres (K. O'Brien, pers. comm. 2012). These small sites are threatened by unfavorable mowing practices, woody encroachment from adjacent woodlands, and development.

The subpopulations are spread among four potential recovery areas within GLARU: Albany Pine Bush, Saratoga West, Saratoga Sandplains, and Queensbury (Figure 3). As of 2011, Saratoga Sandplains is the only recovery area in GLARU that has met the definition of a viable population in any year.

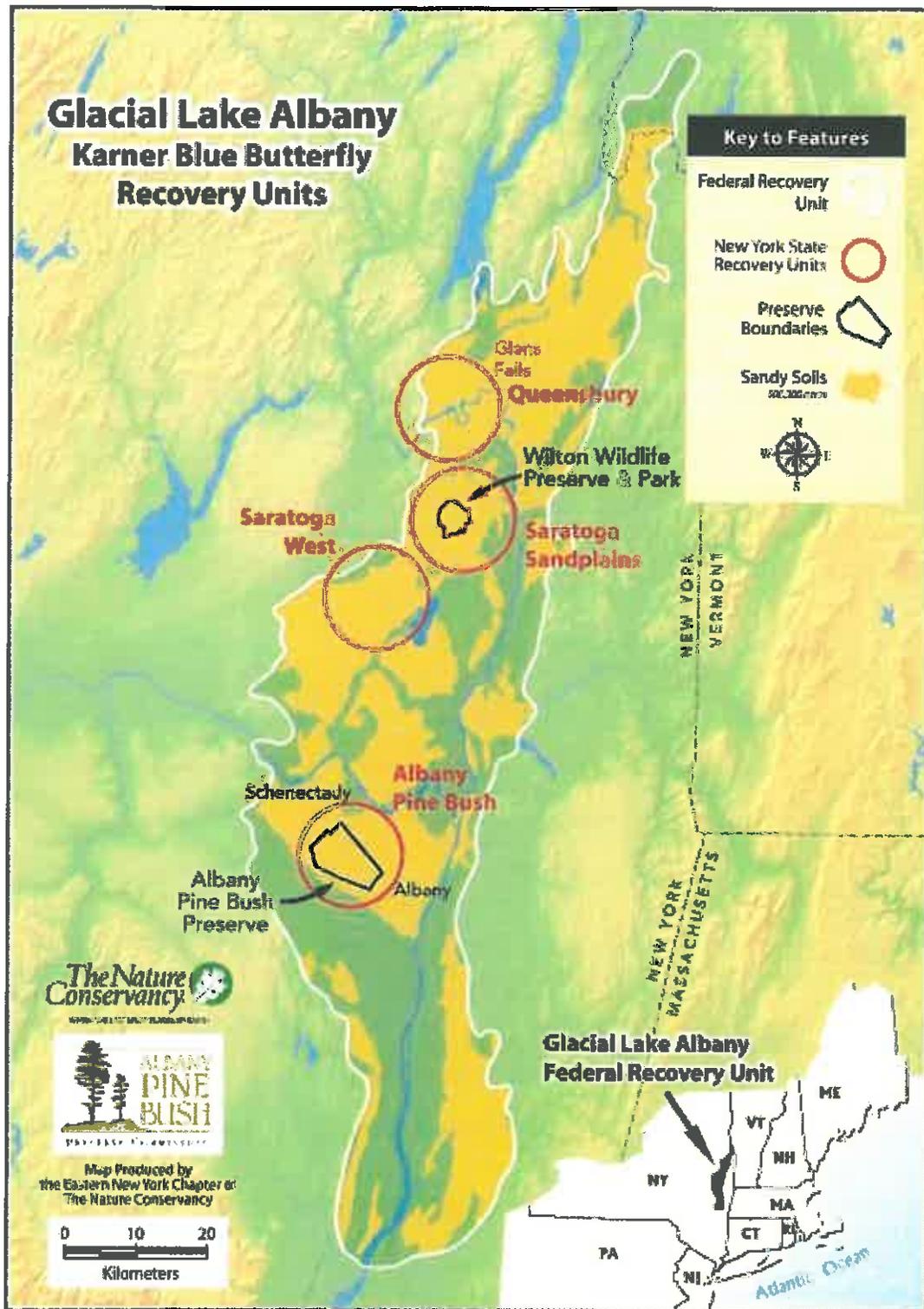


Figure 3. KBB Recovery Areas in the GLARU (APBPC).

Environmental Baseline

Action Area

The “action area” is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” The action area for this biological opinion is the covered lands.

Status of the Karner Blue Butterfly within the Action Area

The NYSDEC conducts surveys for KBB at the majority of known sites within the covered lands each year. These are generally presence/absence surveys conducted during one or both flights. In addition, in 2006, NG contracted The Chazen Companies to survey the entire covered lands for wild blue lupine plants to serve as a baseline for the development and implementation of the HCP. The baseline surveys were done in the spring of 2006 (during the first flight period) but presence/absence surveys were not specifically conducted for KBB as NG is assuming presence of KBB or FE at all lupine patches in the covered lands. Any observations of KBB were noted. During the baseline surveys, 12 new wild blue lupine plant patches were documented within the covered lands totaling approximately 0.36 acre in size (The Chazen Companies 2007). Including the previously known patches, there are a total of 129 known lupine patches in the covered lands ranging in size from 0.000023 to 8.25 acres (average size of 0.26 acre) for a total of 33.03 acres (The Chazen Companies 2007). In addition, for the purposes of the HCP, NG assumes there may be up to one additional acre of lupine in patches that have yet to be found throughout the covered lands (including the distribution lines).

According to unpublished NYSDEC data, many lupine patches within the covered lands do not contain extant KBB subpopulations, or surveys are needed to verify their status. However, there are approximately 10 KBB subpopulations within the covered lands that have had at least one KBB observed during the last five years. Many of these had quite small counts. For example, at the Luzerne powerline ROW site, KBBs were last observed in 2007 with a maximum count of 2 KBB during the second flight. As another example, in 2010, at the Corinth Road subpopulation, the maximum count during the second flight was 1 KBB. However, some lupine patches are part of larger subpopulations that may extend beyond the Covered Lands. While many lupine patches either lack recent presence/absence surveys or KBB and FE have not been detected in recent surveys, for the purposes of the HCP, NG assumes presence of the KBB and/or FE at all lupine patches within the covered lands.

Factors Affecting the Species' Environment within the Action Area

As mentioned above, habitat loss, fragmentation, and degradation are considered the primary threats to the survival of the species (Service 2003). Development throughout the Saratoga, Queensbury, and Albany regions has contributed to the species' decline and remains the primary threat to KBB in New York State. Fire suppression resulting in vegetational succession and habitat fragmentation have also impacted KBB in New York. These activities have reduced the native vegetation of the Albany Pine Bush in New York State from 25,000 acres to about 2,500

acres by the late 1980s (Givnish et al. 1988). However, the NYSDEC and partners like APBPC and TNC are actively working to restore habitat throughout the Albany Pine Bush and Saratoga Sandplains.

Ongoing KBB management and monitoring (e.g., monitoring and marking butterflies, mowing and prescribed burning of vegetation, collection of lupine seed, captive-rearing, and translocations of butterflies) by the NYSDEC and their designees (under the auspices of Service permit number TE838253-6) may exert near-term adverse effects on small proportions of local populations of KBB; however, these activities are also essential to maintaining long-term habitat conditions that cannot persist without regular active management.

