

Section 9

Unusual Natural Areas

1.0 INTRODUCTION

In advance of permitting for the proposed Maine GenLead Generator Lead Transmission Line (project) that extends from the summit generation area in Oakfield southwesterly to a proposed substation in Chester, Maine, Stantec Consulting (Stantec) completed evaluations of a 200-foot corridor proposed for development for the project (project area) to determine the presence of unusual natural areas within or in the vicinity of the project area. According to the Preservation of Unusual Natural Areas standard of the No Adverse Environmental Effect Standard of the Site Location of Development Law (06-096 CMR 375.12), an unusual natural area means “any land or water area, usually only a few acres in size, which is undeveloped and which contains natural features of unusual geologic, botanical, zoological, ecological, hydrological, other scientific, educational, scenic, or recreational significance.”

Part of the identification of unusual natural areas involved contacting state and federal agencies, including the Maine Natural Areas Program (MNAP) and the U.S. Fish and Wildlife Service (USFWS), to determine if there are any known occurrences of state or federally-listed rare, threatened, or endangered (RTE) species or rare or exemplary natural communities present within or in the vicinity of the project area.

In addition to the inquiries to the state and federal agencies, Stantec ecologists and botanists completed a series of environmental field surveys in 2009 and 2010 that further identified and evaluated the presence of unusual natural areas within the project area. These environmental field surveys included:

- Spring 2009 vernal pool surveys;
- Spring, summer, and fall 2009 wetland and stream delineations;
- Spring 2010 vernal pool surveys and wetland delineations; and
- Summer 2010 rare plant surveys.

The field surveys were completed throughout the proposed transmission line. The following discusses the results of these field efforts relative to unusual natural areas, including RTE plants and rare and exemplary natural communities. Discussions relative to RTE wildlife species and their associated habitats are presented in Section 7 of this application.

2.0 METHODOLOGY

2.1 AGENCY CORRESPONDENCE

To determine the presence of unusual natural areas, Stantec contacted the MNAP to determine if there are any known occurrences of RTE plants, as well as rare or exemplary natural communities, within the project area. The MNAP maintains a database that tracks the locations of RTE plant species in Maine. In total, 352 plant species are considered RTE species within Maine (i.e., plant species with state rarity ranks of S1, S2, or S3). The MNAP also maintains a database that tracks the occurrences of rare and exemplary natural communities and ecosystems throughout the state. According to MNAP, state rarity ranks are defined as follows.

- S1 - Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- S2 - Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3 - Rare in Maine (20-100 occurrences).
- S4 - Apparently secure in Maine.
- S5 - Demonstrably secure in Maine.

2.2 FIELD SURVEYS

Field surveys that identified and evaluated the presence of unusual natural areas, including RTE plant species and rare and exemplary natural communities, were in general completed concurrently with on-going environmental field surveys (i.e., vernal pool surveys and wetland delineations) from spring 2009 through early summer 2010. During the on-going field surveys, Stantec observed areas containing intact forest or wetland communities or containing rare plant indicator species such as maidenhair fern (*Adiantum pedatum*), silvery spleenwort (*Deparia acrostichoides*), sheathed sedge (*Carex vaginata*), or sweet cicely (*Osmorhiza* spp.). Because portions of these field surveys were conducted at a time of year inappropriate for locating and characterizing RTE species (e.g., fall or early spring), Stantec ecologists and botanists conducted follow-up, seasonally-appropriate field surveys of certain areas. Stantec ecologists and botanists completed systematic field surveys of the project area by walking evenly-spaced transects approximately 75 to 100 feet apart to provide thorough coverage of the project area.

Appropriate data were recorded for all species of RTE plants that were located within the project area. This included data on population size, vigor, landscape setting, associated habitat, habitat condition, and location. RTE plant populations were located with a Trimble® Pro Series Global Positioning System (GPS) receiver and subsequently included on construction plans. Similarly, for rare and exemplary natural communities that were identified within the project area, appropriate data on community size, community condition, and species composition were recorded. The boundaries of the natural communities were located using a combination of GPS and aerial photography interpretation. Completed rare plant and natural community data forms are included as Appendix 9-1.

3.0 RESULTS

3.1 AGENCY CORRESPONDENCE

The response from the USFWS indicated that there are no known locations of federally-listed species within the project area.

MNAP indicated that there were several occurrences of RTE plant species and rare or exemplary natural communities within or in the vicinity of the project area (Appendix 9-2). The following Table 1 summarizes the known features in the vicinity of the present transmission line project area.

Feature	State Rank	State Status	Occurrence Rank	Last Observed	Number of 2010 Observations	Corresponding Wetland Map # (Section 7)
Streamshore Ecosystem	S4	NA	Good	2009	-	--
Small yellow-water crowfoot (<i>Ranunculus gmelinii</i>)	S2	Threatened	Good	2008	2	26, 27
Showy lady's slipper (<i>Cypripedium reginae</i>)	S3	Threatened	Good	2008	2	26, 27
Marsh valerian (<i>Valeriana uliginosa</i>)	S2	Special Concern	Good	2008	1	27
Swamp fly-honeysuckle (<i>Lonicera oblongifolia</i>)	S3	Special Concern	Fair	2008	3	25, 26, 27
Northern bog sedge (<i>Carex gynocrates</i>)	S2	Special Concern	Good	2008	1	--

The response from MNAP also identified three areas that have been previously identified through a landscape analysis as potentially containing RTE plant species or rare or exemplary natural communities. These areas include Keene Bog in Chester, a wetland system along Skitacook Stream in T3R4 WELS, and a large wetland system associated with Ebhorse Stream in Woodville. MNAP specifically commented that a rare plant survey is warranted within the Streamshore Ecosystem along Alder Brook in Glenwood Plantation and within the wetlands associated with Skitacook Stream in T4R3 WELS. MNAP further

commented that the transmission line alignment proposed through the Ebhorse Stream landscape analysis site in Woodville does not likely contain exemplary natural communities. However, they recommended that a field survey be conducted in a northern white cedar (*Thuja occidentalis*) swamp in the vicinity of the proposed transmission line.

3.2 FIELD SURVEYS

During field surveys, Stantec identified four new occurrences of species that are listed as Threatened and Special Concern in Maine, including showy lady's slipper, marsh valerian, swamp fly-honeysuckle, and small water crowfoot. Each occurred within delineated wetlands along the proposed transmission line in the town of Glenwood Plantation.

Showy lady's slipper was observed in wetlands GLE351 and GLE359. The approximately 30 plants observed in wetland GLE351 occurred on the southern edge of the corridor, associated with the openings created by the existing Maine Power Company power line right-of-way (ROW). The approximately 460 plants observed in wetland GLE359 were not adjacent to an existing ROW but were scattered throughout the wetland in concentrated clumps. Show lady's slipper is ranked S3 and listed as Threatened by MNAP. Showy lady's slipper prefers wetland with calcareous soil conditions and is often associated with patchy open areas within a forested wetland or in woodland settings. The vegetation clearing in the existing ROW has mimicked the natural woodland setting that the plant prefers by creating openings. Associated plants include northern white cedar, star sedge (*Carex echinata*), bog sedge (*Carex magellanica*), marsh valerian, northern bog sedge, grass pink (*Calopogon tuberosus*), Labrador tea (*Rhododendron groenlandicum*), alpine clubsedge (*Tricophorum alpinum*), and swamp fly-honeysuckle.

Marsh valerian was observed growing throughout wetland GLE359. Marsh valerian is ranked S2 and listed as Special Concern in Maine. More than 50 plants were observed, all flowering and scattered throughout the wetland. Associated plants include showy lady's slipper, shrubby cinquefoil (*Pentaphylloides floribunda*), sheep's laurel (*Kalmia angustifolia*), northern white cedar, star sedge, bog sedge, northern bog sedge and swamp fly-honeysuckle. Like the showy lady's slipper, marsh valerian prefers the open and patchy canopy found in the open forested wetland.

Swamp fly-honeysuckle was observed in several wetlands along the proposed corridor in Glenwood (GLE343, GLE350, GLE359, GLE351). This species is ranked S3 and listed as Special Concern in Maine. A total of 100 plants were observed associated with balsam fir (*Abies balsamea*), northern white-cedar, dwarf raspberry (*Rubus pubescens*), bluejoint (*Calamagrostis canadensis*), three-seeded sedge (*Carex trisperma*), red maple (*Acer rubrum*), speckled alder (*Alnus incana*), bog sedge, few-flowered sedge (*Carex pauciflora*), sheep's laurel, winterberry (*Ilex verticillata*) and fowl mannagrass (*Glyceria striata*). Swamp fly-honeysuckle prefers the open and patchy canopy found in the open forested wetland.

Dwarf yellow water crowfoot was observed in wetlands GLE354 and GLE359. One population is associated with a beaver (*Castor canadensis*) impoundment and its slow moving stream (a tributary to Alder Brook), and the other is associated with a backwater overflow of Alder Brook. More than 300 plants were observed, with 10 of those plants flowering. Associated plants include sweetgale (*Myrica gale*), speckled alder, spotted touch-me-not (*Impatiens capensis*), calla lily (*Calla palustris*), water-hemlock (*Cicuta maculate*), white meadowsweet (*Spiraea alba var. latifolia*), duckweed (*Lemna* sp.), curly-leaved pondweed (*Potamogeton crispus* c.f.), and another pondweed (*Ceratophyllum* sp.). The required habitat is open water and slowly moving streams. Partial canopy removal would likely not adversely impact the population.

Second and third-growth mixed forested uplands and wetlands dominate the botanical communities within the project area. Past timber harvests, both historic and recent, have occurred throughout the project area. Upland forests are dominated by balsam fir, red spruce (*Picea rubens*), sugar maple (*Acer saccharum*), red maple, yellow birch (*Betula alleghaniensis*), beech (*Fagus grandifolia*), quaking aspen (*Populus tremuloides*), big-toothed aspen (*Populus grandidentata*), and paper birch (*Betula papyrifera*) trees. Common understory plants include mountain wood fern (*Dryopteris campyloptera*), evergreen wood fern (*Dryopteris intermedia*), starflower (*Trientalis borealis*), fern (*Polystichum acrostichoides*), wild

sarsaparilla (*Aralia nudicaulis*), Canada mayflower (*Maianthemum canadense*), wild oats (*Uvularia sessilifolia*), and painted trillium (*Trillium undulatum*). None of the upland communities present within the project area have been identified as rare or exemplary.

A wide variety of forested and scrub shrub wetlands occur frequently within the project area. These community types include Black Spruce Bog, Northern White Cedar Swamps, Evergreen Seepage Forests, Spruce-Fir Wet Flats, and Alder Thickets. These wetland types are common communities in Maine. In addition, these communities are not considered exemplary based on the relatively small size and/or history of past disturbances from timber harvesting within and immediately adjacent to the wetland, as well as the presence of an existing transmission line through portions of many of the wetlands. A further discussion of the wetland communities present within the project area is presented in Section 7 of this application.

MNAP has identified an exemplary Streamshore Ecosystem along Alder (Babcock) Brook in Glenwood Plantation that intersects approximately nine acres of the project area (see extracts from Exhibit 1, Maps 46 and 47, attached as Appendix 9-3). Directly adjacent to the stream, the community meets the description of the Sweetgale Mixed Shrub Fen. This natural community is most accurately described as exemplary because no recent harvest was observed at the stream crossing and because of its proximity to harvest activity. The habitat immediately surrounding the stream shore contains low, scrub-shrub vegetation dominated by sweetgale and white meadowsweet. This habitat will require minimal clearing. The forested wetland north and south of this community will require cutting, but impacts to the rare plants present will mimic the plant's requirements and benefit the populations. Based on conversations with MNAP there is concern with fragmenting this community with the corridor as designed. Currently this community is unfragmented and isolated from forest harvest activity. Maine GenLead is continuing to explore alternative routes that will minimize impacts to the streamshore ecosystem.

The habitat associated with Skitacook Stream is typical of other stream shores in this part of the state. There has been minimal cutting in the vicinity, and an old woods trail and aging snowmobile bridge crosses the stream within the project corridor.

On June 27, 2010, Stantec heard a rusty blackbird (*Euphagus carolinus*), a rare bird species, calling in wetland GLE354, in the vicinity of the project area. Because the open water and scrub-shrub habitat that is preferred by this species occurs throughout the project area; it is possible that the rusty blackbird occurs elsewhere along the proposed transmission line. However, additional occurrences were not heard or seen during the surveys. Stantec also observed a wood turtle (*Glyptemys insculpta*) that had been crushed by a vehicle on Babcock Road. No live wood turtles were observed in the project area.

4.0 POTENTIAL IMPACTS AND MITIGATION

As a result of this proposed project, the populations described above will be impacted, primarily by initial clearing and then minimally by maintenance activities. The impact to the rare plant populations has been minimized by avoiding the areas with the highest concentration of rare plants in a particular habitat and demarcation of the populations (with flagging and snow fencing) prior to clearing and construction. Additional measures during construction to reduce impact include demarcating during the preconstruction process using a flagging and fencing system, maintaining soil structure by avoiding rutting by equipment, and using mats when crossing sensitive habitats with equipment. Further, to minimize the adverse impact of a newly created corridor, more than 40 miles (approximately 70% of its length) of the proposed transmission line is co-located with an existing power line corridor. Based on observations in the adjacent open ROW, the clearing will benefit the rare plants observed within the project area by creating openings that the plants prefer in their natural habitat. The clearing proposed for this project will likely not have any adverse impacts beyond the initial habitat disturbance on these plant populations. Invasive species management is critical, especially around these rare plant locations. To address the concerns with fragmenting the Alder Stream Ecosystem, a selective tree harvest can occur in this habitat, taking only those trees which will interfere with the overhead lines. This type of harvest will maintain a canopy aimed at minimizing the harsh boundary typical of transmission line corridors.

5.0 SUMMARY

In summary, Stantec completed field surveys along a 200-foot corridor proposed for development for the Maine GenLead 115-kilovolt transmission line in an effort to characterize and confirm records returned by MNAP for the area. Botanists and ecologists performed targeted habitat surveys during the fall of 2009 and spring and summer of 2010 to areas predetermined to potentially hold RTE species.

The populations of these species consist of thousands of individual plants growing in small to medium sized patches throughout the wetland in which they occur. To minimize impact to the landscape and reduce fragmentation, more than 40 miles of the proposed transmission line is collocated with an existing power line corridor. Because these populations require openings in the canopy, the project will ultimately benefit the plants and allow them to expand their range.

Appendix 9-1

SPECIAL PLANT SURVEY FORM

Site: _____ Survey Site: Maine GenLead Transmission Line
 Quad name: Alder Stream Quad code: _____
 County: Aroostook Town: Glenwood Plt.
 Date: 6/24/2010 Surveyor(s): D. Dyer Sourcecode: F

Plant Name: *Cypripedium reginae* (Showy Lady's Slipper) New Update Occurrence #:

GPS Coordinates (<input checked="" type="checkbox"/> NAD 83, UTM Zone 19N; <input type="checkbox"/> Other-please specify) X: 574578 Y: 5072685	GPS Unit and Accuracy: Trimble Pro-XT, 1-2 m
Directions to Occurrence: In a large forested wetland complex, most plants occur on the edge of the proposed corridor, near and out into the established power line ROW Stantec mapped wetland GLE351	
<input checked="" type="checkbox"/> Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.	

MAP: Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation.