Effects of the Action

Under Section 7(a)(2) of the ESA, “effects of the action” refers to the direct and indirect effects of an action on the species, together with the effects of other activities that are interrelated or interdependent with that action. In this case, we consider the effects of implementing the covered activities (with the incorporation of AMMs), as well as the effects from the mitigation and enhancement measures and monitoring activities.

Overall, the implementation of the HCP is anticipated to benefit the KBB by maintaining, restoring, and enhancing KBB populations and habitat. We expect benefits because the proposed action implements several recovery actions in the Recovery Plan (Service 2003). In particular, this addresses Recovery Action 1.413 (protect existing KBB populations through review of Federal, state, and private activities including Section 10(a)(1)(B) incidental take permits). Other recovery actions that will be served by the proposed action include 1.14 (monitor population trends, habitat and distribution in recovery units with imperiled metapopulations, and search for new populations and occupied habitat in unsurveyed areas in New York), 1.23 (continue/start management activities for New York), 1.322.2 (implement strategies to guarantee the long-term availability of the geographic land base for the viable metapopulations in New York), 2.213 (initiate/continue reintroductions and accelerated colonization in New York), and 4.3 (encourage private landowners to conserve the KBB). More importantly than simply implementing individual recovery actions, the HCP is designed to assist with efforts to establish and secure a viable population of KBB in the Albany Pine Bush and Queensbury recovery areas.

In the Albany Pine Bush it is essential to maintain existing KBB subpopulations and expand habitat adjacent to and between these subpopulations until they can be linked together by suitable dispersal corridors (Gifford and O’Brien 2010). The HCP program assists with this recovery strategy by focusing one of the mitigation sites within the Albany Pine Bush Preserve to increase habitat for an existing KBB subpopulation. The mitigation in this recovery area is the management of 23 acres of NG-owned ROW (Covered Lands E) for the life of the ITP.

In Queensbury, the covered lands contain virtually all KBB occurrences and NG is an essential partner to (1) ensure that KBB are not extirpated and (2) help KBB recover populations from this part of the GLARU. While the Queensbury recovery area is not required to meet Service recovery criteria, the NYSDEC is working to promote viable populations in all four recovery

areas within GLARU. The HCP program assists with the recovery of KBB in the Queensbury area through the establishment, protection, and management of a 5-acre off-ROW NG-owned parcel (Covered Lands C) as part of the mitigation package. In addition, NG has committed to enhancement measures above and beyond what is required to mitigate for impacts of the take. NG will modify their existing vegetation management within fee-owned segments of ROW in Queensbury to restore approximately 31 acres of KBB habitat and assist with translocation efforts to augment existing KBB populations on off-ROW habitat. All of the efforts in Queensbury will greatly assist NYSDEC's efforts to restore KBB populations.

In total, NG has committed to restoration and management of 28 acres of mitigation lands and approximately 31 acres of enhancement lands. In addition, NG has committed to maintaining at least 34 acres of lupine within the covered lands at all times and minimizing impacts to KBB within that habitat.

While the long-term effects are beneficial to KBB populations, the proposed activities associated with the HCP will result in mortality to KBBs. KBB are present year-round within wild blue lupine patches and activities within or near these patches may impact (positively or negatively) KBB. The degree of mortality on the life stages involved (egg, larvae, pupae, and adult) will depend on the type and timing of the covered activities being conducted. Because KBB depend on early successional savanna/barrens habitats that support wild lupine, maintenance and restoration of these habitats are key to the species' conservation and recovery. Mortality to individual KBB is unavoidable when conducting land management activities such as burning, mowing, and herbicide application.

Also, by assuming presence of KBB at all lupine patches on the covered lands ROWs and designing mitigation to compensate for impacts to KBB within those patches, NG is erring on the side of the species. This includes 12 new lupine patches found during baseline surveys and several sites where recent NYSDEC monitoring has not found KBB. NG will conduct surveys for KBB within the covered lands every two years for the life of the ITP and we will likely learn more about KBB presence in these lupine patches.

The specific effects of covered activities as well as mitigation and enhancement measures are discussed in more detail below.

Effects of Covered Activities

The HCP includes three general categories of covered activities: vegetation management, other O&M, and new construction.

Vegetation Management

NG conducts vegetation management throughout the entire covered lands on a rotational basis. For example, mowing, tree-trimming, and herbicide application occur every 3 to 5 years within a ROW segment. Therefore, NG may conduct vegetation management 10 to 18 times within a given ROW segment over the life of the ITP resulting in periodic temporary disturbance to a

minimum of 34 acres of lupine. This disturbance is considered temporary as the activities occur within a very short period of time (<1 day). Further, when AMMs are employed, they do not result in permanent impacts to KBB habitat. Disturbances such as mowing and herbicide use have been found to be beneficial for renewing lupine habitat when conducted after flowering is finished (Service 2003). Specifically on NG ROWs, Smallidge et al. (1996) found larger lupine patches and KBB populations were associated with reduced trees and shrubs, increased light intensity, and more frequent ROW management that reduced cover and density of woody species. Because lupine is a long-lived perennial with a long taproot, these disturbance mechanisms generally do not cause the death of the plant, but rather renew its growth by creating favorable habitat conditions. NG will only conduct vegetation management activities between September 1 and March 31 of a given year to allow lupine and nectar plants to flower.

Creating favorable conditions for lupine and KBB nectar plants is beneficial to the KBB population at a given site. However, some individual KBB may be crushed by mowers or killed from exposure to herbicides. NG has committed to multiple AMMs to minimize the risk to KBBs from vegetation management. For example, mower blades will be set at least eight inches above ground level to minimize disturbance to eggs on and near lupine plants. In addition, removal of trees/shrubs will be done in a manner that avoids pulling up any lupine plants and any associated KBB eggs, larvae, and/or pupae.

As mentioned above, NG's vegetation management activities provide an important function for KBB because if lupine patches in the covered lands were left in their current state and unmanaged, they would likely not persist due to invasive species encroachment and succession. This is similar to other management activities designed specifically to benefit KBB.

In summary, we expect mortality of a small percentage of KBB eggs and FE pupae present on or near lupine plants resulting from periodic, temporary disturbance of 34 acres of lupine. Any mortality will be spread across KBB populations among approximately 129 lupine patches, but we also expect positive responses of the KBB populations to the improved habitat conditions.

Operations and Maintenance and New Construction

During the course of routine O&M activities, NG and their contractors may need to drive vehicles within the covered lands; however, NG has developed AMMs to minimize the potential for driving directly over KBB habitat. This includes minimizing vehicle use around lupine patches and driving to the side of patches whenever possible. Given these AMMs, we do not anticipate frequent impacts to KBB or their habitat; however, over the course of the ITP, NG may drive over a cumulative total of 34 acres of KBB habitat at least once. During these activities, we expect mortality of a small percentage of KBB eggs or larvae present on or near lupine plants. We do not expect any measurable impacts to KBB habitat from this.

Up to 3.5 acres of wild blue lupine may be permanently damaged or destroyed when they are dug up, buried, or crushed during NG activities. All flightless KBB would be killed, and adults may be killed directly if they are unable to fly away in time or collide with equipment or harmed²

² Harm is defined in 50 CFR Part 17.3 as an act which actually kills or injures wildlife. Such act may include

when they are unable to locate lupine patches in which to lay their eggs. NG has developed AMMs to reduce the likelihood of permanently damaging lupine plants (and impacting KBB populations). As stated above, NG will attempt to stay out of lupine patches whenever possible during their work. In addition, NG will not stockpile any materials within KBB habitat. However, given that some NG infrastructure (e.g., poles) occurs directly in the middle of lupine patches, NG cannot always avoid conducting work in these areas. Out of the 34 acres of lupine within the covered lands, NG anticipates permanently impacting 3.5 acres over the life of the ITP.

NG has committed to maintain at least 34 acres of KBB habitat within “Covered Lands A” throughout the life of the ITP. This will ensure that habitat is always available for KBB and FE in strategic locations in the covered lands. In addition, NG will be undertaking mitigation and enhancement measures to compensate for above-listed impacts to KBB.

In summary, we expect mortality of a small percentage of KBB eggs and FE pupae present on or near lupine plants resulting from periodic, temporary disturbance of 34 acres of lupine from either vegetation management or O&M activities. In addition, we anticipate mortality of all KBB eggs or larvae present on or near lupine plants resulting from permanent loss of 3.5 acres of wild blue lupine. We also expect that all adults present in those 3.5 acres will either be directly killed or taken through harm. Any mortality will be spread across KBB populations among approximately 129 lupine patches, but we also expect positive responses of the KBB populations to the improved habitat conditions.

Effects of Mitigation Measures

To compensate or mitigate for the impact of the take of KBBs and FEs associated with the covered activities, NG proposes two actions: creation of a 5-acre off-ROW preserve, and restoration and management of a 23-acre portion of ROW.

To mitigate for permanent habitat impacts from O&M or new construction activities, NG will create a 5-acre off-ROW preserve on a NG-owned parcel. Approximately 3.3 acres of this parcel and a portion of the adjacent NG ROW are currently populated with a large wild blue lupine population while the remaining portion of the preserve area is currently forested. NG will selectively clear and remove undesirable tree species from about 1.25 acres of the forested portion of the preserve to provide more favorable growing conditions for wild blue lupine and enhanced habitat conditions for the KBB and FE. This may include the use of mechanical equipment or hand-operated equipment (e.g., chainsaws). Herbicide application may also be needed to minimize regrowth of trees. In addition, wild blue lupine and native nectar plants will be planted within the preserve. KBB and FE habitat will be protected and maintained at the site in perpetuity. NG and the Service will develop the terms of a conservation easement for the preserve and NG will execute and record the restrictions within 30 months of permit issuance. The restoration, management, and permanent protection of the 5-acre preserve will compensate for the impact of the take (in the forms of harm and/or death) of all KBB and FE within an

significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

estimated 3.5 acres of permanent habitat loss over the anticipated 50-year ITP duration. Full implementation of the 5-acre restoration site anticipates that the tasks of successful elimination of trespassers, removal of existing woody vegetation, successful planting of lupine, as well as execution and obtaining all necessary approvals of the conservation agreement will take some time to accomplish. We anticipate that there may be take of KBB and FE associated with permanent habitat impacts during that timeframe. For example, within the 30-month period prior to the conservation being officially recorded, NG anticipates take of KBB and FE associated with approximately 0.02 acres of permanent impacts to lupine. This is associated with a capital project in the first year of implementation and NG will be reseeded the area to restore the site for KBB and FE. NG is currently unaware of any additional capital improvement projects during the 30-month period in which the 5-acre parcel will be protected. Therefore, we anticipate little take associated with permanent habitat impacts during the initial management and protection phases for the 5-acre parcel.

To mitigate for take of KBB and FE associated with temporary habitat disturbance-related impacts from vegetation management and O&M activities, NG will enter into an agreement with the APBPC to restore approximately 23 acres of wild blue lupine habitat within two segments of fee-owned ROWs located within the Albany Pine Bush Preserve adjacent to APBPC lands. NG will fund initial restoration and provide access rights and habitat management rights for others to maintain the ROWs annually for the duration of the ITP. Such efforts will help link KBB and FE habitat that occur on each side of these ROWs and to increase the habitat acreage for the KBB and FE by approximately 23 acres. Management activities will include mowing, herbicide, planting, and prescribed burning (on a trial basis and potentially part of the ultimate plan). Should APBPC not be able to conduct agreed upon management activities at any time throughout the life of the ITP, NG will contract with another suitable entity to conduct the management activities or may conduct the activities themselves with additional compliance monitoring responsibilities. While NG will have 90 days from the time of ITP issuance to secure the contract for this component of the mitigation, the NG and the Service do not anticipate that many covered activities that disturb KBB and FE habitat will occur over this short duration based on work conducted in previous years.

The restoration and management of 23 acres of ROW for the life of the ITP will compensate for the impact of take (in the form of death) of a small percentage of KBB and FE within approximately 34 acres of lupine associated with periodic, temporary habitat disturbances. While it appears that less acreage is being conserved than is being affected by temporary disturbances, the proposed mitigation will fully compensate for the impact of the take when considering the location, size, and quality of protection of the impacted KBB and FE populations in comparison with the mitigation areas. Periodic and temporary impacts from the covered activities will most often affect small, isolated aggregations of unprotected KBB and FE populations, whereas the mitigation provides for larger contiguous habitat blocks that connect habitat and KBB and FE populations within protected areas. We also considered the current understanding of KBB and FE habitat restoration methodology and butterfly population responses in further assessing the benefits of this mitigation strategy.

While we expect benefits from the mitigation, management activities required to maintain suitable habitat (similar to vegetation management discussed above) may result in mortality of individual butterflies (egg, larvae, pupae, or adult). NG will apply the same avoidance and minimization measures for their vegetation management activities to the mitigation lands (e.g., time-of-year restrictions) to minimize potentially negative effects of mowing and mechanical cutting and removal of trees, other woody vegetation, and invasive plants. Although mowing and cutting/removal of woody vegetation after the first frost will still cause unavoidable take of eggs in occupied habitat, the overall benefits of restoring and maintaining suitable habitat conditions far outweigh the adverse effects. NG will either enter into an agreement with APBPC to conduct management on the 23-acre ROW, will enter into an agreement with another NGO, or will conduct the work themselves. NG will conduct the habitat management on the 5-acre off-ROW parcel. Given that NG may conduct the work themselves and is ultimately responsible for the mitigation, we are including an assessment of potential impacts and incidental take authorization for those impacts in this opinion.

In addition to the proactive KBB and FE habitat management planned within the 23-acre ROW, NG may conduct all covered activities within this section of the covered lands. Therefore, temporary or permanent impacts to habitat and associated impacts to KBB and FE may occur (as discussed above). Any permanent impacts to lupine would be part of the cumulative 3.5 acres assessed above.

In summary, we expect mortality of a small percentage of KBB eggs and FE pupae present on or near lupine plants resulting from periodic, temporary disturbance of 28 acres of lupine from habitat management activities designed to benefit KBB and FE and from NG O&M covered activities.

All work conducted by NG or their contractors is covered by the ITP except for two categories of activities (prescribed burning and KBB translocation). Any prescribed burning will be conducted by APBPC staff or those working directly for APBPC. Effects of conducting prescribed burning on KBB in the Albany Pine Bush have already been considered and authorized in a separate Service 10(a)(1)(A) permit to the NYSDEC (permit number TE838253-6) and therefore, are technically outside the purview of this biological opinion. While prescribed fire can result in mortality of individual KBB within the burn unit, KBB habitat is greatly improved by vegetation management activities that enhance wild lupine populations and nectar plant species, including prescribed fire. These management actions will enhance habitat quality for KBB which, combined with the APBPC preserve, will result in a more robust population of the species over time.