Locational Uncertainty (how closely can you map the feature to its actual location?)

mapped to w/in 12.5 m of actual location; greater uncertainty (estimate = _____ m / ft / km / miles); aerial delimited

Confidence in Observation of Population Extent

Confident full extent of feature **IS** known; Confident full extent is **NOT** known; **Uncertain** whether full extent is known

EO DATA	Phenology	Population Area	Vigor? <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Other than normal Explain:
# of Plants <u>33</u>	<input checked="" type="checkbox"/> In leaf	<input type="checkbox"/> 1 square yard	Evidence disease, predation, etc? Explain: only a couple of stems eaten, likely by deer.
<input checked="" type="checkbox"/> Individuals	<input type="checkbox"/> In bud	<input type="checkbox"/> 1 - 5 square yards	<input checked="" type="checkbox"/> Yes
<input type="checkbox"/> Ramets	<input checked="" type="checkbox"/> In flower	<input checked="" type="checkbox"/> 5 - 20 square yards	<input type="checkbox"/> No
Population Structure	<input type="checkbox"/> Immature fruit	<input type="checkbox"/> 20 - 100 square yards	Type of reproduction? Explain: flowers present
<u>30</u> % Vegetative	<input type="checkbox"/> Mature fruit	<input type="checkbox"/> 100 sq yds to 1 acre	<input checked="" type="checkbox"/> Sexual
<u>70</u> % Reproductive	<input type="checkbox"/> Seed dispersing	<input type="checkbox"/> 1 acre +	<input type="checkbox"/> Asexual
	<input type="checkbox"/> Dormant	_____ ~ area actual habitat	<input type="checkbox"/> Not Observed
		_____ ~ area potential habitat	
Other Comments: There are an additional 24 plants outside the project corridor that are part of a large patch, on the ROW edge.			

GENERAL DESCRIPTION

Associated natural community: Northern White Cedar Swamp					
Associated plant species: Thuja occidentalis, Osmunda cinnamomea, Lonicera oblongifolia, Cypripedium parviflorum,					
Substrate/soil type: hydric soil, organic material dominant.					
Threats to Population: none observed					
Conservation/Management/ Research needs: none observed					
Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min <u>500</u> ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE	<input checked="" type="checkbox"/> Flat	<input type="checkbox"/> Open	<input type="checkbox"/> Crest	<input type="checkbox"/> Inundated
	<input type="checkbox"/> E <input type="checkbox"/> NW	<input type="checkbox"/> 0-10	<input checked="" type="checkbox"/> Partial	<input type="checkbox"/> Upper Slope	<input checked="" type="checkbox"/> Saturated (wet mesic)
	<input type="checkbox"/> S <input type="checkbox"/> SE	<input type="checkbox"/> 10-35	<input type="checkbox"/> Filtered	<input type="checkbox"/> Mid-slope	<input type="checkbox"/> Moist (mesic)
Max <u>700</u> ft / m	<input type="checkbox"/> W <input type="checkbox"/> SW	<input type="checkbox"/> 35+	<input type="checkbox"/> Shade	<input type="checkbox"/> Lower Slope	<input type="checkbox"/> Dry-mesic
	<input checked="" type="checkbox"/> Flat or NA	<input type="checkbox"/> Vertical		<input checked="" type="checkbox"/> Bottom	<input type="checkbox"/> Dry (xeric)
				<input type="checkbox"/> Level Plain	

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Collection # _____ Repository _____	Do other members of this genus occur at this site? <i>C. parviflorum</i> <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
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Landowner name/address for entire population (attach additional owner information on a separate sheet): Evergreen Wind Power II, LLC 179 Lincoln Street Suite 500 Boston, MA 02111	Phone	Is landowner aware of plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Lot # (if known)	Comments

EO RANKING

CURRENT CONDITION of the plant's immediate habitat. Is the habitat pristine or degraded? Note any disturbances within the plant habitat (check off, describe below to what degree these have altered natural ecological processes, or if they have any negative or positive effects on the population). Note how the disturbance(s) may influence success of the plant at the site.

<input type="checkbox"/> Logging-most recently ~ _____ yrs ago	<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or mining
<input type="checkbox"/> Agriculture / Pasture	<input type="checkbox"/> Impoundment	<input type="checkbox"/> ORV / Vehicle disturbance
<input type="checkbox"/> Animal effects (insect outbreaks, browsing)	<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Trails / Roads
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> Erosion	<input checked="" type="checkbox"/> Other
		<input type="checkbox"/> No Evidence of disturbance

Describe:
Population occurs within 50 feet of an established power line ROW. No disturbance observed immediately surrounding the plants in their current immediate habitat. Opening created for ROW seems to have enhanced the population.

Condition A – No apparent signs of human disturbance (or long enough ago that effects are no longer visible or are extremely minor)
Rank B – Some signs of human disturbance or degradation, but habitat generally intact
 C – Signs of human disturbance or degradation, and habitat compromised in some significant way
 D – Highly disturbed (multiple impacts causing habitat to be drastically altered)
 Other / Habitat disturbed, consistent with needs of species / **Explain:** Opening created for ROW has enhanced the population

SIZE / QUALITY: How large is this population relative to typical populations of this species?
Does it appear to be capable of maintaining itself if its habitat remains basically intact? Yes No

Size / Quality Rank A – Excellent B – Good C – Fair D – Poor

Comments: This population occurs within 50 feet of an established power line ROW. No disturbance observed immediately surrounding the plants in their current immediate habitat. Opening created for ROW seems to have enhanced the population. Population of healthy and significant size.

LANDSCAPE CONTEXT of the area surrounding the plant habitat. What land uses and/or natural communities surround the observed area? Is the habitat fragmented? To what degree can the population be protected from effects of adjacent land uses?

Comments:
: Population occurs within 50 feet of an established power line ROW. No disturbance observed immediately surrounding the plants in their current immediate habitat. Opening created for ROW seems to have enhanced the population.

Landscape A – Population surrounded by > = 1000 acres of undisturbed landscape
Rank B – Population surrounded by fairly intact landscape, though there may be cuts nearby
 C – Population surrounded by fragmented forest or rural landscape
 D – Surrounding area developed
 Other / Explain:

OVERALL RANK for EO based on your experience A – Excellent B – Good C – Fair D – Poor E – Extant

Comments: : Population occurs within 50 feet of an established power line ROW. No disturbance observed immediately surrounding the plants in their current immediate habitat. Opening created for ROW seems to have enhanced the population.

MNAP reviewed / verified rank A – Excellent B – Good C – Fair D – Poor E – Extant

Date: _____ Reviewer: _____ Rationale: _____

SPECIAL PLANT SURVEY FORM

Site: _____ Survey Site: Maine GenLead Transmission Line
 Quad name: Alder Stream Quad code: _____
 County: Aroostook Town: Glenwood Plt.
 Date: 6/24/2010 Surveyor(s): D. Dyer Sourcecode: F

Plant Name: *Carex gynocrates* (Northern Bog Sedge) New Update Occurrence #:

GPS Coordinates (<input checked="" type="checkbox"/> NAD 83, UTM Zone 19N; <input type="checkbox"/> Other-please specify) X: 575051 Y: 5075601	GPS Unit and Accuracy: Trimble Pro-XT, 1-2 m
Directions to Occurrence: Large wetland complex north of Alder Stream in Glenwood Plantation, along Glenwood/Haynesville town line. Stantec mapped wetland GLE359.	
<input checked="" type="checkbox"/> Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.	

MAP: Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation.

Locational Uncertainty (how closely can you map the feature to its actual location?)

mapped to w/in 12.5 m of actual location; greater uncertainty (estimate = _____ m / ft / km / miles); aerial delimited

Confidence in Observation of Population Extent

Confident full extent of feature **IS** known; Confident full extent is **NOT** known; **Uncertain** whether full extent is known

EO DATA	Phenology	Population Area	Vigor? <input type="checkbox"/> Normal <input type="checkbox"/> Other than normal Explain:
# of Plants >300_	<input checked="" type="checkbox"/> In leaf	<input type="checkbox"/> 1 square yard	Evidence disease, predation, etc? Explain:
<input checked="" type="checkbox"/> Individuals	<input type="checkbox"/> In bud	<input type="checkbox"/> 1 – 5 square yards	<input type="checkbox"/> Yes
<input type="checkbox"/> Ramets	<input type="checkbox"/> In flower	<input type="checkbox"/> 5 – 20 square yards	<input checked="" type="checkbox"/> No
Population Structure	<input checked="" type="checkbox"/> Immature fruit	<input type="checkbox"/> 20 – 100 square yards	Type of reproduction? Explain:
30 % Vegetative	<input type="checkbox"/> Mature fruit	<input type="checkbox"/> 100 sq yds to 1 acre	<input checked="" type="checkbox"/> Sexual
70 % Reproductive	<input type="checkbox"/> Seed dispersing	<input checked="" type="checkbox"/> 1 acre +	<input type="checkbox"/> Asexual
	<input type="checkbox"/> Dormant	____~area actual habitat	<input type="checkbox"/> Not Observed
Other Comments:			

GENERAL DESCRIPTION

Associated natural community: Evergreen Seepage Forest					
Associated plant species: <i>Dasiphora floribunda, Rhododendron groenlandicum, Kalmia angustifolia, Calopogon tuberosus, Carex magellanica, Thuja occidentalis, Alnus incana, Ilex mucronata, Carex stellata, Equisetum pratense, Lonicera oblongifolia, Platanthera hyperborea, Trichophorum alpinum</i>					
Substrate/soil type: organic soil material					
Threats to Population: none observed					
Conservation/Management/ Research needs: none observed					
Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min __500__ ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE	<input checked="" type="checkbox"/> Flat	<input type="checkbox"/> Open	<input type="checkbox"/> Crest	<input type="checkbox"/> Inundated
	<input type="checkbox"/> E <input type="checkbox"/> NW	<input type="checkbox"/> 0-10	<input checked="" type="checkbox"/> Partial	<input type="checkbox"/> Upper Slope	<input checked="" type="checkbox"/> Saturated (wet mesic)
	<input type="checkbox"/> S <input type="checkbox"/> SE	<input type="checkbox"/> 10-35	<input checked="" type="checkbox"/> Filtered	<input type="checkbox"/> Mid-slope	<input type="checkbox"/> Moist (mesic)
Max __700__ ft / m	<input type="checkbox"/> W <input type="checkbox"/> SW	<input type="checkbox"/> 35+	<input type="checkbox"/> Shade	<input type="checkbox"/> Lower Slope	<input type="checkbox"/> Dry-mesic
	<input checked="" type="checkbox"/> Flat or NA	<input type="checkbox"/> Vertical		<input checked="" type="checkbox"/> Bottom	<input type="checkbox"/> Dry (xeric)
				<input type="checkbox"/> Level Plain	

Photograph taken? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Collection # _____ Repository _____	Do other members of this genus occur at this site? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
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Landowner name/address for entire population (attach additional owner information on a separate sheet): Evergreen Wind Power II, LLC 179 Lincoln Street Suite 500 Boston, MA 02111	Phone	Is landowner aware of plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Lot # (if known)	Comments

EO RANKING

CURRENT CONDITION of the plant's immediate habitat. Is the habitat pristine or degraded? Note any disturbances within the plant habitat (check off, describe below to what degree these have altered natural ecological processes, or if they have any negative or positive effects on the population). Note how the disturbance(s) may influence success of the plant at the site.

<input type="checkbox"/> Logging-most recently ~ _____ yrs ago	<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or mining
<input type="checkbox"/> Agriculture / Pasture	<input type="checkbox"/> Impoundment	<input type="checkbox"/> ORV / Vehicle disturbance
<input type="checkbox"/> Animal effects (insect outbreaks, browsing)	<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Trails / Roads
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> Erosion	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> No Evidence of disturbance		

Describe: _____

Condition **A** – No apparent signs of human disturbance (or long enough ago that effects are no longer visible or are extremely minor)

Rank **B** – Some signs of human disturbance or degradation, but habitat generally intact

C – Signs of human disturbance or degradation, and habitat compromised in some significant way

D – Highly disturbed (multiple impacts causing habitat to be drastically altered)

Other / Explain: _____

SIZE / QUALITY: How large is this population relative to typical populations of this species? _____

Does it appear to be capable of maintaining itself if its habitat remains basically intact? Yes No

Size / Quality Rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor

Comments: potential habitat extends well beyond the project area.

LANDSCAPE CONTEXT of the area surrounding the plant habitat. What land uses and/or natural communities surround the observed area? Is the habitat fragmented? To what degree can the population be protected from effects of adjacent land uses?

Comments: Large wetland complex surrounds this population, very small chance of activity or development encroaching and harming this population.

Landscape Rank **A** – Population surrounded by >= 1000 acres of undisturbed landscape

B – Population surrounded by fairly intact landscape, though there may be cuts nearby

C – Population surrounded by fragmented forest or rural landscape

D – Surrounding area developed

Other / Explain: A-/B+: Landscape more than fairly intact, cuts are within a half mile, but it's less than 1000 acres undisturbed.

OVERALL RANK for EO based on your experience **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Comments: _____

MNAP reviewed / verified rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Date: _____ Reviewer: _____ Rationale: _____

SPECIAL PLANT SURVEY FORM

Site: _____ Survey Site: Maine GenLead Transmission Line
 Quad name: Alder Stream Quad code: _____
 County: Aroostook Town: Glenwood Plt.
 Date: 6/24/2010 Surveyor(s): D. Dyer Sourcecode: F

Plant Name: Cypripedium reginae (Showy Lady's Slipper) New Update Occurrence #:

GPS Coordinates (<input checked="" type="checkbox"/> NAD 83, UTM Zone 19N; <input type="checkbox"/> Other-please specify)	GPS Unit and Accuracy: Trimble Pro-XT, 1-2 m
Directions to Occurrence: Large wetland complex north of Alder Stream in Glenwood Plantation, along Glenwood/Haynesville town line. Stantec mapped wetland GLE359. <input checked="" type="checkbox"/> Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.	

MAP: Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation.

Locational Uncertainty (how closely can you map the feature to its actual location?)

mapped to w/in 12.5 m of actual location; greater uncertainty (estimate = _____ m / ft / km / miles); aerial delimited

Confidence in Observation of Population Extent

Confident full extent of feature **IS** known; Confident full extent is **NOT** known; **Uncertain** whether full extent is known

EO DATA	Phenology	Population Area	Vigor? <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Other than normal Explain: Excellent
# of Plants <u>_641_</u>	<input checked="" type="checkbox"/> In leaf	<input type="checkbox"/> 1 square yard	Evidence disease, predation, etc? Explain: <10 stems snipped (by deer or moose)
<input checked="" type="checkbox"/> Individuals	<input type="checkbox"/> In bud	<input type="checkbox"/> 1 – 5 square yards	<input type="checkbox"/> Yes
<input type="checkbox"/> Ramets	<input checked="" type="checkbox"/> In flower	<input type="checkbox"/> 5 – 20 square yards	<input checked="" type="checkbox"/> No
Population Structure	<input type="checkbox"/> Immature fruit	<input type="checkbox"/> 20 – 100 square yards	Type of reproduction? Explain:
<u>_46_</u> % Vegetative	<input type="checkbox"/> Mature fruit	<input type="checkbox"/> 100 sq yds to 1 acre	<input checked="" type="checkbox"/> Sexual
<u>_54_</u> % Reproductive	<input type="checkbox"/> Seed dispersing	<input checked="" type="checkbox"/> 1 acre +	<input type="checkbox"/> Asexual
	<input type="checkbox"/> Dormant	____~area actual habitat	<input type="checkbox"/> Not Observed
		____~ area potential habitat	
Other Comments: Additional plants occur outside the proposed project area, observed but not surveyed in those outside areas.			