Effects of Enhancement Measures

The following enhancement activities (above and beyond required mitigation) are identified as the following four activities and are described in Section 4.5 of the HCP:

- *Covered Lands D1 – Spier-Queensbury #17/5 115 kV ROW:* NG will conduct woody vegetation removal on approximately 6 acres of this 12-acre ROW. NG will modify

existing vegetation management techniques within this ROW to create a grassland community that will favor natural expansion of the wild blue lupine populations and other nectar plant species. NG will also conduct periodic soil disturbances and remove undesirable plant species such as poison ivy, black locust, scrub oak, and non-native grasses.

- *Covered Lands D2 - Spier-Queensbury #17/5 115 kV ROW and Spier-Queensbury #5-Ogden Brook Tap 115 kV ROW:* NG will conduct grading, soil preparation, and seeding of native nectar species/grass seed/lupine mix within approximately 25 acres along these ROWs following successful cessation of ATV trespass (an additional enhancement measure).
- *Translocate Karner Blue Butterflies:* NG will provide access across their ROW to lands owned by others, will pay for butterfly translocation, and will contract the APBPC to facilitate translocation of KBBs to an approximately 2-acre parcel that is owned by the Town of Queensbury and is currently managed by the NYSDEC.
- *Conduct Public Outreach:* NG will conduct periodic outreach efforts to promote awareness of NG's HCP and the effects of ROW trespass and unauthorized uses upon the Covered Species and their ROW habitats. Targeted entities will include owners of properties located adjacent to ROWs with identified trespass problems and within the priority focus areas, any local ATV clubs or organizations, local media, and local law enforcement authorities.

In summary, NG has plans to increase the amount of KBB habitat within the covered lands over the life of the ITP. Similar to the mitigation sites, habitat management within the planned 31 acres of enhancement lands may cause periodic temporary or permanent impacts to habitat and impacts to their associated KBB populations. As discussed in Section 5.5.1 of the HCP, NG may increase the acreage of lupine and modify the "Covered Lands A" description to include up to 50 additional acres through minor amendments. As additional habitat is created/restored and occupied by KBB, NG will periodically cause temporary or permanent impacts to habitat and impacts to their associated KBB populations during their vegetation management and O&M activities similar to what is described above. The increased distribution of butterfly populations is also anticipated to decrease the likelihood that management activities in any one area will impact many individual butterflies. No additional permanent impacts to lupine are anticipated (or covered in the HCP/ITP) than the 3.5 acres discussed above.

Any KBB translocations will be conducted by the APBPC and/or NYSDEC and effects of this type of activity have already been considered and authorized in a separate Service 10(a)(1)(A) permit to the NYSDEC (number TE838253-6) and, therefore, technically outside the purview of this biological opinion.

Summary of Effects

In summary, implementation of the HCP with all its conservation measures is designed to avoid and minimize impacts to the KBB and its habitat, and to restore, enhance, and/or create habitat. The Service anticipates that implementation of the HCP will result in no net loss of KBB habitat, and will result in a gain in habitat and butterflies due to implementation of the HCP's commitments. We expect mortality of a small percentage of KBB eggs, larvae, or pupae present on or near up to 84 acres of lupine plants resulting from periodic, temporary disturbances associated with vegetation management or O&M activities. Within those 84 acres KBB eggs, larvae, or pupae may also be impacted by periodic, temporary disturbances associated with KBB habitat management on mitigation sites (28 acres) or enhancement sites (31 acres). In addition, within those 84 acres we anticipate mortality of all KBB eggs or larvae present on or near 3.5 acres of lupine resulting from permanent loss of lupine associated with O&M or new construction activities. We also expect that all adults present in those 3.5 acres will either be directly killed or taken through harm. Any of the above mortality will be spread across KBB populations among approximately 129 lupine patches. However, as discussed above in the effects of vegetation management and effects of mitigation sections, we also expect positive responses of the KBB populations to the improved habitat conditions.

Cumulative Effects

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

Threats in the covered lands have generally remained the same since the time KBB were listed, but we anticipate implementation of the HCP to ameliorate some of these threats. They include, but may not be limited to, utility ROW maintenance, off-road motorized traffic, dumping of yard waste, illegal building of structures, and deterioration of potential habitat in the absence of natural processes. As discussed above in the AMMs, mitigation, and enhancement sections, NG has incorporated measures to reduce these threats within the covered lands.

Conclusion

After reviewing the current status of KBB, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that issuance of an ITP for implementation of the HCP is not likely to jeopardize the continued existence of the species. No critical habitat has been designated for KBB; therefore, none will be affected.

Because of our analysis, we do not believe that the proposed action "would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of [KBB] by reducing the reproduction, numbers, or distribution of [KBB] (50 CFR 402)." For the proposed action to "reduce appreciably" the KBB's survival and recovery, the proposed action would have

to impede or stop the process by which the KBB's ecosystems are restored and/or threats to KBB are removed so that self-sustaining and self-regulating populations can be supported as persistent members of native biotic communities (Service and NMFS 1998, page 4-35).

We do not believe the proposed project impedes or stops the survival and recovery process for the KBB because, while analyzing the effects of the proposed action, we identified the life stages that would be exposed to the stressors associated with the proposed action, and analyzed how those individuals would respond upon exposure to the stressors. From this analysis, we determined that:

1. Eggs, larvae, or pupae may be killed during vegetation management, O&M, and new construction activities that occur within lupine patches; and
2. Adults may be killed (collision with mechanical equipment) during O&M and new construction activities or may be harmed if lupine is removed prior to egg-laying.

As we have concluded that individual KBB are likely to experience reductions in their annual or lifetime reproductive success, we need to assess the aggregated consequences of the anticipated reductions in fitness (i.e., reproductive success and long-term viability) of the exposed individuals on the population(s) to which these individuals belong. As discussed in the environmental baseline, there are 129 known lupine populations throughout the ROW and NG assumes that all are occupied by KBB and/or FE. These patches currently total 33 acres in size and we expect an additional 1 acre of currently undiscovered lupine within the covered lands. While individuals may be killed or harmed during NG activities, the populations of KBB are anticipated to benefit from NG vegetation management.

Adverse effects to individuals within the NG lupine patches are not anticipated to result in reductions in any larger populations to which they are contributing. However, there may be small, isolated patches that are damaged or removed as part of NG O&M or new construction activities. In general, extirpation of small, isolated populations is likely without proactive management designed to expand KBB and FE habitat.

NG is committing to maintaining at least 34 acres of "Covered Lands A" throughout the ITP duration and has also committed to restoring and managing 28 acres of mitigation lands. Finally, NG plans to expand various lupine patches through their enhancement efforts. By increasing the amount of habitat in key locations, we expect positive KBB population responses. Therefore, over time, any impact to an individual KBB will impact a smaller percentage of that KBB population.

The 129 lupine patches are part of larger KBB populations within four recovery areas in GLARU (Albany Pine Bush, Saratoga Sandplains, Saratoga West, and Queensbury). Except for the Queensbury recovery area, the majority of KBB habitat and populations are located outside the covered lands and will not be impacted by NG activities. There are approximately 333, 148, 313, and 8 acres of managed KBB habitat in Albany Pine Bush, Saratoga Sandplains, Saratoga West, and Queensbury, respectively, for a total of approximately 802 acres. NG lupine patches

comprise 4% of this. Adverse effects to individuals within the NG lupine patches are not anticipated to result in reductions in the larger recovery area populations where they are contributing. We expect implementation of the HCP to improve KBB populations particularly in Albany Pine Bush and Queensbury.

As reductions in any of the four recovery area population's fitness are unlikely to occur, we do not anticipate a reduction in the likelihood of both survival and recovery of the GLARU or the species as a whole. In fact, we find that many of the proposed actions of NG are likely to result in benefits to the species. No component of the proposed action is expected to result in harm, harassment, or mortality at a level that would reduce appreciably the reproduction, numbers, or distribution of the KBB. The status of the species is stable, and we considered the environmental baseline, and the intensity, frequency, and duration of the project impacts, and found that the proposed project is unlikely to greatly decrease the reproduction, numbers, or distribution of the KBB.

Incidental Take Statement

Section 9 of the ESA and Federal regulations under Section 4(d) of the ESA prohibit the taking of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited under the ESA, provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The proposed NG HCP and its associated documents clearly identify anticipated impacts to affected species likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the HCP, together with the terms and conditions described in any associated Implementing Agreement and any Section 10(a)(1)(B) permit issued with respect to the HCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under Section 10(a)(1)(B) and Section 7(o)(2) of the ESA to apply. If the permittee fails to adhere to these terms and conditions, the Section 10(a)(1)(B) permit may be suspended or revoked. The amount or extent of incidental take anticipated under the NG HCP, associated reporting requirements, and provisions for disposition of dead animals are as described in the HCP and its accompanying Section 10(a)(1)(B) permit.

Amount and Extent of Take

The Service anticipates that incidental take of KBB will result from temporary or permanent disturbance of occupied lupine habitat through crushing of adults, eggs, larvae, pupae, or adults during the covered activities and mitigation and enhancement activities. This amount of take will be difficult to detect for the following reasons: the small size and delicate anatomical structure of the various life stages of the species; losses may be masked by fluctuations in numbers from other causes; and finding a dead or impaired specimen is unlikely.

Because of the difficulty in determining a level of take based on the number of KBB that will be adversely affected, and the strong association of the species to its habitat, the Service has decided that it is appropriate to base the level of authorized incidental take on the habitat acreage that will be affected by the proposed projects.

We expect mortality of a small percentage of KBB eggs, larvae, or pupae present on or near up to 84 acres of lupine plants resulting from periodic, temporary disturbances associated with vegetation management or O&M activities. Within those 84 acres KBB eggs, larvae, or pupae may also be impacted by periodic, temporary disturbances associated with KBB habitat management on mitigation sites (28 acres) or enhancement sites (31 acres).

In addition, we anticipate mortality of all KBB eggs, larvae, or pupae present on or near 3.5 acres of lupine resulting from permanent loss of lupine associated with O&M or new construction activities. We also expect that all adults present in those 3.5 acres will either be directly killed or taken through harm.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid the adverse effects of a proposed action on listed species or critical habitat, to help carry out recovery plans, or to develop information.

The Service has identified the following actions that, if undertaken by the Service, would further the conservation and assist in the recovery of the KBB in the covered lands.

1. Pursue additional acquisition of parcels or easements to protect KBB habitat (Recovery Actions 1.321.3-Implement the management and monitoring program for each metapopulation in the RU in New York and 1.322.2-Implement strategies to guarantee the long-term availability of the geographic land base for the viable metapopulations in New York).
2. Provide assistance with KBB translocation efforts in New York (Recovery Action 2.213-Initiate/continue reintroductions and accelerated colonization in New York).

II. CONFERENCE OPINION FOR FROSTED ELFIN

Section 7(a)(4) of the ESA provides a mechanism for identifying and resolving potential conflicts between Federal actions and proposed species or proposed critical habitats. To distinguish this procedure from consultation on listed species, it is referenced as conferencing. A conference is required only when an action is likely to jeopardize the continued existence of a species that has been formally proposed for listing under the ESA or destroy or adversely modify proposed critical habitat. However, at the request of a Federal agency, a conference may be conducted for a proposed action that may affect proposed species, candidate species, or species of concern. In the case of this action, the Service has elected to conduct and document analysis of effects on frosted elfin, a species of concern.

A conference process is similar to the consultation process and may be either informal or formal. A formal conference culminates with the Service writing a conference opinion that follows the same format as the biological opinion. If the species is subsequently listed prior to completion of the action, the conference opinion provides a basis for formulation of a biological opinion. An incidental take statement provided with a conference opinion does not become effective unless the species is listed and the Service adopts the opinion.

Rangewide Status of the Frosted Elfin

Listing Status

FE has never been formally considered for listing under the ESA. It has been listed as threatened by the State of New York since 1999.

Life History

FE have one flight period per year (i.e., they are univoltine). Typical home ranges appear to be even smaller than those of KBB (≤ 200 meters) (E. Williams, pers. comm. 2007), but distribution patterns suggest good colonizing ability across open landscapes or corridors over distances up to a few kilometers (NatureServe 2011). In New York, adults fly in late April to early June. FE lay their eggs singly on flower buds of lupine. There are two ecotypes (or unlikely sibling species) of frosted elfin (NatureServe 2011). One feeds on wild blue lupine flowers and developing pods and, if necessary, leaves in the last instar; the other feeds on young leaves of wild indigo (*Baptisia tinctoria*) or occasionally on other species of *Baptisia*. In New York, FE associated with wild blue lupine occur in Albany, Oneida, Saratoga, Schenectady, Genesee, and Warren Counties and those associated with wild indigo occur in Suffolk County. After the caterpillars finish feeding, they form a chrysalis in the soil or duff layer where they overwinter as pupae just below the soil surface at the base of wild blue lupine or in the surface leaf litter of wild indigo plants.

Distribution and Status

Although a major portion of its range (from southern New England to Wisconsin) coincides with that of the KBB, the FE elfin has a much larger range that also extends across the southeastern U.S. NatureServe (2011) reports it as extirpated in Maine, Ontario, and possibly Illinois; critically imperiled in Delaware, Florida, Indiana, Kentucky, Maryland, New Hampshire, Ohio, Oklahoma, Rhode Island, West Virginia, and Wisconsin; and imperiled in Connecticut, Georgia, Massachusetts, New Jersey, North Carolina, Pennsylvania, Tennessee, and Virginia. It is not rated as secure in any state. NatureServe (2011) assigns a global status of G3 (vulnerable) and a status of S1S2 (imperiled to critically imperiled) in the State of New York. The global long-term trend for the species is characterized as a decline of 30-50% and the global short-term trend is a decline of 10 to 50%.

Threats to FE are similar to those of the KBB. Given their dependence on flowers and seeds when eating lupine, FE are more vulnerable to deer browse than KBB, but lupine-feeding frosted elfin pupating in the soil may have better survival during hot fires. Where they occur together, the frosted elfin is nearly always scarcer than the KBB, but it is also clearly more capable of persisting in low numbers (NatureServe 2011).

Environmental Baseline for Frosted Elfin

Status of the Species in the GLA

Presence of FE is often documented in conjunction with KBB surveys in the GLARU when FE are generally past their peak numbers. O'Brien (pers. comm. 2009) reports that FE are probably present at all of the New York KBB sites, as well as a few additional lupine sites. FE appear to persist in smaller lupine patches. Surveys for FE are constrained by availability of human resources and difficulties associated with detection and with distinguishing them from similar-looking species.

Factors Affecting the Frosted Elfin in the GLARU

FE populations in the GLARU are associated with blue lupine and often co-occur with KBB where they are beneficiaries of management and protection for the latter species. This includes the Saratoga County Airport, where lupine habitats are managed in accordance with a biological opinion for KBB.

Effects to Frosted Elfin

Similar to the KBB, the implementation of the HCP is anticipated to benefit the FE by maintaining, restoring, and enhancing FE populations and habitat. In addition, given that FE co-occur on lupine plants with even smaller home ranges than KBB, we expect negative effects on FE parallel to those projected for KBB, as described above.