GENERAL DESCRIPTION

Associated natural community: Evergreen Seepage Forest					
Associated plant species: <i>Dasiphora floribunda, Rhododendron groenlandicum, Kalmia angustifolia, Calopogon tuberosus, Carex magellanica, Thuja occidentalis, Alnus incana, Ilex mucronata, Carex stellata, Equisetum pratense, Lonicera oblongifolia, Platanthera hyperborea, Trichophorum alpinum</i>					
Substrate/soil type: organic soil material.					
Threats to Population: none observed					
Conservation/Management/ Research needs: none observed					
Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min <u>_500_</u> ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE	<input checked="" type="checkbox"/> Flat	<input type="checkbox"/> Open	<input type="checkbox"/> Crest	<input type="checkbox"/> Inundated
	<input type="checkbox"/> E <input type="checkbox"/> NW	<input type="checkbox"/> 0-10	<input checked="" type="checkbox"/> Partial	<input type="checkbox"/> Upper Slope	<input checked="" type="checkbox"/> Saturated (wet mesic)
	<input type="checkbox"/> S <input type="checkbox"/> SE	<input type="checkbox"/> 10-35	<input checked="" type="checkbox"/> Filtered	<input type="checkbox"/> Mid-slope	<input type="checkbox"/> Moist (mesic)
Max <u>_700_</u> ft / m	<input type="checkbox"/> W <input type="checkbox"/> SW	<input type="checkbox"/> 35+	<input type="checkbox"/> Shade	<input type="checkbox"/> Lower Slope	<input type="checkbox"/> Dry-mesic
	<input checked="" type="checkbox"/> Flat or NA	<input type="checkbox"/> Vertical		<input checked="" type="checkbox"/> Bottom	<input type="checkbox"/> Dry (xeric)
				<input type="checkbox"/> Level Plain	

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Collection # _____ Repository _____	Do other members of this genus occur at this site? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
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Landowner name/address for entire population (attach additional owner information on a separate sheet): Evergreen Wind Power II, LLC 179 Lincoln Street Suite 500 Boston, MA 02111	Phone	Is landowner aware of plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Lot # (if known)	Comments

EO RANKING

CURRENT CONDITION of the plant's immediate habitat. Is the habitat pristine or degraded? Note any disturbances within the plant habitat (check off, describe below to what degree these have altered natural ecological processes, or if they have any negative or positive effects on the population). Note how the disturbance(s) may influence success of the plant at the site.

<input type="checkbox"/> Logging-most recently ~ _____ yrs ago	<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or mining
<input type="checkbox"/> Agriculture / Pasture	<input type="checkbox"/> Impoundment	<input type="checkbox"/> ORV / Vehicle disturbance
<input type="checkbox"/> Animal effects (insect outbreaks, browsing)	<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Trails / Roads
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> Erosion	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> No Evidence of disturbance		

Describe:

Condition **A** – No apparent signs of human disturbance (or long enough ago that effects are no longer visible or are extremely minor)

Rank **B** – Some signs of human disturbance or degradation, but habitat generally intact
 C – Signs of human disturbance or degradation, and habitat compromised in some significant way
 D – Highly disturbed (multiple impacts causing habitat to be drastically altered)
 Other / Explain:

SIZE / QUALITY: How large is this population relative to typical populations of this species? Does it appear to be capable of maintaining itself if its habitat remains basically intact? Yes No

Size / Quality Rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor

Comments: very large population, plants scattered, potential habitat extends well beyond the project area.

LANDSCAPE CONTEXT of the area surrounding the plant habitat. What land uses and/or natural communities surround the observed area? Is the habitat fragmented? To what degree can the population be protected from effects of adjacent land uses?

Comments: Large wetland complex surrounds this population, very small chance of activity or development encroaching and harming this population.

Landscape Rank **A** – Population surrounded by >= 1000 acres of undisturbed landscape
 B – Population surrounded by fairly intact landscape, though there may be cuts nearby
 C – Population surrounded by fragmented forest or rural landscape
 D – Surrounding area developed
 Other / Explain: A-/B+: Landscape more than fairly intact, cuts are within a half mile, but it's less than 1000 acres undisturbed.

OVERALL RANK for EO based on your experience **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Comments:

MNAP reviewed / verified rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Date: _____ Reviewer: _____ Rationale: _____

SPECIAL PLANT SURVEY FORM

Site: _____ Survey Site: Maine GenLead Transmission Line
 Quad name: Alder Stream Quad code: _____
 County: Aroostook Town: Glenwood
 Date: 6/24/2010 Surveyor(s): D. Dyer Sourcecode: F

Plant Name: *Lonicera oblongifolia* (Swamp-Fly Honeysuckle) New Update Occurrence #:

GPS Coordinates (<input checked="" type="checkbox"/> NAD 83, UTM Zone 19N; <input type="checkbox"/> Other-please specify) X: 574051 Y: 5072295	GPS Unit and Accuracy: Trimble Pro-XT, 1-2 m
Directions to Occurrence: Occurs in a scrub-shrub opening of a larger forested wetland complex south of Babcock Road adjacent to the existing MEPCO power line ROW. Stantec mapped wetland GLE350	
<input checked="" type="checkbox"/> Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.	

MAP: Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation.

Locational Uncertainty (how closely can you map the feature to its actual location?)

mapped to w/in 12.5 m of actual location; greater uncertainty (estimate = _____ m / ft / km / miles); aerial delimited

Confidence in Observation of Population Extent

Confident full extent of feature **IS** known; Confident full extent is **NOT** known; **Uncertain** whether full extent is known

EO DATA	Phenology	Population Area	Vigor? <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Other than normal Explain: No flowering plants, most individuals are less than 15" tall.
# of Plants <u>_13_</u>	<input checked="" type="checkbox"/> In leaf	<input type="checkbox"/> 1 square yard	Evidence disease, predation, etc? Explain:
<input checked="" type="checkbox"/> Individuals	<input type="checkbox"/> In bud	<input checked="" type="checkbox"/> 1 – 5 square yards	<input type="checkbox"/> Yes
<input type="checkbox"/> Ramets	<input type="checkbox"/> In flower	<input type="checkbox"/> 5 – 20 square yards	<input checked="" type="checkbox"/> No
Population Structure	<input type="checkbox"/> Immature fruit	<input type="checkbox"/> 20 – 100 square yards	Type of reproduction? Explain:
<u>_100_</u> % Vegetative	<input type="checkbox"/> Mature fruit	<input type="checkbox"/> 100 sq yds to 1 acre	<input type="checkbox"/> Sexual
<u>_0_</u> % Reproductive	<input type="checkbox"/> Seed dispersing	<input type="checkbox"/> 1 acre +	<input type="checkbox"/> Asexual
	<input type="checkbox"/> Dormant	_____ ~area actual habitat	<input checked="" type="checkbox"/> Not Observed
		_____ ~ area potential habitat	
Other Comments:			

GENERAL DESCRIPTION

Associated natural community: Evergreen Seepage Forest					
Associated plant species: <i>Ilex verticillata</i> , <i>Eutrochium maculatum</i> , <i>Acer rubrum</i> , <i>Larix laricina</i> , <i>Equisetum pratense</i> , <i>Glyceria striata</i> , <i>Thuja occidentalis</i> , <i>Rubus pubescens</i> , <i>Chamaepericlymenum canadense</i> [<i>Cornus canadensis</i>], <i>Carex trisperma</i>					
Substrate/soil type: Organic soil material.					
Threats to Population: none observed.					
Conservation/Management/ Research needs: none.					
Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min <u>_500_</u> ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE	<input checked="" type="checkbox"/> Flat	<input type="checkbox"/> Open	<input type="checkbox"/> Crest	<input type="checkbox"/> Inundated
	<input type="checkbox"/> E <input type="checkbox"/> NW	<input type="checkbox"/> 0-10	<input checked="" type="checkbox"/> Partial	<input type="checkbox"/> Upper Slope	<input checked="" type="checkbox"/> Saturated (wet mesic)
	<input type="checkbox"/> S <input type="checkbox"/> SE	<input type="checkbox"/> 10-35	<input type="checkbox"/> Filtered	<input type="checkbox"/> Mid-slope	<input type="checkbox"/> Moist (mesic)
Max <u>_700_</u> ft / m	<input type="checkbox"/> W <input type="checkbox"/> SW	<input type="checkbox"/> 35+	<input type="checkbox"/> Shade	<input type="checkbox"/> Lower Slope	<input type="checkbox"/> Dry-mesic
	<input checked="" type="checkbox"/> Flat or NA	<input type="checkbox"/> Vertical		<input checked="" type="checkbox"/> Bottom	<input type="checkbox"/> Dry (xeric)
				<input type="checkbox"/> Level Plain	

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Collection # _____ Repository _____	Do other members of this genus occur at this site? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
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Landowner name/address for entire population (attach additional owner information on a separate sheet): Evergreen Wind Power II, LLC 179 Lincoln Street Suite 500 Boston, MA 02111	Phone	Is landowner aware of plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Lot # (if known)	Comments

EO RANKING

CURRENT CONDITION of the plant's immediate habitat. Is the habitat pristine or degraded? Note any disturbances within the plant habitat (check off, describe below to what degree these have altered natural ecological processes, or if they have any negative or positive effects on the population). Note how the disturbance(s) may influence success of the plant at the site.

<input type="checkbox"/> Logging-most recently ~ _____ yrs ago	<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or mining
<input type="checkbox"/> Agriculture / Pasture	<input type="checkbox"/> Impoundment	<input type="checkbox"/> ORV / Vehicle disturbance
<input type="checkbox"/> Animal effects (insect outbreaks, browsing)	<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Trails / Roads
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> Erosion	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> No Evidence of disturbance		

Describe:
Population occurs within 50 feet of an established power line ROW. No disturbance observed immediately surrounding the plants in their current immediate habitat.

Condition A – No apparent signs of human disturbance (or long enough ago that effects are no longer visible or are extremely minor)
Rank B – Some signs of human disturbance or degradation, but habitat generally intact
 C – Signs of human disturbance or degradation, and habitat compromised in some significant way
 D – Highly disturbed (multiple impacts causing habitat to be drastically altered)
 Other / Habitat disturbed, consistent with needs of species / **Explain:**

SIZE / QUALITY: How large is this population relative to typical populations of this species? _____
 Does it appear to be capable of maintaining itself if its habitat remains basically intact? Yes No

Size / Quality Rank A – Excellent B – Good C – Fair D – Poor

Comments: Few stems compared with populations observed elsewhere, and no flowering plants.

LANDSCAPE CONTEXT of the area surrounding the plant habitat. What land uses and/or natural communities surround the observed area? Is the habitat fragmented? To what degree can the population be protected from effects of adjacent land uses?

Comments:
Population occurs within 50 feet of an established power line ROW. No disturbance observed immediately surrounding the plants in their current immediate habitat. Few stems compared with populations observed elsewhere, and no flowering plants.

Landscape A – Population surrounded by >= 1000 acres of undisturbed landscape
Rank B – Population surrounded by fairly intact landscape, though there may be cuts nearby
 C – Population surrounded by fragmented forest or rural landscape
 D – Surrounding area developed
 Other / Explain:

OVERALL RANK for EO based on your experience A – Excellent B – Good C – Fair D – Poor E – Extant

Comments: Refer to prior comments.

MNAP reviewed / verified rank A – Excellent B – Good C – Fair D – Poor E – Extant

Date: _____ Reviewer: _____ Rationale: _____

SPECIAL PLANT SURVEY FORM

Site: _____ Survey Site: Maine GenLead Transmission Line
 Quad name: Alder Stream Quad code: _____
 County: Aroostook Town: Glenwood Plt.
 Date: 6/24/2010 Surveyor(s): D. Dyer Sourcecode: F

Plant Name: *Lonicera oblongifolia* (Swamp-Fly Honeysuckle) New Update Occurrence #:

GPS Coordinates (<input checked="" type="checkbox"/> NAD 83, UTM Zone 19N; <input type="checkbox"/> Other-please specify) X: 574460 Y: 5072593	GPS Unit and Accuracy: Trimble Pro-XT, 1-2 m
Directions to Occurrence: In a large forested wetland complex, most plants occur on the edge of the proposed corridor, near and out into the established power line ROW Stantec mapped wetland GLE351. <input checked="" type="checkbox"/> Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.	

MAP: Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation.

Locational Uncertainty (how closely can you map the feature to its actual location?)

mapped to w/in 12.5 m of actual location; greater uncertainty (estimate = _____ m / ft / km / miles); aerial delimited

Confidence in Observation of Population Extent

Confident full extent of feature **IS** known; Confident full extent is **NOT** known; **Uncertain** whether full extent is known

EO DATA	Phenology	Population Area	Vigor? <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Other than normal Explain: Stems mostly under 15" and no flowers or flower buds observed.
# of Plants <u>9</u>	<input checked="" type="checkbox"/> In leaf	<input type="checkbox"/> 1 square yard	Evidence disease, predation, etc? Explain:
<input checked="" type="checkbox"/> Individuals	<input type="checkbox"/> In bud	<input checked="" type="checkbox"/> 1 – 5 square yards	<input type="checkbox"/> Yes
<input type="checkbox"/> Ramets	<input type="checkbox"/> In flower	<input type="checkbox"/> 5 – 20 square yards	<input checked="" type="checkbox"/> No
Population Structure	<input type="checkbox"/> Immature fruit	<input type="checkbox"/> 20 – 100 square yards	Type of reproduction? Explain: flowers present
<u>100</u> % Vegetative	<input type="checkbox"/> Mature fruit	<input type="checkbox"/> 100 sq yds to 1 acre	<input type="checkbox"/> Sexual
<u>0</u> % Reproductive	<input type="checkbox"/> Seed dispersing	<input type="checkbox"/> 1 acre +	<input type="checkbox"/> Asexual
	<input type="checkbox"/> Dormant	_____ ~area actual habitat	<input checked="" type="checkbox"/> Not Observed
		_____ ~ area potential habitat	
Other Comments:			

GENERAL DESCRIPTION

Associated natural community: Northern White Cedar Swamp					
Associated plant species: <i>Thuja occidentalis</i> , <i>Osmunda cinnamomea</i> , <i>Cypripedium reginae</i>					
Substrate/soil type: organic soil material.					
Threats to Population: none observed.					
Conservation/Management/ Research needs: none observed.					
Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min <u>500</u> ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE	<input checked="" type="checkbox"/> Flat	<input type="checkbox"/> Open	<input type="checkbox"/> Crest	<input type="checkbox"/> Inundated
	<input type="checkbox"/> E <input type="checkbox"/> NW	<input type="checkbox"/> 0-10	<input checked="" type="checkbox"/> Partial	<input type="checkbox"/> Upper Slope	<input checked="" type="checkbox"/> Saturated (wet mesic)
	<input type="checkbox"/> S <input type="checkbox"/> SE	<input type="checkbox"/> 10-35	<input type="checkbox"/> Filtered	<input type="checkbox"/> Mid-slope	<input type="checkbox"/> Moist (mesic)
Max <u>700</u> ft / m	<input type="checkbox"/> W <input type="checkbox"/> SW	<input type="checkbox"/> 35+	<input type="checkbox"/> Shade	<input type="checkbox"/> Lower Slope	<input type="checkbox"/> Dry-mesic
	<input checked="" type="checkbox"/> Flat or NA	<input type="checkbox"/> Vertical		<input checked="" type="checkbox"/> Bottom	<input type="checkbox"/> Dry (xeric)
				<input type="checkbox"/> Level Plain	

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Collection # _____ Repository _____	Do other members of this genus occur at this site? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
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Landowner name/address for entire population (attach additional owner information on a separate sheet): Evergreen Wind Power II, LLC 179 Lincoln Street Suite 500 Boston, MA 02111	Phone	Is landowner aware of plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Lot # (if known)	Comments

EO RANKING

CURRENT CONDITION of the plant's immediate habitat. Is the habitat pristine or degraded? Note any disturbances within the plant habitat (check off, describe below to what degree these have altered natural ecological processes, or if they have any negative or positive effects on the population). Note how the disturbance(s) may influence success of the plant at the site.

<input type="checkbox"/> Logging-most recently ~ _____ yrs ago	<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or mining
<input type="checkbox"/> Agriculture / Pasture	<input type="checkbox"/> Impoundment	<input type="checkbox"/> ORV / Vehicle disturbance
<input type="checkbox"/> Animal effects (insect outbreaks, browsing)	<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Trails / Roads
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> Erosion	<input checked="" type="checkbox"/> Other
		<input type="checkbox"/> No Evidence of disturbance

Describe:
Population occurs within 50 feet of an established power line ROW. No disturbance observed immediately surrounding the plants in their current immediate habitat.

Condition A – No apparent signs of human disturbance (or long enough ago that effects are no longer visible or are extremely minor)
Rank B – Some signs of human disturbance or degradation, but habitat generally intact
 C – Signs of human disturbance or degradation, and habitat compromised in some significant way
 D – Highly disturbed (multiple impacts causing habitat to be drastically altered)
 Other / Habitat disturbed, consistent with needs of species / **Explain:** Opening created for ROW has enhanced the population

SIZE / QUALITY: How large is this population relative to typical populations of this species?
Does it appear to be capable of maintaining itself if its habitat remains basically intact? Yes No

Size / Quality Rank A – Excellent B – Good C – Fair D – Poor

Comments: Population occurs within 50 feet of an established power line ROW. No disturbance observed immediately surrounding the plant their current immediate habitat. Population smaller than others in the area.