In total, NG has committed to restoration and management of 28 acres of mitigation lands and approximately 31 acres of enhancement lands. In addition, NG has committed to maintaining at least 34 acres of lupine within the covered lands and minimizing impacts to FE within that habitat.

While the long-term effects are beneficial to FE populations, the proposed activities associated with the HCP will result in mortality to FEs. FE are present year-round within wild blue lupine patches and activities within or near these patches may impact (positively or negatively) FE. The degree of mortality on the life stages involved (egg, larvae, pupae, and adult) will depend on the type and timing of the covered activities being conducted. Because FE depend on early successional savanna/barrens habitats that support wild lupine, maintenance and restoration of these habitats are key to the species' conservation and recovery. Mortality to individual FE is unavoidable when conducting land management activities such as burning, mowing, and herbicide application.

Also, by assuming presence of FE at all lupine patches on the covered lands ROWs and designing mitigation to compensate for impacts to FE within those patches, NG is erring on the side of the species. This includes 12 new lupine patches found during baseline surveys and several sites where recent NYSDEC monitoring has not found FE. NG will conduct surveys for FE within the covered lands every two years for the life of the ITP and we will likely learn more about FE presence in these lupine patches.

The specific effects of covered activities as well as mitigation and enhancement measures are discussed in more detail below.

Effects of Covered Activities

The HCP includes three general categories of covered activities: vegetation management, other O&M, and new construction.

Vegetation Management

NG conducts vegetation management throughout the entire covered lands on a rotational basis. For example, mowing, tree-trimming, and herbicide application occur every 3 to 5 years within a ROW segment. Therefore, NG may conduct vegetation management 10 to 18 times within a given ROW segment over the life of the ITP resulting in periodic temporary disturbance to a minimum of 34 acres of lupine. This disturbance is considered temporary as the activities occur within a very short period of time (<1 day). Further, when AMMs are employed, they do not result in permanent impacts to FE habitat. Disturbances such as mowing and herbicide use have been found to be beneficial for renewing lupine habitat when conducted after flowering is finished (Service 2003). Specifically on NG ROWs, Smallidge et al. (1996) found larger lupine patches and KBB populations were associated with reduced trees and shrubs, increased light intensity, and more frequent ROW management that reduced cover and density of woody species. We expect a similar response for FE populations. Because lupine is a long-lived perennial with a long taproot, these disturbance mechanisms generally do not cause the death of

the plant, but rather renew its growth by creating favorable habitat conditions. NG will only conduct vegetation management activities between September 1 and March 31 of a given year to allow lupine and nectar plants to flower.

Creating favorable conditions for lupine and FE nectar plants is beneficial to the FE population at a given site. However, some individual FE may be crushed by mowers or killed from exposure to herbicides. NG has committed to multiple AMMs to minimize the risk to FEs from vegetation management. For example, mower blades will be set at least eight inches above ground level to minimize disturbance to eggs, larvae, or pupae on and near lupine plants. In addition, removal of trees/shrubs will be done in a manner that avoids pulling up any lupine plants and any associated FE eggs, larvae, and/or pupae.

As mentioned above, NG's vegetation management activities provide an important function for FE because if lupine patches in the covered lands were left in their current state and unmanaged, they would likely not persist due to invasive species encroachment and succession. This is similar to other management activities designed specifically to benefit FE.

In summary, we expect mortality of a small percentage of FE pupae present on or near lupine plants resulting from periodic, temporary disturbance of 34 acres of lupine. Any mortality will be spread across FE populations among approximately 129 lupine patches, but we also expect positive responses of the FE populations to the improved habitat conditions.

Operations and Maintenance and New Construction

During the course of routine O&M activities, NG and their contractors may need to drive vehicles within the covered lands; however, NG has developed AMMs to minimize the potential for driving directly over FE habitat. This includes minimizing vehicle use around lupine patches and driving to the side of patches whenever possible. Given these AMMs, we do not anticipate frequent impacts to FE or their habitat; however, over the course of the ITP, NG may drive over a cumulative total of 34 acres of FE habitat at least once. During these activities, we expect mortality of a small percentage of FE eggs or larvae present on or near lupine plants. We do not expect any measurable impacts to FE habitat from this.

Up to 3.5 acres of wild blue lupine may be permanently damaged or destroyed when they are dug up, buried, or crushed during NG activities. All flightless FE would be killed, and adults may be killed directly if they are unable to fly away in time or collide with equipment or harmed³ when they are unable to locate lupine patches in which to lay their eggs. NG has developed AMMs to reduce the likelihood of permanently damaging lupine plants (and impacting FE populations). As stated above, NG will attempt to stay out of lupine patches whenever possible during their work. In addition, NG will not stockpile any materials within FE habitat. However, given that some NG infrastructure (e.g., poles) occurs directly in the middle of lupine patches, NG cannot

³ Harm is defined in 50 CFR Part 17.3 as an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

always avoid conducting work in these areas. Out of the 34 acres of lupine within the covered lands, NG anticipates permanently impacting 3.5 acres over the life of the ITP.

NG has committed to maintain at least 34 acres of FE habitat within “Covered Lands A” throughout the life of the ITP. This will ensure that habitat is always available for KBB and FE in strategic locations in the covered lands. In addition, NG will be undertaking mitigation and enhancement measures to compensate for above-listed impacts to KBB and FE.

In summary, we expect mortality of a small percentage of FE pupae present on or near lupine plants resulting from periodic, temporary disturbance of 34 acres of lupine from either vegetation management or O&M activities. In addition, we anticipate mortality of all FE eggs, larvae, or pupae present on or near lupine plants resulting from permanent loss of 3.5 acres of wild blue lupine. We also expect that all adults present in those 3.5 acres will either be directly killed or taken through harm. Any mortality will be spread across FE populations among approximately 129 lupine patches, but we also expect positive responses of the FE populations to the improved habitat conditions.

Effects of Mitigation Measures

To compensate or mitigate for the impact of the take of KBBs and FEs associated with the covered activities, NG proposes two actions: creation of a 5-acre off-ROW preserve, and restoration and management of a 23-acre portion of ROW.

To mitigate for permanent habitat impacts from O&M or new construction activities, NG will create a 5-acre off-ROW preserve on a NG-owned parcel. Approximately 3.3 acres of this parcel and a portion of the adjacent NG ROW are currently populated with a large wild blue lupine population while the remaining portion of the preserve area is currently forested. NG will selectively clear and remove undesirable tree species from about 1.25 acres of the forested portion of the preserve to provide more favorable growing conditions for wild blue lupine and enhanced habitat conditions for the KBB and FE. This may include the use of mechanical equipment or hand-operated equipment (e.g., chainsaws). Herbicide application may also be needed to minimize regrowth of trees. In addition, wild blue lupine and native nectar plants will be planted within the preserve. KBB and FE habitat will be protected and maintained at the site in perpetuity. The restoration, management, and permanent protection of the 5-acre preserve will compensate for the impact of the take (in the forms of harm and/or death) of all KBB and FE within an estimated 3.5 acres of permanent habitat loss over the anticipated 50-year ITP duration. Full implementation of the 5-acre restoration site anticipates that the tasks of successful elimination of trespassers, removal of existing woody vegetation, successful planting of lupine, as well as execution and obtaining all necessary approvals of the conservation agreement will take some time to accomplish. We anticipate that there may be take of KBB and FE associated with permanent habitat impacts during that timeframe. For example, within the 30-month period prior to the conservation being officially recorded, NG anticipates take of KBB and FE associated with approximately 0.02 acre of permanent impacts to lupine. This is associated with a capital project in the first year of implementation and NG will be reseeded the area to restore the site for KBB and FE. NG is currently unaware of any additional capital improvement

projects during the 30-month period in which the 5-acre parcel will be protected. Therefore, we anticipate little take associated with permanent habitat impacts during the initial management and protection phases for the 5-acre parcel.

To mitigate for temporary habitat disturbance-related impacts from vegetation management and O&M activities, NG will enter into an agreement with the APBPC to restore approximately 23 acres of wild blue lupine habitat within two segments of fee-owned ROWs located within the Albany Pine Bush Preserve adjacent to APBPC lands. NG will fund initial restoration and provide access rights and habitat management rights for others to maintain the ROWs annually for the duration of the ITP. Such efforts will help link KBB and FE habitat that occur on each side of these ROWs and to increase the habitat acreage for the KBB and FE by approximately 23 acres. Management activities will include mowing, herbicide, planting, and prescribed burning (on a trial basis and potentially part of the ultimate plan). Should APBPC not be able to conduct agreed upon management activities at any time throughout the life of the ITP, NG will contract with another suitable entity to conduct the management activities or may conduct the activities themselves with additional compliance monitoring responsibilities. While NG will have 90 days from the time of permit issuance to secure the contract for this component of the mitigation, the Service does not anticipate that many covered activities that disturb KBB and FE habitat will occur over this short duration.

The restoration and management of 23 acres of ROW for the life of the ITP will compensate for the impact of take (in the form of death) of a small percentage of KBB and FE within approximately 34 acres of lupine associated with periodic, temporary habitat disturbances. While it appears that less acreage is being conserved than is being affected by temporary disturbances, the proposed mitigation will fully compensate for the impact of the take when considering the location, size, and quality of protection of the impacted KBB and FE populations in comparison with the mitigation areas. Periodic and temporary impacts from the covered activities will most often affect small, isolated aggregations of unprotected KBB and FE populations, whereas the mitigation provides for larger contiguous habitat blocks that connect habitat and KBB and FE populations within protected areas. We also considered the current understanding of KBB and FE habitat restoration methodology and butterfly population responses in further assessing the benefits of this mitigation strategy.

While we expect benefits from the mitigation, management activities required to maintain suitable habitat (similar to vegetation management discussed above) may result in mortality of individual butterflies (egg, larvae, pupae, or adult). NG will apply the same avoidance and minimization measures for their vegetation management activities to the mitigation lands (e.g., time-of-year restrictions) to minimize potentially negative effects of mowing and mechanical cutting and removal of trees, other woody vegetation, and invasive plants. Although mowing and cutting/removal of woody vegetation after the first frost will still cause unavoidable take of eggs in occupied habitat, the overall benefits of restoring and maintaining suitable habitat conditions far outweigh the adverse effects. NG will either enter into an agreement with APBPC to conduct management on the 23-acre ROW, will enter into an agreement with another NGO, or will conduct the work themselves. NG will conduct the habitat management on the 5-acre off-ROW parcel. Given that NG may conduct the work themselves and is ultimately responsible

for the mitigation, we are including an assessment of potential impacts and incidental take authorization for those impacts in this opinion.

In summary, we expect mortality of a small percentage of KBB eggs and FE pupae present on or near lupine plants resulting from periodic, temporary disturbance of 28 acres of lupine from habitat management activities designed to benefit KBB and FE.

Any prescribed burning will be conducted by APBPC staff or those working directly for APBPC. Effects of conducting prescribed burning on KBB in the Albany Pine Bush have already been considered and authorized in a separate Service 10(a)(1)(A) permit to the NYSDEC (permit number TE838253-6) and, therefore, are technically outside the purview of this biological opinion. While prescribed fire can result in mortality of individual KBB within the burn unit, KBB habitat is greatly improved by vegetation management activities that enhance wild lupine populations and nectar plant species, including prescribed fire. These management actions will enhance habitat quality for KBB, which combined with the APBPC preserve, will result in a more robust population of the species over time.

Effects of Enhancement Measures

The following enhancement activities, (above and beyond required mitigation) are identified as the following four activities and are described in Section 4.5 of the HCP:

- *Covered Lands D1 – Spier-Queensbury #17/5 115 kV ROW:* NG will conduct woody vegetation removal on approximately 6 acres of this 12-acre ROW. NG will modify existing vegetation management techniques within this ROW to create a grassland community that will favor natural expansion of the wild blue lupine populations and other nectar plant species. NG will also conduct periodic soil disturbances and remove undesirable plant species such as poison ivy, black locust, scrub oak, and non-native grasses.
- *Covered Lands D2 - Spier-Queensbury #17/5 115 kV ROW and Spier-Queensbury #5-Ogden Brook Tap 115 kV ROW:* NG will conduct grading, soil preparation, and seeding of native nectar species/grass seed/lupine mix within approximately 25 acres along these ROWs following successful cessation of ATV trespass (an additional enhancement measure).
- *Translocate Karner Blue Butterflies:* NG will provide access across their ROW to lands owned by others, will pay for butterfly translocation, and will contract the APBPC to facilitate translocation of KBBs to an approximately 2-acre parcel that is owned by the Town of Queensbury and is currently managed by the NYSDEC.
- *Conduct Public Outreach:* NG will conduct periodic outreach efforts to promote awareness of NG's HCP and the effects of ROW trespass and unauthorized uses upon the covered species and their ROW habitats. Targeted entities will include owners of properties located adjacent to ROWs with identified trespass problems and within the

priority focus areas, any local ATV clubs or organizations, local media, and local law enforcement authorities.

In summary, NG has plans to increase the amount of FE habitat within the covered lands over the life of the ITP. Similar to the mitigation sites, habitat management within the planned 31 acres of enhancement lands may cause periodic temporary or permanent impacts to habitat and impacts to their associated KBB populations. As discussed in Section 5.5.1 of the HCP, NG may increase the acreage of lupine and modify the "Covered Lands A" description to include up to 50 additional acres through minor amendments. As additional habitat is created/restored and occupied by FE, NG will periodically cause temporary or permanent impacts to habitat and impacts to their associated KBB populations during their vegetation management and O&M activities similar to what is described above. The increased distribution of butterfly populations is also anticipated to decrease the likelihood that management activities in any one area will impact many individual butterflies. No additional permanent impacts to lupine are anticipated (or covered in the HCP/ITP) than the 3.5 acres discussed above.

Summary of Effects

Implementation of the HCP with all its conservation measures is designed to avoid and minimize impacts to the FE and its habitat, and to restore, enhance, and/or create habitat. The Service anticipates that implementation of the HCP will result in no net loss of FE habitat, and will result in a gain in habitat and butterflies due to implementation of the HCP's commitments. We expect mortality of a small percentage of FE eggs, larvae, or pupae present on or near up to 84 acres of lupine plants resulting from periodic, temporary disturbances associated with vegetation management or O&M activities. Within those 84 acres FE eggs, larvae, or pupae may also be impacted by periodic, temporary disturbances associated with habitat management on mitigation sites (28 acres) or enhancement sites (31 acres). In addition, within those 84 acres we anticipate mortality of all FE eggs, larvae, or pupae present on or near 3.5 acres of lupine resulting from permanent loss of lupine associated with O&M or new construction activities. We also expect that all adults present in those 3.5 acres will either be directly killed or taken through harm. Any of the above mortality will be spread across FE populations among approximately 129 lupine patches. However, as discussed above in the effects of vegetation management and effects of mitigation sections, we also expect positive responses of the FE populations to the improved habitat conditions.