LANDSCAPE CONTEXT of the area surrounding the plant habitat. What land uses and/or natural communities surround the observed area? Is the habitat fragmented? To what degree can the population be protected from effects of adjacent land uses?

Comments:
: Population occurs within 50 feet of an established power line ROW. No disturbance observed immediately surrounding the plants in their current immediate habitat.

Landscape A – Population surrounded by >= 1000 acres of undisturbed landscape
Rank B – Population surrounded by fairly intact landscape, though there may be cuts nearby
 C – Population surrounded by fragmented forest or rural landscape
 D – Surrounding area developed
 Other / Explain:

OVERALL RANK for EO based on your experience A – Excellent B – Good C – Fair D – Poor E – Extant

Comments: : Population occurs within 50 feet of an established power line ROW. No disturbance observed immediately surrounding the p their current immediate habitat.

MNAP reviewed / verified rank A – Excellent B – Good C – Fair D – Poor E – Extant

Date: _____ Reviewer: _____ Rationale: _____

SPECIAL PLANT SURVEY FORM

Site: _____ Survey Site: Maine GenLead Transmission Line
 Quad name: Alder Stream Quad code: _____
 County: Aroostook Town: Glenwood

Date: 6/18/2010 Surveyor(s): D. Dyer, K. Nickerson Sourcecode: F

Plant Name: *Lonicera oblongifolia* (Swamp-Fly Honeysuckle) New Update Occurrence #: _____

GPS Coordinates (<input checked="" type="checkbox"/> NAD 83, UTM Zone 19N; <input type="checkbox"/> Other-please specify) X: 572145 Y: 5070964	GPS Unit and Accuracy: Trimble Pro-XT, 1-2 m
Directions to Occurrence: Plants occur in a scrub-shrub opening of a larger forested wetland complex adjacent to an existing power line ROW, north of the Yankee Woodshed Road (off US Route 2A) in Glenwood Plantation. In Stantec mapped wetland GLE343.	
<input checked="" type="checkbox"/> Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.	

MAP: Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation.

Locational Uncertainty (how closely can you map the feature to its actual location?)

mapped to w/in 12.5 m of actual location; greater uncertainty (estimate = _____ m / ft / km / miles); aerial delimited

Confidence in Observation of Population Extent

Confident full extent of feature **IS** known; Confident full extent is **NOT** known; **Uncertain** whether full extent is known

EO DATA # of Plants <u>159</u> <input checked="" type="checkbox"/> Individuals <input type="checkbox"/> Ramets Population Structure <u>100</u> % Vegetative <u>0</u> % Reproductive	Phenology <input checked="" type="checkbox"/> In leaf <input checked="" type="checkbox"/> In bud <input type="checkbox"/> In flower <input type="checkbox"/> Immature fruit <input type="checkbox"/> Mature fruit <input type="checkbox"/> Seed dispersing <input type="checkbox"/> Dormant	Population Area <input type="checkbox"/> 1 square yard <input type="checkbox"/> 1 – 5 square yards <input checked="" type="checkbox"/> 5 – 20 square yards <input type="checkbox"/> 20 – 100 square yards <input type="checkbox"/> 100 sq yds to 1 acre <input type="checkbox"/> 1 acre + _____ ~area actual habitat _____ ~ area potential habitat	Vigor? <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Other than normal Explain: Less than half contained flower buds, most plants were less than 1 foot tall. Evidence disease, predation, etc? Explain: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Type of reproduction? Explain: <input type="checkbox"/> Sexual <input type="checkbox"/> Asexual <input checked="" type="checkbox"/> Not Observed
Other Comments:			

GENERAL DESCRIPTION

Associated natural community: Evergreen Seepage Forest					
Associated plant species: <i>Carex gynandra</i> , <i>Abies balsamea</i> , <i>Viburnum nudum</i> var. <i>cassanoides</i> , <i>Thuja occidentalis</i> , <i>Acer rubrum</i> , <i>Alnus incana</i> , <i>Calla palustris</i> , <i>Impatiens capensis</i> , <i>Osmunda cinnamomea</i> , <i>Glyceria striata</i> , <i>Carex projecta</i> , <i>Onoclea sensibilis</i> , <i>Carex intumescens</i>					
Substrate/soil type: Organic soil material					
Threats to Population: none observed					
Conservation/Management/ Research needs: none needed.					
Elevation Min <u>500</u> ft / m Max <u>700</u> ft / m	Aspect <input type="checkbox"/> N <input type="checkbox"/> NE <input type="checkbox"/> E <input type="checkbox"/> NW <input type="checkbox"/> S <input type="checkbox"/> SE <input type="checkbox"/> W <input type="checkbox"/> SW <input checked="" type="checkbox"/> Flat or NA	% Slope <input checked="" type="checkbox"/> Flat <input type="checkbox"/> 0-10 <input type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> Vertical	Light <input type="checkbox"/> Open <input checked="" type="checkbox"/> Partial <input type="checkbox"/> Filtered <input type="checkbox"/> Shade	Topographic Position <input type="checkbox"/> Crest <input type="checkbox"/> Upper Slope <input type="checkbox"/> Mid-slope <input checked="" type="checkbox"/> Lower Slope <input type="checkbox"/> Bottom <input type="checkbox"/> Level Plain	Moisture <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated (wet mesic) <input type="checkbox"/> Moist (mesic) <input type="checkbox"/> Dry-mesic <input type="checkbox"/> Dry (xeric)

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Collection # _____ Repository _____	Do other members of this genus occur at this site? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
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Landowner name/address for entire population (attach additional owner information on a separate sheet): Evergreen Wind Power II, LLC 179 Lincoln Street Suite 500 Boston, MA 02111	Phone	Is landowner aware of plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Lot # (if known)	Comments

EO RANKING

CURRENT CONDITION of the plant's immediate habitat. Is the habitat pristine or degraded? Note any disturbances within the plant habitat (check off, describe below to what degree these have altered natural ecological processes, or if they have any negative or positive effects on the population). Note how the disturbance(s) may influence success of the plant at the site.

<input checked="" type="checkbox"/> Logging-most recently ~_30_ yrs ago	<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or mining
<input type="checkbox"/> Agriculture / Pasture	<input type="checkbox"/> Impoundment	<input type="checkbox"/> ORV / Vehicle disturbance
<input type="checkbox"/> Animal effects (insect outbreaks, browsing)	<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Trails / Roads
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> Erosion	<input type="checkbox"/> Other
<input type="checkbox"/> No Evidence of disturbance		

Describe:
No recent disturbance. Logging evidence from approximately 30 years ago created openings which appear to have benefitted the plants.

Condition **A** – No apparent signs of human disturbance (or long enough ago that effects are no longer visible or are extremely minor)
Rank **B** – Some signs of human disturbance or degradation, but habitat generally intact
 C – Signs of human disturbance or degradation, and habitat compromised in some significant way
 D – Highly disturbed (multiple impacts causing habitat to be drastically altered)
 Other / Habitat disturbed, consistent with needs of species / **Explain:**

SIZE / QUALITY: How large is this population relative to typical populations of this species? _____
 Does it appear to be capable of maintaining itself if its habitat remains basically intact? Yes No

Size / Quality Rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor

Comments: Very few plants with flower buds, none flowering at the time of survey. Population concentrated, 3 main patches in one wetland many plants at each patch.

LANDSCAPE CONTEXT of the area surrounding the plant habitat. What land uses and/or natural communities surround the observed area? Is the habitat fragmented? To what degree can the population be protected from effects of adjacent land uses?

Comments: Population occurs adjacent to an existing power line ROW.

Landscape Rank **A** – Population surrounded by >= 1000 acres of undisturbed landscape
 B – Population surrounded by fairly intact landscape, though there may be cuts nearby
 C – Population surrounded by fragmented forest or rural landscape
 D – Surrounding area developed
 Other / Explain:

OVERALL RANK for EO based on your experience **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Comments:

MNAP reviewed / verified rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Date: _____ Reviewer: _____ Rationale: _____

SPECIAL PLANT SURVEY FORM

Site: _____ Survey Site: Maine GenLead Transmission Line
 Quad name: Alder Stream Quad code: _____
 County: Aroostook Town: Glenwood Plt.
 Date: 6/24/2010 Surveyor(s): D. Dyer Sourcecode: F

Plant Name: *Lonicera oblongifolia* (Swamp-fly Honeysuckle) New Update Occurrence #:

GPS Coordinates (<input checked="" type="checkbox"/> NAD 83, UTM Zone 19N; <input type="checkbox"/> Other-please specify) X: 575053 Y: 5075374	GPS Unit and Accuracy: Trimble Pro-XT, 1-2 m
Directions to Occurrence: Large wetland complex north of Alder Stream in Glenwood Plantation, along Glenwood/Haynesville town line. Stantec mapped wetland GLE359.	
<input checked="" type="checkbox"/> Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.	

MAP: Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation.

Locational Uncertainty (how closely can you map the feature to its actual location?)

mapped to w/in 12.5 m of actual location; greater uncertainty (estimate = _____ m / ft / km / miles); aerial delimited

Confidence in Observation of Population Extent

Confident full extent of feature **IS** known; Confident full extent is **NOT** known; **Uncertain** whether full extent is known

EO DATA	Phenology	Population Area	Vigor? <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Other than normal Explain: seems to be normal to have no flowers.
# of Plants >100_	<input checked="" type="checkbox"/> In leaf	<input type="checkbox"/> 1 square yard	Evidence disease, predation, etc? Explain:
<input checked="" type="checkbox"/> Individuals	<input type="checkbox"/> In bud	<input type="checkbox"/> 1 – 5 square yards	<input type="checkbox"/> Yes
<input type="checkbox"/> Ramets	<input type="checkbox"/> In flower	<input type="checkbox"/> 5 – 20 square yards	<input checked="" type="checkbox"/> No
Population Structure	<input type="checkbox"/> Immature fruit	<input type="checkbox"/> 20 – 100 square yards	Type of reproduction? Explain:
100 % Vegetative	<input type="checkbox"/> Mature fruit	<input type="checkbox"/> 100 sq yds to 1 acre	<input type="checkbox"/> Sexual
0 % Reproductive	<input type="checkbox"/> Seed dispersing	<input checked="" type="checkbox"/> 1 acre +	<input type="checkbox"/> Asexual
	<input type="checkbox"/> Dormant	____~area actual habitat	<input checked="" type="checkbox"/> Not Observed
		____~ area potential habitat	
Other Comments: All populations observed in this geographical area are not flowering but the numbers are not exceptionally low. Additional plants occur outside the project area they were observed but not surveyed.			

GENERAL DESCRIPTION

Associated natural community: Evergreen Seepage Forest					
Associated plant species: <i>Dasiphora floribunda, Rhododendron groenlandicum, Kalmia angustifolia, Calopogon tuberosus, Carex magellanica, Thuja occidentalis, Alnus incana, Ilex mucronata, Carex stellata, Equisetum pratense, Cyperpedium reginae, Platanthera hyperborea, Trichophorum alpinum</i>					
Substrate/soil type: organic soil material					
Threats to Population: none observed					
Conservation/Management/ Research needs: none observed					
Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min __500__ ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE	<input checked="" type="checkbox"/> Flat	<input type="checkbox"/> Open	<input type="checkbox"/> Crest	<input type="checkbox"/> Inundated
	<input type="checkbox"/> E <input type="checkbox"/> NW	<input type="checkbox"/> 0-10	<input checked="" type="checkbox"/> Partial	<input type="checkbox"/> Upper Slope	<input checked="" type="checkbox"/> Saturated (wet mesic)
	<input type="checkbox"/> S <input type="checkbox"/> SE	<input type="checkbox"/> 10-35	<input checked="" type="checkbox"/> Filtered	<input type="checkbox"/> Mid-slope	<input type="checkbox"/> Moist (mesic)
Max __700__ ft / m	<input type="checkbox"/> W <input type="checkbox"/> SW	<input type="checkbox"/> 35+	<input type="checkbox"/> Shade	<input type="checkbox"/> Lower Slope	<input type="checkbox"/> Dry-mesic
	<input checked="" type="checkbox"/> Flat or NA	<input type="checkbox"/> Vertical		<input checked="" type="checkbox"/> Bottom	<input type="checkbox"/> Dry (xeric)
				<input type="checkbox"/> Level Plain	

Photograph taken? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Collection # _____ Repository _____	Do other members of this genus occur at this site? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
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Landowner name/address for entire population (attach additional owner information on a separate sheet): Evergreen Wind Power II, LLC 179 Lincoln Street Suite 500 Boston, MA 02111	Phone	Is landowner aware of plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Lot # (if known)	Comments

EO RANKING

CURRENT CONDITION of the plant's immediate habitat. Is the habitat pristine or degraded? Note any disturbances within the plant habitat (check off, describe below to what degree these have altered natural ecological processes, or if they have any negative or positive effects on the population). Note how the disturbance(s) may influence success of the plant at the site.

<input type="checkbox"/> Logging-most recently ~ _____ yrs ago	<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or mining
<input type="checkbox"/> Agriculture / Pasture	<input type="checkbox"/> Impoundment	<input type="checkbox"/> ORV / Vehicle disturbance
<input type="checkbox"/> Animal effects (insect outbreaks, browsing)	<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Trails / Roads
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> Erosion	<input type="checkbox"/> Other
		<input checked="" type="checkbox"/> No Evidence of disturbance

Describe: _____

Condition **A** – No apparent signs of human disturbance (or long enough ago that effects are no longer visible or are extremely minor)
Rank **B** – Some signs of human disturbance or degradation, but habitat generally intact
 C – Signs of human disturbance or degradation, and habitat compromised in some significant way
 D – Highly disturbed (multiple impacts causing habitat to be drastically altered)
 Other / Explain:

SIZE / QUALITY: How large is this population relative to typical populations of this species? _____
 Does it appear to be capable of maintaining itself if its habitat remains basically intact? Yes No

Size / Quality Rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor
Comments: Potential habitat is such a large area that this population could be much larger than what was observed.

LANDSCAPE CONTEXT of the area surrounding the plant habitat. What land uses and/or natural communities surround the observed area? Is the habitat fragmented? To what degree can the population be protected from effects of adjacent land uses?

Comments:
Large wetland complex surrounds this population, very small chance of activity or development encroaching and harming this population.

Landscape Rank **A** – Population surrounded by > = 1000 acres of undisturbed landscape
 B – Population surrounded by fairly intact landscape, though there may be cuts nearby
 C – Population surrounded by fragmented forest or rural landscape
 D – Surrounding area developed
 Other / Explain: A-/B+: Landscape more than fairly intact, cuts are within a half mile, but it's less than 1000 acres undisturbed.

OVERALL RANK for EO based on your experience **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Comments: _____

MNAP reviewed / verified rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Date: _____ Reviewer: _____ Rationale: _____

SPECIAL PLANT SURVEY FORM

Site: _____ Survey Site: Maine GenLead Transmission Line
 Quad name: Alder Stream Quad code: _____
 County: Aroostook Town: Glenwood Plt.
 Date: 6/25/2010 Surveyor(s): D. Dyer Sourcecode: F

Plant Name: **Ranunculus gmelinii** New Update Occurrence #: _____

GPS Coordinates (<input checked="" type="checkbox"/> NAD 83, UTM Zone 19N; <input type="checkbox"/> Other-please specify) X: 575037 Y: 5075337	GPS Unit and Accuracy: Trimble Pro-XT, 1-2 m
Directions to Occurrence: Occurs in backwaters and drainages (from the scrub-shrub stream side wetland) around Alder Stream. Stantec mapped wetland GLE359. <input checked="" type="checkbox"/> Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.	

MAP: Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation.

Locational Uncertainty (how closely can you map the feature to its actual location?)

mapped to w/in 12.5 m of actual location; greater uncertainty (estimate = _____ m / ft / km / miles); aerial delimited

Confidence in Observation of Population Extent

Confident full extent of feature **IS** known; Confident full extent is **NOT** known; **Uncertain** whether full extent is known

EO DATA	Phenology	Population Area	Vigor? <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Other than normal Explain: Limited habitat available, but not occupying all of it. Only one flowering plant.
# of Plants ___~50__	<input checked="" type="checkbox"/> In leaf	<input type="checkbox"/> 1 square yard	Evidence disease, predation, etc? Explain:
<input checked="" type="checkbox"/> Individuals	<input type="checkbox"/> In bud	<input checked="" type="checkbox"/> 1 – 5 square yards	<input type="checkbox"/> Yes
<input type="checkbox"/> Ramets	<input checked="" type="checkbox"/> In flower	<input type="checkbox"/> 5 – 20 square yards	<input checked="" type="checkbox"/> No
Population Structure	<input type="checkbox"/> Immature fruit	<input type="checkbox"/> 20 – 100 square yards	Type of reproduction? Explain: Only 1 flower.
__99__ % Vegetative	<input type="checkbox"/> Mature fruit	<input type="checkbox"/> 100 sq yds to 1 acre	<input checked="" type="checkbox"/> Sexual
__1__ % Reproductive	<input type="checkbox"/> Seed dispersing	<input type="checkbox"/> 1 acre +	<input type="checkbox"/> Asexual
Other Comments:	<input type="checkbox"/> Dormant	____~area actual habitat	<input type="checkbox"/> Not Observed
		____~ area potential habitat	

GENERAL DESCRIPTION

Associated natural community: Sweetgale Mixed Shrub Fen					
Associated plant species: <i>Carex stricta</i> , <i>Myrica gale</i> , <i>Spiraea alba</i> var. <i>latifolia</i> , <i>Alnus incana</i> , <i>Utricularis macrorhiza</i> (<i>U. vulgaris</i> var. <i>americana</i>), <i>Lysimachia terrestris</i>					
Substrate/soil type: organic soil material					
Threats to Population: none observed					
Conservation/Management/ Research needs: none observed					
Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min ___500__ ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE	<input checked="" type="checkbox"/> Flat	<input checked="" type="checkbox"/> Open	<input type="checkbox"/> Crest	<input checked="" type="checkbox"/> Inundated
	<input type="checkbox"/> E <input type="checkbox"/> NW	<input type="checkbox"/> 0-10	<input type="checkbox"/> Partial	<input type="checkbox"/> Upper Slope	<input type="checkbox"/> Saturated (wet mesic)
	<input type="checkbox"/> S <input type="checkbox"/> SE	<input type="checkbox"/> 10-35	<input type="checkbox"/> Filtered	<input type="checkbox"/> Mid-slope	<input type="checkbox"/> Moist (mesic)
Max ___700__ ft / m	<input type="checkbox"/> W <input type="checkbox"/> SW	<input type="checkbox"/> 35+	<input type="checkbox"/> Shade	<input type="checkbox"/> Lower Slope	<input type="checkbox"/> Dry-mesic
	<input checked="" type="checkbox"/> Flat or NA	<input type="checkbox"/> Vertical		<input checked="" type="checkbox"/> Bottom	<input type="checkbox"/> Dry (xeric)
				<input type="checkbox"/> Level Plain	

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Collection # _____ Repository _____	Do other members of this genus occur at this site? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
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Landowner name/address for entire population (attach additional owner information on a separate sheet): Evergreen Wind Power II, LLC 179 Lincoln Street Suite 500 Boston, MA 02111	Phone	Is landowner aware of plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Lot # (if known)	Comments

EO RANKING

CURRENT CONDITION of the plant's immediate habitat. Is the habitat pristine or degraded? Note any disturbances within the plant habitat (check off, describe below to what degree these have altered natural ecological processes, or if they have any negative or positive effects on the population). Note how the disturbance(s) may influence success of the plant at the site.

<input type="checkbox"/> Logging-most recently ~ _____ yrs ago	<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or mining
<input type="checkbox"/> Agriculture / Pasture	<input type="checkbox"/> Impoundment	<input type="checkbox"/> ORV / Vehicle disturbance
<input type="checkbox"/> Animal effects (insect outbreaks, browsing)	<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Trails / Roads
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> Erosion	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> No Evidence of disturbance		

Describe:
no disturbance observed

Condition **A** – No apparent signs of human disturbance (or long enough ago that effects are no longer visible or are extremely minor)
Rank **B** – Some signs of human disturbance or degradation, but habitat generally intact
 C – Signs of human disturbance or degradation, and habitat compromised in some significant way
 D – Highly disturbed (multiple impacts causing habitat to be drastically altered)
 Other / Habitat disturbed, consistent with needs of species / **Explain:**

SIZE / QUALITY: How large is this population relative to typical populations of this species?
Does it appear to be capable of maintaining itself if its habitat remains basically intact? Yes No

Size / Quality Rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor
Comments: Population is smaller than the other population observed in Glenwood Plt., and only one plant flowering.

LANDSCAPE CONTEXT of the area surrounding the plant habitat. What land uses and/or natural communities surround the observed area? Is the habitat fragmented? To what degree can the population be protected from effects of adjacent land uses?

Comments:
The cuts are not really nearby, approximately a half mile or more away, but it is less than 1000 acres of undisturbed acres.

Landscape **A** – Population surrounded by >= 1000 acres of undisturbed landscape
Rank **B** – Population surrounded by fairly intact landscape, though there may be cuts nearby
 C – Population surrounded by fragmented forest or rural landscape
 D – Surrounding area developed
 Other / Explain:

OVERALL RANK for EO based on your experience **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Comments:

MNAP reviewed / verified rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Date: _____ Reviewer: _____ Rationale: _____

SPECIAL PLANT SURVEY FORM

Site: _____ Survey Site: Maine GenLead Transmission Line
 Quad name: Alder Stream Quad code: _____
 County: Aroostook Town: Glenwood Plt.
 Date: 6/24/2010 Surveyor(s): D. Dyer Sourcecode: F

Plant Name: Ranunculus gmelinii (small yellow water crowfoot) New Update Occurrence #:

GPS Coordinates (<input checked="" type="checkbox"/> NAD 83, UTM Zone 19N; <input type="checkbox"/> Other-please specify) X: 574869 Y: 5072977	GPS Unit and Accuracy: Trimble Pro-XT, 1-2 m
Directions to Occurrence: Population occurs north of the Babcock Road (off route 2A in Glenwood Plt) over a very large beaver dam, and downstream of the impoundment. Partially adjacent to established power line ROW. Occurs within Stantec mapped wetland GLE354	
<input checked="" type="checkbox"/> Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.	

MAP: Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation.

Locational Uncertainty (how closely can you map the feature to its actual location?)

mapped to w/in 12.5 m of actual location; greater uncertainty (estimate = _____ m / ft / km / miles); aerial delimited

Confidence in Observation of Population Extent

Confident full extent of feature **IS** known; Confident full extent is **NOT** known; **Uncertain** whether full extent is known

EO DATA	Phenology	Population Area	Vigor? <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Other than normal Explain: Few flowering stems given the size of the population.
# of Plants >1000_	<input checked="" type="checkbox"/> In leaf	<input type="checkbox"/> 1 square yard	Evidence disease, predation, etc? Explain:
<input checked="" type="checkbox"/> Individuals	<input type="checkbox"/> In bud	<input type="checkbox"/> 1 – 5 square yards	<input type="checkbox"/> Yes
<input type="checkbox"/> Ramets	<input checked="" type="checkbox"/> In flower	<input checked="" type="checkbox"/> 5 – 20 square yards	<input checked="" type="checkbox"/> No
Population Structure	<input type="checkbox"/> Immature fruit	<input type="checkbox"/> 20 – 100 square yards	Type of reproduction? Explain:
98 % Vegetative	<input type="checkbox"/> Mature fruit	<input type="checkbox"/> 100 sq yds to 1 acre	<input checked="" type="checkbox"/> Sexual
2 % Reproductive	<input type="checkbox"/> Seed dispersing	<input type="checkbox"/> 1 acre +	<input type="checkbox"/> Asexual
	<input type="checkbox"/> Dormant	_____ ~area actual habitat	<input type="checkbox"/> Not Observed
		_____ ~ area potential habitat	
Other Comments: Population may extend outside the surveyed project area, and into open waters inaccessible on foot with knee high rubber boots. 11 flowering plants observed, estimated number of individuals.			

GENERAL DESCRIPTION

Associated natural community:					
Associated plant species: Potamogeton c.f. crispus, Ceratophyllum sp., Calla palustris, Lemna sp., Cicuta maculata, Impatiens capensis					
Substrate/soil type: unconsolidated bottom, mucky mineral soil—inundated.					
Threats to Population: none observed					
Conservation/Management/ Research needs: remove and manage invasive plant population.					
Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min __500__ ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE	<input checked="" type="checkbox"/> Flat	<input type="checkbox"/> Open	<input type="checkbox"/> Crest	<input checked="" type="checkbox"/> Inundated
	<input type="checkbox"/> E <input type="checkbox"/> NW	<input type="checkbox"/> 0-10	<input type="checkbox"/> Partial	<input type="checkbox"/> Upper Slope	<input type="checkbox"/> Saturated (wet mesic)
	<input type="checkbox"/> S <input type="checkbox"/> SE	<input type="checkbox"/> 10-35	<input checked="" type="checkbox"/> Filtered	<input type="checkbox"/> Mid-slope	<input type="checkbox"/> Moist (mesic)
Max __700__ ft / m	<input type="checkbox"/> W <input type="checkbox"/> SW	<input type="checkbox"/> 35+	<input type="checkbox"/> Shade	<input type="checkbox"/> Lower Slope	<input type="checkbox"/> Dry-mesic
	<input checked="" type="checkbox"/> Flat or NA	<input type="checkbox"/> Vertical		<input type="checkbox"/> Bottom	<input type="checkbox"/> Dry (xeric)
				<input checked="" type="checkbox"/> Level Plain	

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Collection # _____ Repository _____	Do other members of this genus occur at this site? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
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Landowner name/address for entire population (attach additional owner information on a separate sheet): Evergreen Wind Power II, LLC 179 Lincoln Street, Suite 500 Boston, MA 02111	Phone	Is landowner aware of plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Lot # (if known)	Comments

EO RANKING

CURRENT CONDITION of the plant's immediate habitat. Is the habitat pristine or degraded? Note any disturbances within the plant habitat (check off, describe below to what degree these have altered natural ecological processes, or if they have any negative or positive effects on the population). Note how the disturbance(s) may influence success of the plant at the site.

<input type="checkbox"/> Logging-most recently ~ _____ yrs ago	<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or mining
<input type="checkbox"/> Agriculture / Pasture	<input type="checkbox"/> Impoundment	<input type="checkbox"/> ORV / Vehicle disturbance
<input type="checkbox"/> Animal effects (insect outbreaks, browsing)	<input checked="" type="checkbox"/> Exotic plants	<input type="checkbox"/> Trails / Roads
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> Erosion	<input type="checkbox"/> Other
		<input type="checkbox"/> No Evidence of disturbance

Describe:
Phalaris arundinaceae is growing on the beaver dam just upstream of the rare plant population. Located within 100 feet of an established power line ROW.

Condition A – No apparent signs of human disturbance (or long enough ago that effects are no longer visible or are extremely minor)
Rank B – Some signs of human disturbance or degradation, but habitat generally intact
 C – Signs of human disturbance or degradation, and habitat compromised in some significant way
 D – Highly disturbed (multiple impacts causing habitat to be drastically altered)
 Other / Habitat disturbed, consistent with needs of species / **Explain:**

SIZE / QUALITY: How large is this population relative to typical populations of this species? Does it appear to be capable of maintaining itself if its habitat remains basically intact? Yes No

Size / Quality Rank A – Excellent B – Good C – Fair D – Poor

Comments: Relative size unknown seems to be extensive. Lots of plants associated with this population, and plenty of potential habitat. Few flowering plants at the time of this survey.

LANDSCAPE CONTEXT of the area surrounding the plant habitat. What land uses and/or natural communities surround the observed area? Is the habitat fragmented? To what degree can the population be protected from effects of adjacent land uses?

Comments:
Located within 100 feet of an established power line ROW.

Landscape A – Population surrounded by >= 1000 acres of undisturbed landscape
Rank B – Population surrounded by fairly intact landscape, though there may be cuts nearby
 C – Population surrounded by fragmented forest or rural landscape
 D – Surrounding area developed
 Other / Explain:

OVERALL RANK for EO based on your experience A – Excellent B – Good C – Fair D – Poor E – Extant

Comments:

MNAP reviewed / verified rank A – Excellent B – Good C – Fair D – Poor E – Extant

Date: _____ Reviewer: _____ Rationale: _____

SPECIAL PLANT SURVEY FORM

Site: _____ Survey Site: Maine GenLead Transmission Line
 Quad name: Alder Stream Quad code: _____
 County: Aroostook Town: Glenwood Plt.
 Date: 6/24/2010 Surveyor(s): D. Dyer Sourcecode: F

Plant Name: *Valerian uliginosa* (Marsh Valerian) New Update Occurrence #:

GPS Coordinates (<input checked="" type="checkbox"/> NAD 83, UTM Zone 19N; <input type="checkbox"/> Other-please specify) X: 575083 Y: 5075590	GPS Unit and Accuracy: Trimble Pro-XT, 1-2 m
Directions to Occurrence: Plants occur less widely scattered than other rare species in the same wetland, though they are sparsely scattered throughout. Stantec mapped w GLE359.	
<input type="checkbox"/> Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.	

MAP: Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation.

Locational Uncertainty (how closely can you map the feature to its actual location?)

mapped to w/in 12.5 m of actual location; greater uncertainty (estimate = _____ m / ft / km / miles); aerial delimited

Confidence in Observation of Population Extent

Confident full extent of feature **IS** known; Confident full extent is **NOT** known; **Uncertain** whether full extent is known

EO DATA # of Plants <u>59</u> <input checked="" type="checkbox"/> Individuals <input type="checkbox"/> Ramets Population Structure <u>0</u> % Vegetative <u>100</u> % Reproductive	Phenology <input checked="" type="checkbox"/> In leaf <input type="checkbox"/> In bud <input checked="" type="checkbox"/> In flower <input type="checkbox"/> Immature fruit <input type="checkbox"/> Mature fruit <input type="checkbox"/> Seed dispersing <input type="checkbox"/> Dormant	Population Area <input type="checkbox"/> 1 square yard <input type="checkbox"/> 1 – 5 square yards <input checked="" type="checkbox"/> 5 – 20 square yards <input type="checkbox"/> 20 – 100 square yards <input type="checkbox"/> 100 sq yds to 1 acre <input type="checkbox"/> 1 acre + _____ ~area actual habitat _____ ~ area potential habitat	Vigor? <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Other than normal Explain: All plants observed, were flowering. Evidence disease, predation, etc? Explain: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Type of reproduction? Explain: <input checked="" type="checkbox"/> Sexual <input type="checkbox"/> Asexual <input type="checkbox"/> Not Observed
Other Comments: Potential habitat extends beyond the surveyed project area. Plants were observed but not surveyed beyond the project extents.			