Cumulative Effects

Threats in the covered lands include, but may not be limited to, utility ROW maintenance, off-road motorized traffic, dumping of yard waste, illegal building of structures, and deterioration of potential habitat in the absence of natural processes. As discussed above in the AMMs, mitigation, and enhancement sections, NG has incorporated measures to reduce these threats within the covered lands. Since FE is not listed under the ESA, other Federal actions are not subject to Section 7 consultation on this species, but this species may reap collateral benefits from consultations on KBB.

Conclusion

After reviewing the current status of the FE, the environmental baseline for the action area, the effects of actions to be implemented under the proposed HCP, and the cumulative effects, it is the Service's conference opinion that actions to be implemented under the HCP are not likely to jeopardize the continued existence of the FE. Similar to KBB, individual FE may be killed or harmed, but FE populations are expected to respond positively to HCP implementation.

Adverse effects to individuals within the NG lupine patches are not anticipated to result in reductions in any larger populations where they are contributing. However, there may be small, isolated patches that are damaged or removed as part of NG O&M or new construction activities. In general, extirpation of small, isolated populations are likely without proactive management designed to expand KBB and FE habitat. NG will maintain at least 34 acres of "Covered Lands A" throughout the ITP duration and will focus mitigation and enhancement efforts in areas that will support larger populations of KBB and FE. We expect implementation of the HCP to improve FE populations particularly in Albany Pine Bush and Queensbury. There is no recovery plan for the FE and no targets for conservation at this point; however, FE occur across a much wider geographic distribution and any losses of small, isolated populations are not expected to result in a reduction in the likelihood of both survival and recovery of the GLARU or the species as a whole.

Incidental Take Statement

Section 9 of the ESA and Federal regulations under Section 4(d) of the ESA prohibit the taking of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited under the ESA, provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The proposed NG HCP and its associated documents clearly identify anticipated impacts to affected species likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the HCP, together with the terms and conditions described in any associated Implementing Agreement and any Section 10(a)(1)(B) permit issued with respect to the HCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under Section 10(a)(1)(B) and Section 7(o)(2) of the

ESA to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the Section 10(a)(1)(B) permit and Section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the NG HCP, associated reporting requirements, and provisions for disposition of dead animals are as described in the HCP and its accompanying Section 10(a)(1)(B) permit.

The prohibitions against taking of species found in Section 9 of the ESA do not apply until the FE is listed. However, in order for the FE to be adequately conserved such that it may be included on the ITP upon listing, and the assurances under No Surprises remain in place, NG must implement the agreed-upon protective measures for FE. If the FE is listed in the future, this conference opinion will be adopted as a biological opinion and the ITP will be amended to include the FE. At that time, the measures described above, will become non-discretionary.

Amount and Extent of Take

The Service anticipates that incidental take of FE will result from temporary or permanent disturbance of occupied lupine habitat through crushing of adults, eggs, larvae, pupae, or adults during the covered activities and mitigation and enhancement activities. This amount of take will be difficult to detect for the following reasons: the small size and delicate anatomical structure of the various life stages of the species; losses may be masked by fluctuations in numbers from other causes; and finding a dead or impaired specimen is unlikely.

Because of the difficulty in determining a level of take based on the number of FE that will be adversely affected, and the strong association of the species to its habitat, the Service has decided that it is appropriate to base the level of authorized incidental take on the habitat acreage that will be affected by the proposed projects.

We expect mortality of a small percentage of FE eggs, larvae, or pupae present on or near up to 84 acres of lupine plants resulting from periodic, temporary disturbances associated with vegetation management or O&M activities. Within those 84 acres FE eggs, larvae, or pupae may also be impacted by periodic, temporary disturbances associated with habitat management on mitigation sites (28 acres) or enhancement sites (31 acres).

In addition, within those 84 acres we anticipate mortality of all FE eggs, larvae, or pupae present on or near 3.5 acres of lupine resulting from permanent loss of lupine associated with O&M or new construction activities. We also expect that all adults present in those 3.5 acres will either be directly killed or taken through harm.

REINITIATION NOTICE

This concludes formal consultation for KBB and the conference for the FE on the action. If the FE is listed, the Service will review the proposed project. If there have been no significant changes in the proposed project or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion for FE on the project and no further Section 7 consultation will be necessary.

As provided in 50 CFR §402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.



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cc: National Grid, Syracuse, NY (M. Sherman)
NYSDEC, Albany, NY (K. O'Brien)
NYSDEC, Ray Brook and Schenectady, NY (Permitting)
COE, New York, NY (Regulatory)

Appendix A. Consultation History

On January 24, 2006, National Grid (NG) contacted the U.S. Fish and Wildlife Service (Service) to initiate discussions regarding the development of a habitat conservation plan (HCP).

On February 8, 2006, the Service, New York State Department of Environmental Conservation (NYSDEC), and NG met and began discussing the scope of HCP and National Environmental Policy Act (NEPA) documents and what information would be needed in the development of these document.

Between February and 2006 and May 2006, the Service, NYSDEC, NG, and The Chazen Companies exchanged multiple electronic mails regarding the scope and methods for baseline survey protocols.

On November 20, 2006, the Service received a copy of the draft baseline survey report.

Between November 2006 and March 2007, the Service, NYSDEC, NG, and The Chazen Companies exchanged multiple electronic mails regarding the baseline survey report.

On April 9, 2007, the Service received a copy of the final baseline survey report.

On July 23, 2007, the Service, NYSDEC, NG, and The Chazen Companies met to kick off development of the HCP.

On October 2, 2007, the Service, NYSDEC, NG, and The Chazen Companies met to work on the HCP.

Between October 2007 and March 2008, the Service, NYSDEC, NG, and The Chazen Companies held multiple project conference calls.

On June 24, 2008, the Service received a working draft of the HCP.

On October 20, 2008, the Service, NYSDEC, NG, and The Chazen Companies held a project conference call to discuss the draft HCP.

On December 17, 2008, the Service, Solicitor's Office, NYSDEC, NG, and The Chazen Companies held a project conference call to discuss the draft HCP.

On May 6, 2009, the Service received NG's incidental take permit application and draft HCP.

Between May 2009 and December 2009, the Service, Solicitor's Office, and NG drafted an Implementing Agreement, and the Service and The Chazen Companies worked on the draft Environmental Assessment.

On **April 7, 2010**, the Service received substantive comments on the HCP from the Solicitor's Office.

Between **May 2010 and October 2011**, the Service, Solicitor's Office, NYSDEC, NG, and The Chazen Companies revised the draft HCP and completed the draft Environmental Assessment.

On **October 19, 2011**, the Service published a Federal Register notice of availability for the draft EA and ITP application and opened a 60-day public comment period on the application.

Between **October 2011 and March 2012**, the Service, Solicitor's Office, NYSDEC, and NG held multiple conference calls and communicated via electronic mail to finalize the HCP.

On **March 15, 2012**, the Service received copies of the final HCP from The Chazen Companies.

On **March 19, 2012**, the Service, NG, NYSDEC, and APBPC met to discuss the draft management agreement for Covered Lands E.

On **May 2, 2012**, the Service received a draft management agreement for Covered Lands E.

Between **March 2012 and June 2012**, the Service, Solicitor's Office, NYSDEC, and NG held multiple conference calls and communicated via electronic mail to finalize the IA and permit conditions.