GENERAL DESCRIPTION

Associated natural community: Evergreen Seepage Forest					
Associated plant species: <i>Dasiphora floribunda, Rhododendron groenlandicum, Kalmia angustifolia, Calopogon tuberosus, Carex magellanica, Thuja occidentalis, Alnus incana, Ilex mucronata, Carex stellata, Equisetum pratense, Lonicera oblongifolia, Platanthera hyperborea, Trichophorum alpinum</i>					
Substrate/soil type: Organic soil material.					
Threats to Population: none observed					
Conservation/Management/ Research needs: none observed.					
Elevation Min <u>500</u> ft / m Max <u>700</u> ft / m	Aspect <input type="checkbox"/> N <input type="checkbox"/> NE <input type="checkbox"/> E <input type="checkbox"/> NW <input type="checkbox"/> S <input type="checkbox"/> SE <input type="checkbox"/> W <input type="checkbox"/> SW <input checked="" type="checkbox"/> Flat or NA	% Slope <input checked="" type="checkbox"/> Flat <input type="checkbox"/> 0-10 <input type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> Vertical	Light <input type="checkbox"/> Open <input checked="" type="checkbox"/> Partial <input type="checkbox"/> Filtered <input type="checkbox"/> Shade	Topographic Position <input type="checkbox"/> Crest <input type="checkbox"/> Upper Slope <input type="checkbox"/> Mid-slope <input type="checkbox"/> Lower Slope <input checked="" type="checkbox"/> Bottom <input type="checkbox"/> Level Plain	Moisture <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated (wet mesic) <input type="checkbox"/> Moist (mesic) <input type="checkbox"/> Dry-mesic <input type="checkbox"/> Dry (xeric)

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Collection # _____ Repository _____	Do other members of this genus occur at this site? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
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Landowner name/address for entire population (attach additional owner information on a separate sheet): Evergreen Wind Power II, LLC 179 Lincoln Street Suite 500 Boston, MA 02111	Phone	Is landowner aware of plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Lot # (if known)	Comments

EO RANKING

CURRENT CONDITION of the plant's immediate habitat. Is the habitat pristine or degraded? Note any disturbances within the plant habitat (check off, describe below to what degree these have altered natural ecological processes, or if they have any negative or positive effects on the population). Note how the disturbance(s) may influence success of the plant at the site.

<input type="checkbox"/> Logging-most recently ~ _____ yrs ago	<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or mining
<input type="checkbox"/> Agriculture / Pasture	<input type="checkbox"/> Impoundment	<input type="checkbox"/> ORV / Vehicle disturbance
<input type="checkbox"/> Animal effects (insect outbreaks, browsing)	<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Trails / Roads
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> Erosion	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> No Evidence of disturbance		

Describe:

Condition **A** – No apparent signs of human disturbance (or long enough ago that effects are no longer visible or are extremely minor)

Rank **B** – Some signs of human disturbance or degradation, but habitat generally intact
 C – Signs of human disturbance or degradation, and habitat compromised in some significant way
 D – Highly disturbed (multiple impacts causing habitat to be drastically altered)
 Other / Habitat disturbed, consistent with needs of species / **Explain**:

SIZE / QUALITY: How large is this population relative to typical populations of this species?
Does it appear to be capable of maintaining itself if its habitat remains basically intact? Yes No

Size / Quality Rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor

Comments: Plants are scattered throughout the wetland. Numbers are low, but it is not for a lack of habitat.

LANDSCAPE CONTEXT of the area surrounding the plant habitat. What land uses and/or natural communities surround the observed area? Is the habitat fragmented? To what degree can the population be protected from effects of adjacent land uses?

Comments: It seems that despite the seemingly low numbers of this population, and the potential habitat beyond the project area, and that all of the plants observed during this survey were flowering, that this population is doing quite well. Large wetland complex surrounds this population, very small chance of activity or development encroaching and harming this population.

Landscape Rank **A** – Population surrounded by > = 1000 acres of undisturbed landscape
 B – Population surrounded by fairly intact landscape, though there may be cuts nearby
 C – Population surrounded by fragmented forest or rural landscape
 D – Surrounding area developed
 Other / Explain: A-/B+: Landscape more than fairly intact, cuts are within a half mile, but it's less than 1000 acres undisturbed.

OVERALL RANK for EO based on your experience **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Comments: it seems that despite the overall low numbers that the population is in good condition, they are not suffering from lack of habitat

MNAP reviewed / verified rank **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Date: _____ Reviewer: _____ Rationale: _____



Photo 1: Skitacook Stream, June 2010 Stantec Consulting



Photo 2: Alder Stream, October 2009, Stantec Consulting



Photo 3: Rare Plant Habitat, Evergreen Seepage Forest, June 2010. Stantec Consulting



Photo 4: Swamp-Fly Honeysuckle (*Lonicera oblongifolia*) Wetland GLE354 June 2010. Stantec Consulting



Photo 5: Small Yellow Water Crowfoot (*Ranunculus gmelinii*) Wetland GLE355, June 2010. Stantec Consulting



Photo 6: Vegetative Small Yellow Water Crowfoot, June 2010. Stantec Consulting



Photo 7: Marsh Valerian (*Valeriana uliginosa*) flowers, Wetland GLE359, June 2010. Stantec Consulting

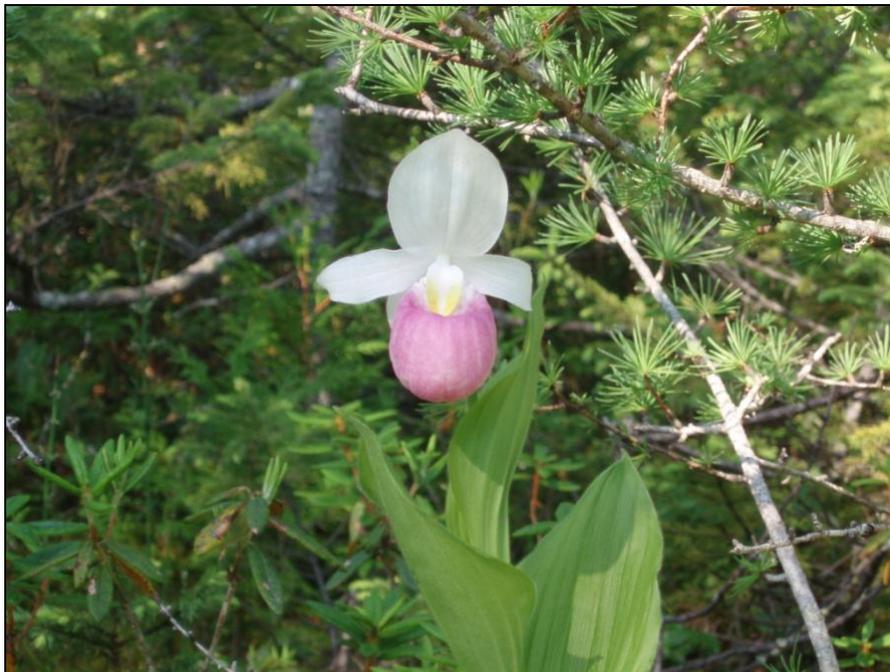


Photo 8: Showy Lady's Slipper (*Cypripedium reginae*) flower, Wetland GLE359, June 2010. Stantec Consulting

Appendix 9-2



STATE OF MAINE
DEPARTMENT OF CONSERVATION
93 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0093

JOHN ELIAS BALDACCI
GOVERNOR

ELIZA TOWNSEND
COMMISSIONER

March 31, 2010

Brooke Barnes
Stantec Consulting
30 Park Drive
Tosham, ME 04086

Re: Rare and exemplary botanical features, Proposed Potential Transmission Lines and Wind Development Areas, Project 195600518, Chester to Oakfield, Maine.

Dear Mr. Barnes:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request of March 1, 2010 for information on the presence of rare or unique botanical features documented within 250 feet of the two proposed transmission line alignments and at the potential wind development sites in the area between the Towns of Chester and Oakfield, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. For certain types of projects, we also incorporate review of landscape analysis sites, which are areas determined to have a high potential to support significant natural features. Our review involves examining maps, manual and computerized records, aerial photography, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

This finding is for project scoping purposes only and should not be considered as a final review of the proposed project. When specific location options for facilities and/or transmission lines have been determined and updated environmental assessments have been completed, a subsequent review request should be submitted to us for recommendations regarding impacts to significant natural features prior to application submittal.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are several botanical features documented along the potential transmission line corridors and within the potential wind development area.

Please refer to the table below and enclosed maps and fact sheets for more information about these features.

Specific commentary follows:

Hunt Ridge, Oakfield (Map 1). This site supports an exemplary Beech – Birch – Maple Forest. If wind infrastructure is planned within the natural community mapped here, please submit site plans for further commentary.

Dyer Brook and Robinson Mountain, Dyer Brook (Map 2). This site supports an exemplary Red Oak – Northern Hardwoods – White Pine Forest and a population of the rare plant Large Toothwort, *Cardamine maxima*. If wind infrastructure is planned within the natural community mapped here, please submit site plans for further commentary.

Table 1. Rare and Exemplary Botanical Features

Feature	Global Rank	State Rank	State Status	Occurrence Rank	Last Observed
Beech – Birch – Maple Forest (Map 1)	G3G5	S4	NA	Good	2004
Red Oak – Northern Hardwood Forest (Map 2)	GNR	S4	NA	Fair	2003
Large Toothwort, <i>Cardamine maxima</i> (Map 2)	G5	S1	Special Concern	Fair	2003
Streamshore Ecosystem (Map 3)		S4	NA	Good	2009
Small Yellow Water Crowfoot, <i>Ranunculus gmelinii</i> var. <i>purshii</i> (Map 3)	G5T5	S2	Threatened	Good	2008
Showy Lady's-slipper, <i>Cypripedium reginae</i> (Map 3)	G4	S3	Threatened	Good	2008
Marsh Valerian, <i>Valeriana uliginosa</i> (Map 3)	G4	S2	Special Concern	Good	2008
Swamp Fly-honeysuckle, <i>Lonicera oblongifolia</i> (Map 3)	G4	S3	Special Concern	Fair	2008
Northern Bog Sedge, <i>Carex gynocrates</i> (Map 3)	G5	S2	Special Concern	Good	2008
Eccentric Bog Ecosystem (Map 4)	GNR	S3	NA	Good	2007
Swarthy Sedge, <i>Carex adusta</i> (Map 5)	G5	S2	Endangered	Fair	1997

Alder Brook, Glenwood PLT (Map 3). This site supports an exemplary Streamshore Ecosystem and has indicators of enrichment. We recommend that you survey this area for rare calciphilic plant species.

Alder Brook Headwaters (Map 3). The rare plants at this site (Small Yellow Water Crowfoot, Showy Lady's-slipper, Marsh Valerian, Swamp Fly-honeysuckle, and Northern Bog Sedge) occur at the MEPCO Transmission Line, at the Headwaters of Alder Brook site, along the potential easterly alignment. Some accommodation should be made to provide continued survival of these populations at this site.

Flinn Pond, T1 R5 WELS and Benedicta TWP (Map 4). The potential westerly alignment (Greenfield Glenwood Options 090209) intersects the edge of an Eccentric Bog Ecosystem at this site. The transmission line as proposed poses no concerns and should not impact the ecosystem.

Horseback, Chester (Map 5). A single stem of the rare Swarthy Sedge, an early successional species, was found on the existing R.O.W. of the potential westerly alignment in 1997. The alignment as proposed is not a concern for this population.

Skitacook Stream Flats, T4 R3 WELS and Linneus (Map 6). The potential alignment in this area crosses the easterly edge of this landscape analysis site. We recommend that you survey the area for rare species in this area of the transmission line alignment.

Ebhorse Stream Bog, Woodville and Chester (Map 7). The potential alignment crosses through a landscape analysis site, however, we believe it is unlikely that any natural communities or ecosystems would be mapped at this site. We do, however, suggest botanical survey work where the northern white cedar grows on the northeast side.

Keene Bog, Chester (Map 8). This landscape analysis site has not been surveyed by MNAP and but we believe it has the potential for natural community mapping. The current alignment to the east of the existing easterly line (Oakfield T Line) is preferred. If the westerly alignment (Greenfield Glenwood Options 090209) is the preferred alignment, we suggest exploring options to move the line farther away from the bog on the southwest side of this site. Straightening the line by removing the last two angles before the terminus would sufficiently move the line from this bog.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$300.00 for our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



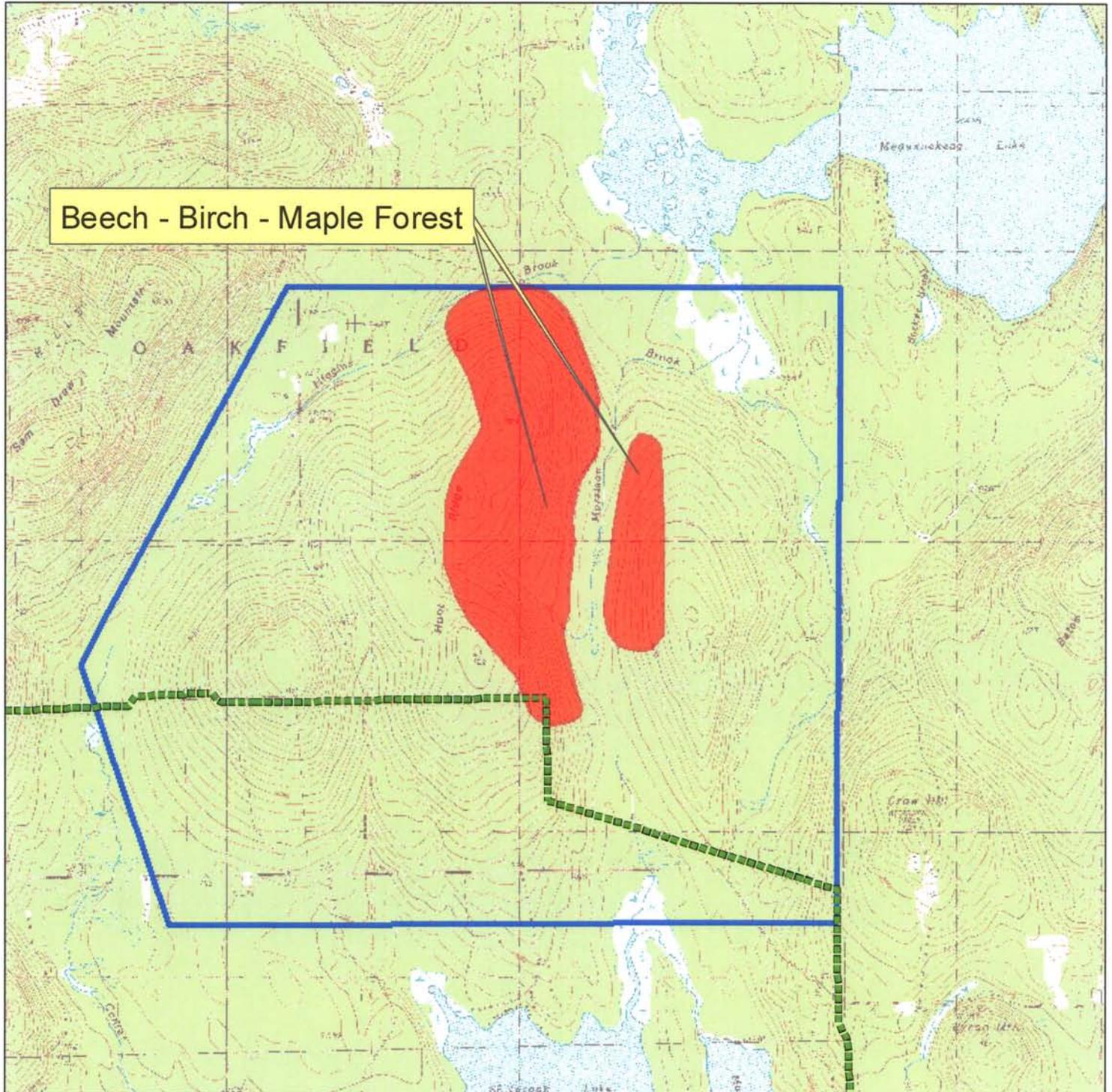
Lisa St. Hilaire
Information Manager
Maine Natural Areas Program
207-287-8046

Lisa.St.Hilaire@maine.gov

Enclosures

Map 1. Hunt Ridge, Oakfield, Maine

Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



-  Natural Community
-  Potential Transmission Line Oakfield T Line
-  Approximate Project Boundary

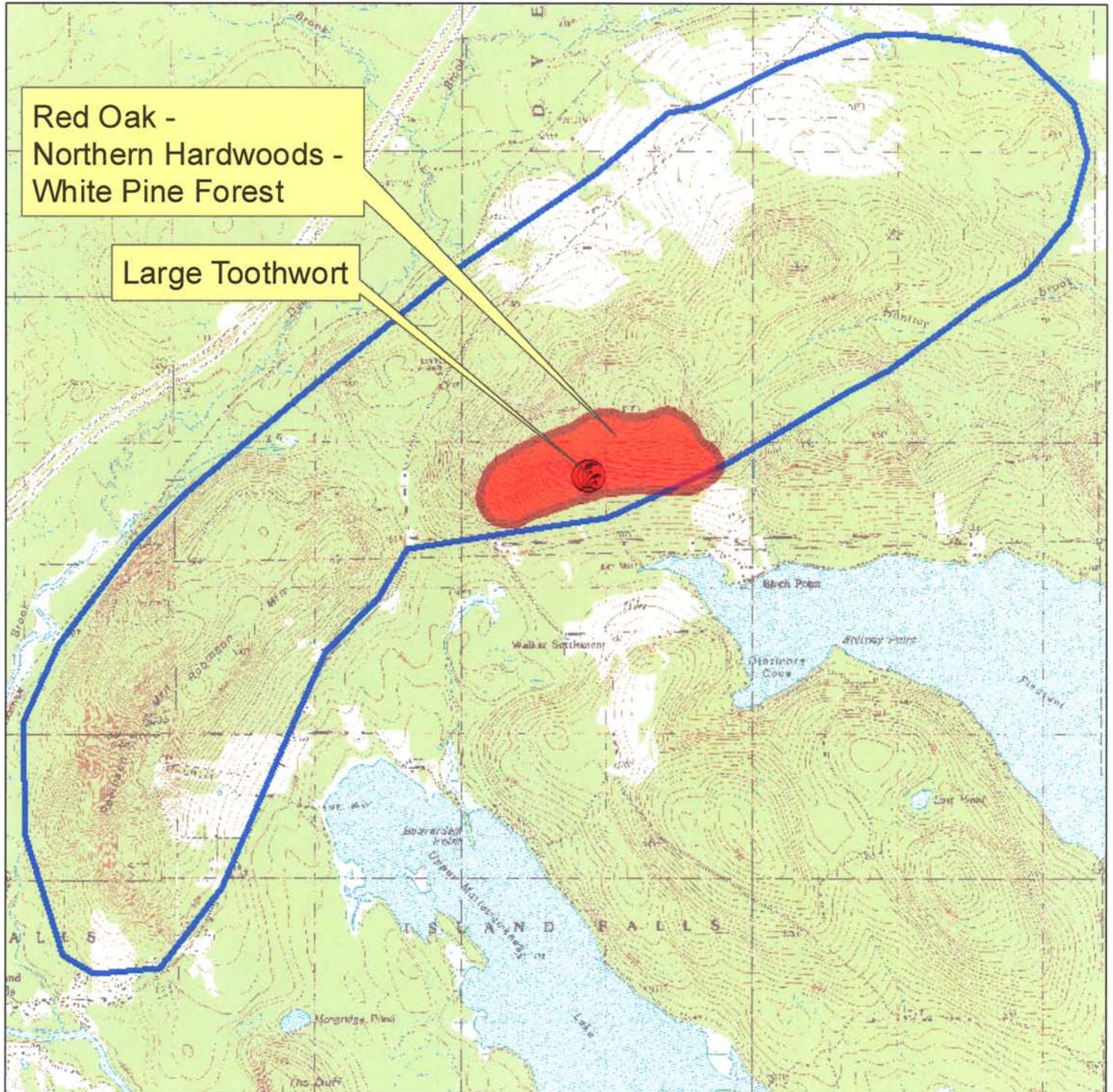
0 0.2 0.4 0.8 1.2 1.6 Miles

Maine Natural Areas Program
March 2010



Map 2. Dyer Brook and Robinson Mountain, Dyer Brook, Maine

Potential Transmission Line Corridors and
Potential Wind Development Areas Stantec PN 195600518



-  Rare Plant
-  Natural Community
-  Approximate Project Boundary

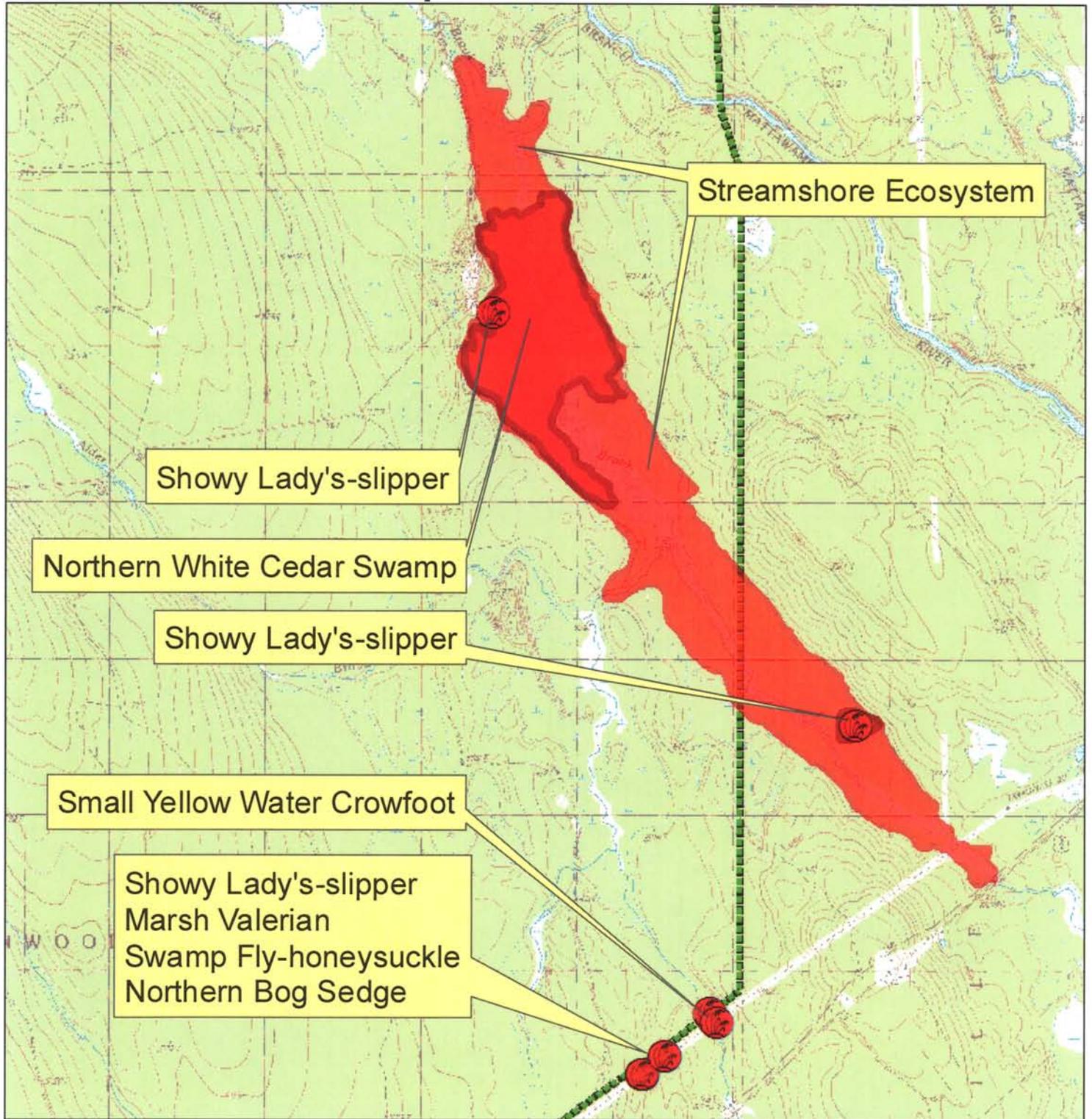
0 0.150.3 0.6 0.9 1.2
Miles

Maine Natural Areas Program
March 2010

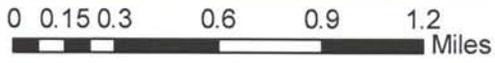


Map 3. Alder Brook and Alder Brook Headwaters, Haynesville, Glenwood PLT, T3 R3 WELS

Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



-  Rare Plant
-  Natural Community
-  Potential Transmission Line Oakfield T Line

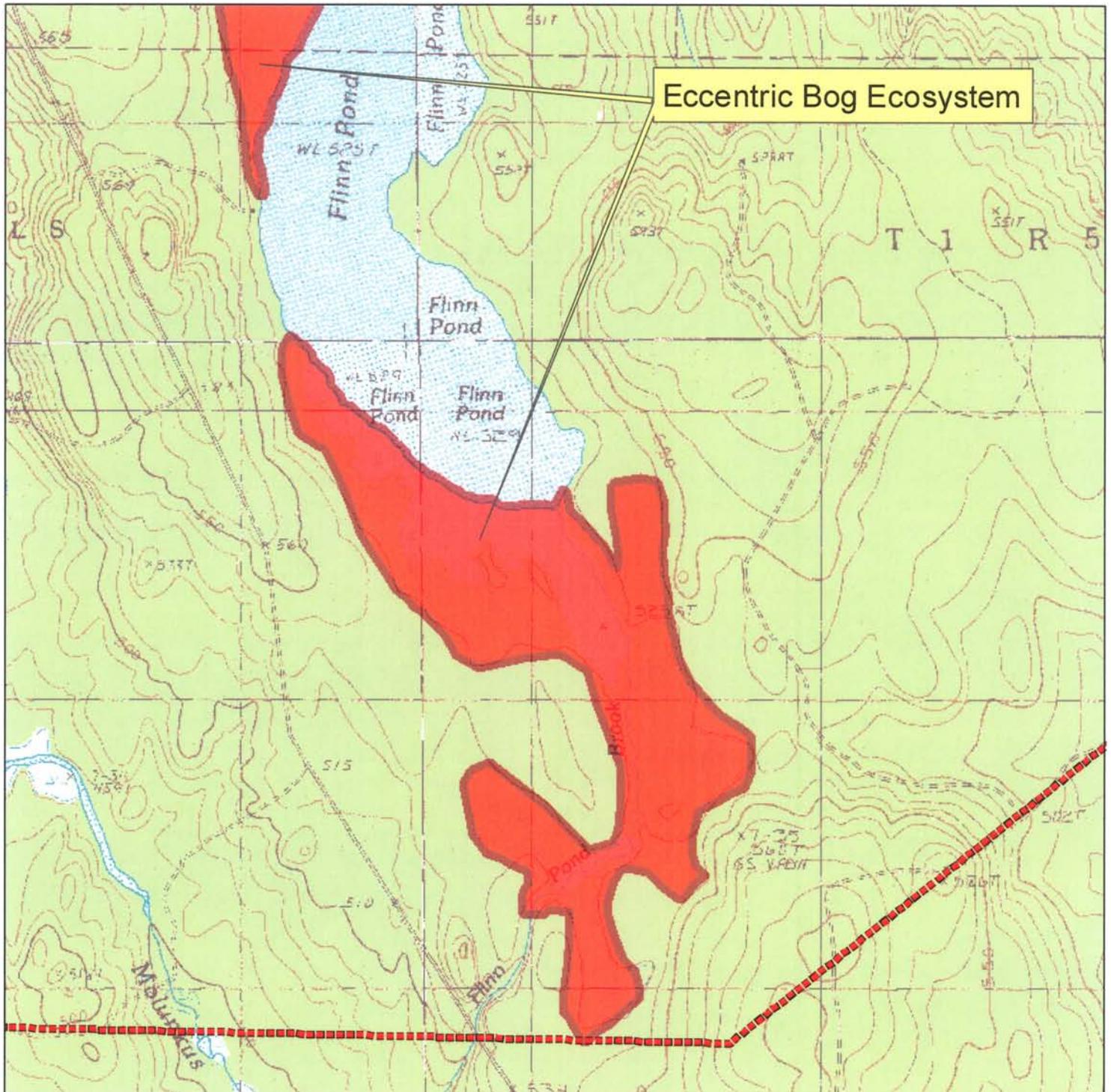


Maine Natural Areas Program
March 2010



Map 4. Flinn Pond, T1 R5 WELS, Maine

Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



 Natural Community

 Potential Transmission Line Greenfield Glenwood

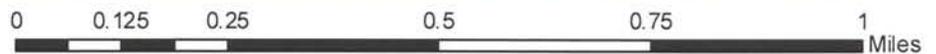
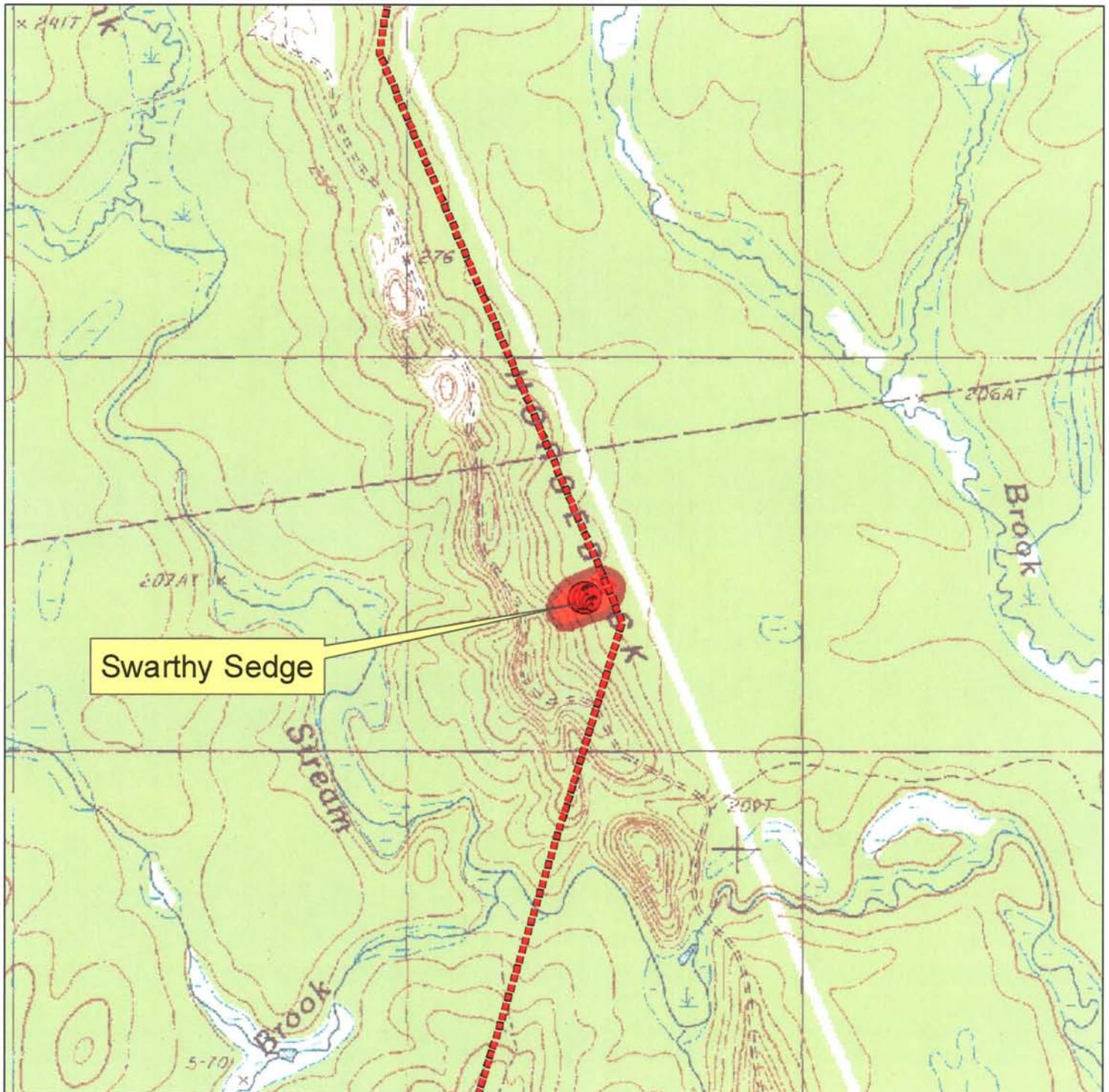
0 0.1 0.2 0.4 0.6 0.8 Miles

Maine Natural Areas Program
March 2010



Map 5. Horseback, Chester, Maine

Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



Rare Plant

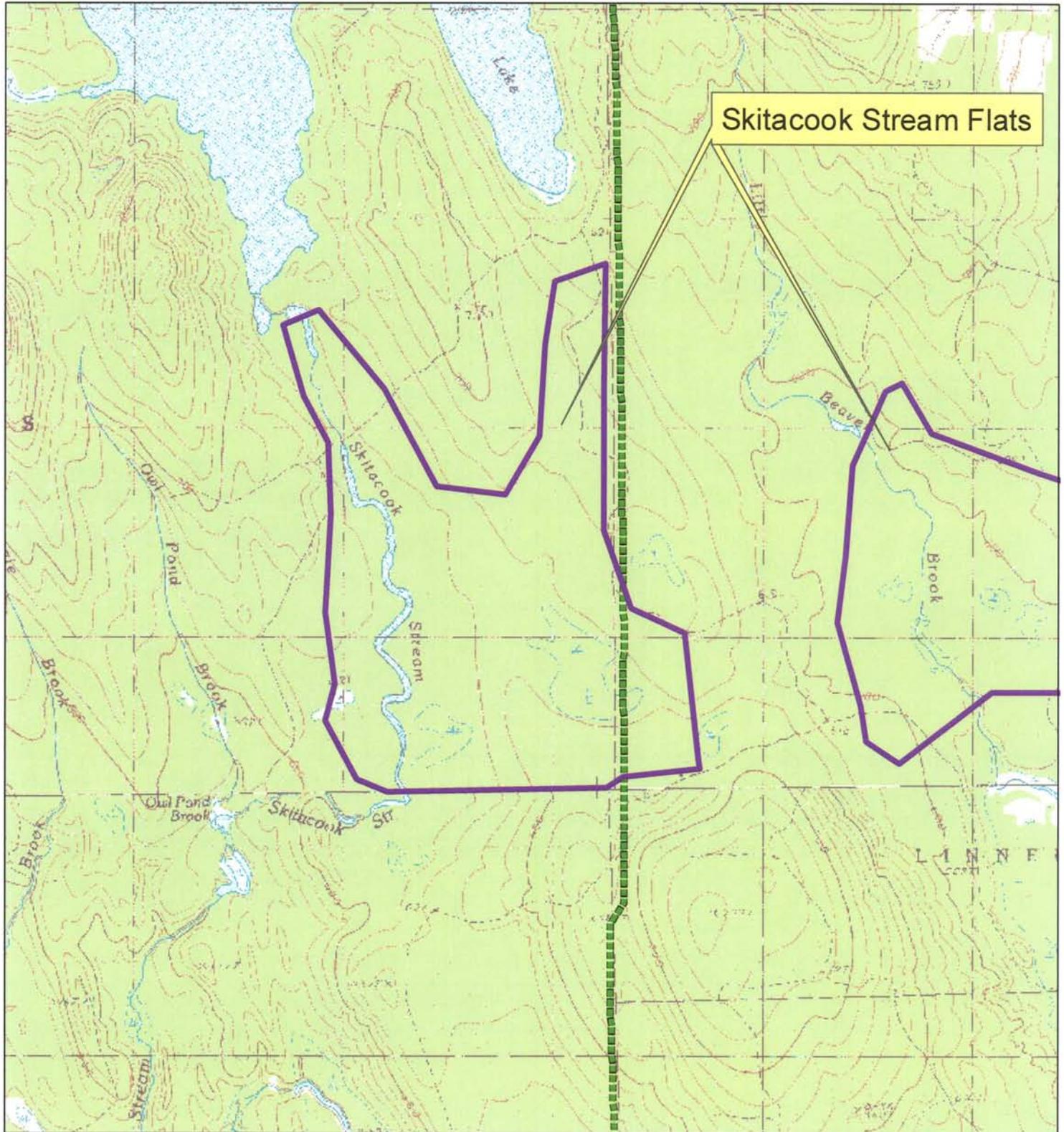


Potential Transmission Line Greenfield Glenwood

Maine Natural Areas Program
March 2010



Map 6. Skitacook Stream Flats, T4 R3 WELS, Linneus Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



Landscape Analysis Site



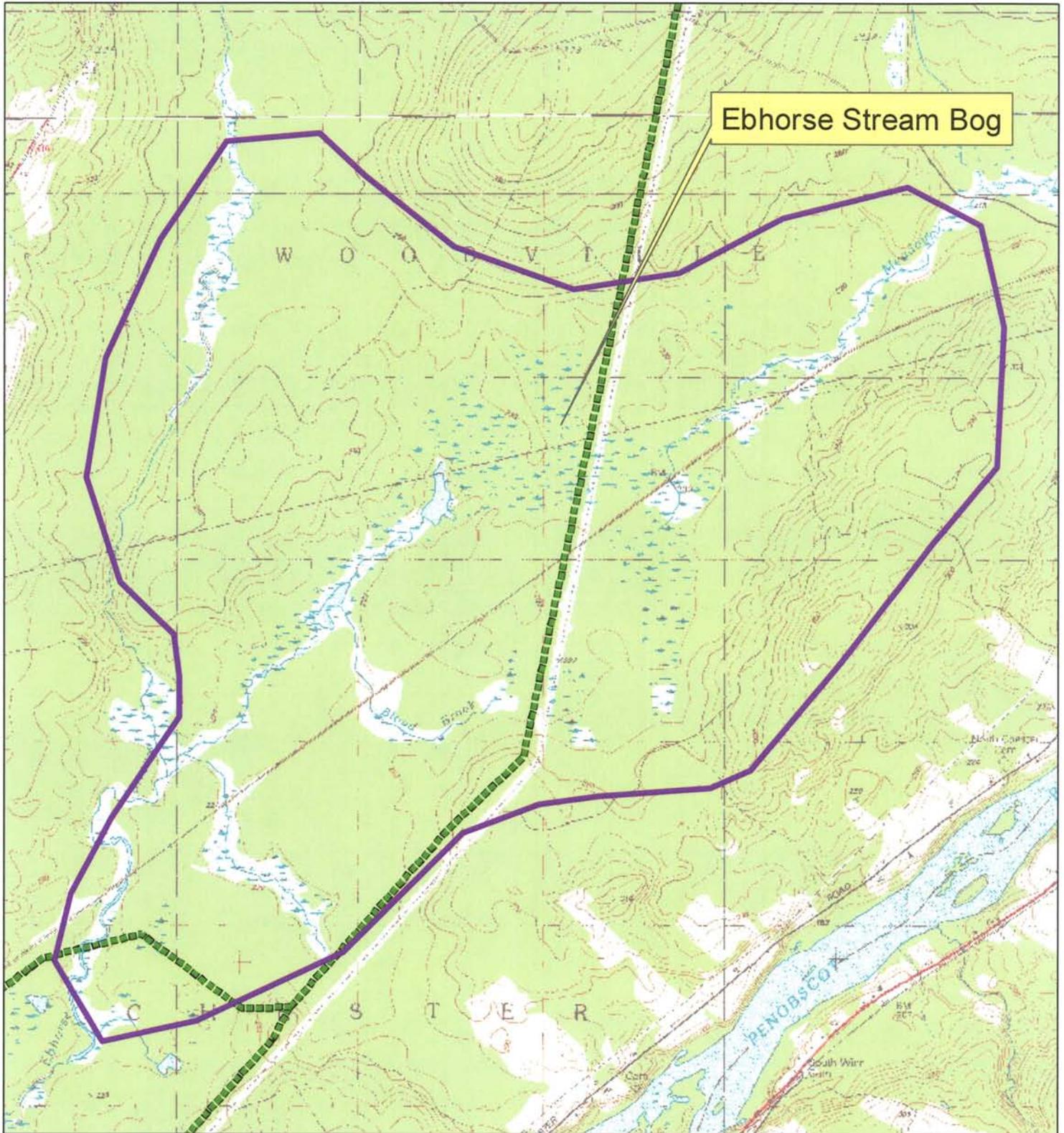
Potential Transmission Line Oakfield T Line

0 0.1250.25 0.5 0.75 1 Miles

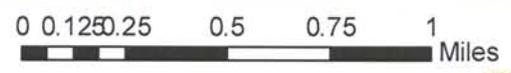
Maine Natural Areas Program
March 2010



Map 7. Ebhorse Stream Bog, Woodville and Chester Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



-  Landscape Analysis Site
-  Potential Transmission Line Oakfield T Line

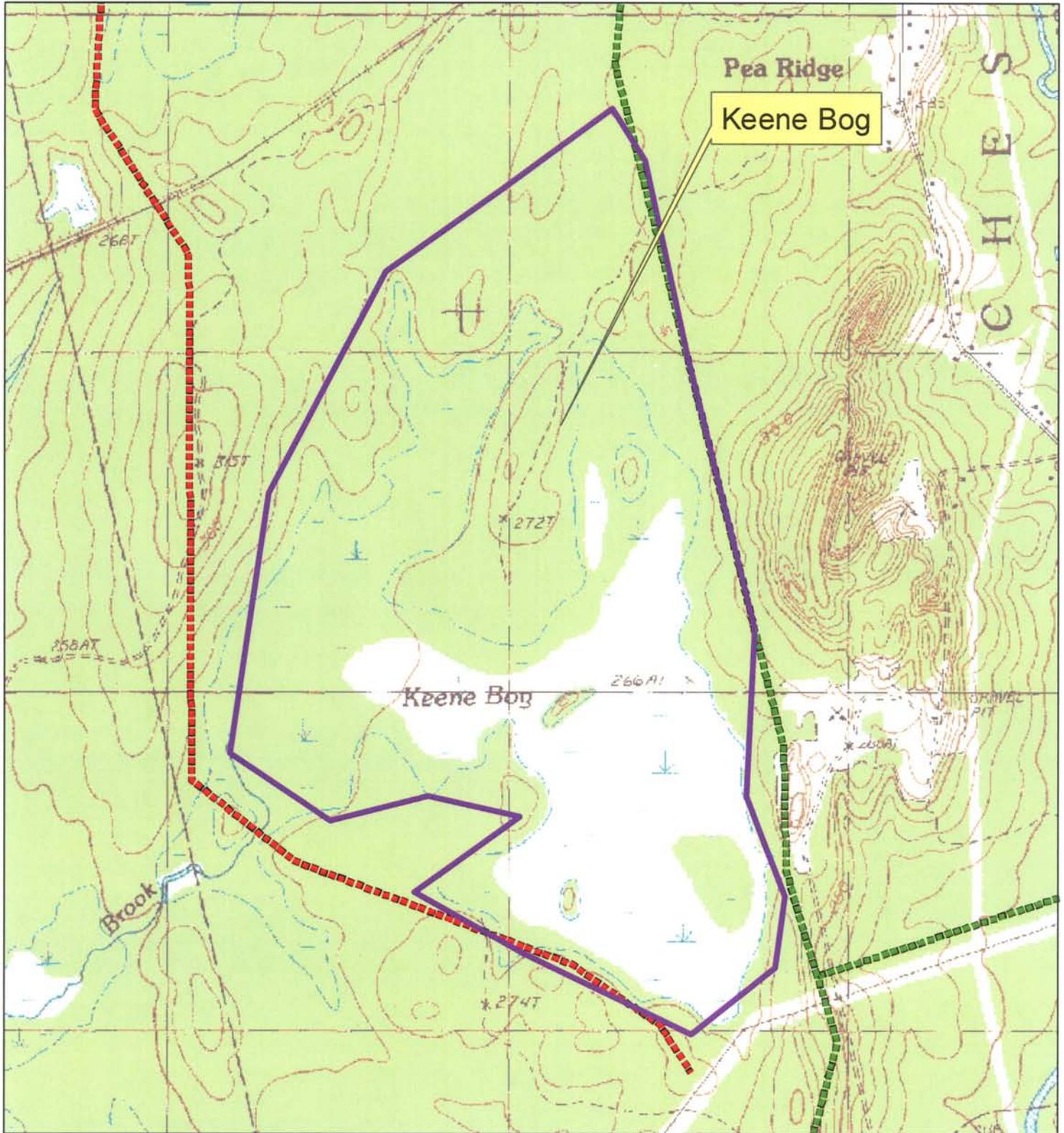


Maine Natural Areas Program
March 2010



Map 8. KeeneBog, Chester

Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



-  Landscape Analysis Site
-  Potential Transmission Line Greenfield Glenwood
-  Potential Transmission Line Oakfield T Line

0 0.05 0.1 0.2 0.3 0.4
Miles

Maine Natural Areas Program
March 2010



Northern Hardwoods Forest

State Rank S5

Similar Types

Maple – Basswood – Ash Forests and Sugar Maple Forests are similar to, and often contiguous with, this type. In them, beech is far less abundant, white ash is usually well represented in the canopy, and the herb layer contains species indicative of rich-soil areas. Red Oak – Northern Hardwoods – White Pine Forests have a higher proportion of red oak and can have a higher proportion of conifers (>25%). Spruce – Northern Hardwoods Forests also have >25% conifers in the canopy.

Community Description

These closed canopy forests are dominated by a combination of beech, yellow birch, and sugar maple. Paper birch, red maple, conifers, and red oak may be present at lower cover. Conifers and red oak can each have <25% cover. Striped maple is a common subcanopy tree. The variable shrub layer is dominated by tree regeneration. Cover, richness and composition vary with site conditions.

Soil and Site Characteristics

Sites are typically found on the lower to middle portion of hillslopes (slopes generally 10-50%). Soils are generally mesic and well drained, though not deep (typically 15-50 cm) silt loams to sandy loams to loamy sands formed over glacial till, with pH 5.0-5.6; some occur on stabilized talus. Elevations range up to 2000'.

Diagnostics

A combination of beech, sugar maple, and yellow birch distinguishes this type. Though red oak is often entirely absent, conifers and red oak can be present and have up to 25% cover each. The herb layer lacks rich site indicators such as Dutchman's breeches, maidenhair fern, and blue cohosh.

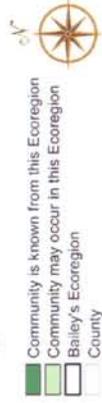
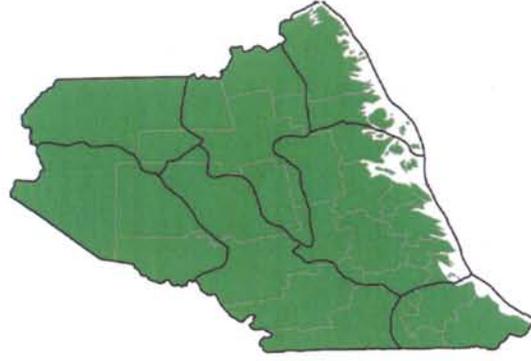


Diseased Beech Bark

Conservation, Wildlife, and Management Considerations

This is the dominant hardwood type in Maine, and therefore it is extensively harvested and managed. Most management techniques diverge from the natural gap

Location Map



Characteristic Plants

These plants are frequently found in this community type. Those with an asterisk are often diagnostic of this community.

Canopy

- American beech*
- Eastern hemlock*
- Paper birch*
- Sugar maple*
- Yellow birch*

Sapling/shrub

- American beech*
- Hobblebush*
- Striped maple*
- Sugar maple*
- Yellow birch*

Herb

- Bluebead lily*
- Canada mayflower
- Shining clubmoss*
- Starflower
- Striped maple*
- Sugar maple*

Associated Rare Plants

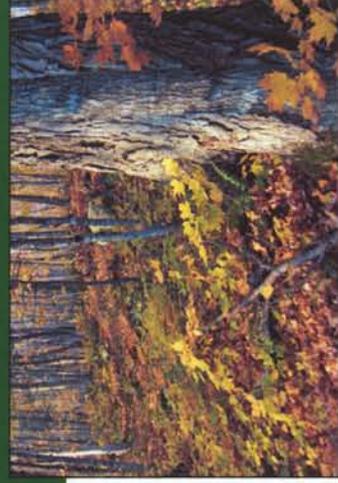
- Autumn coral-root
- Boreal bedstraw
- Broad beech fern
- Cut-leaved toothwort
- Nodding pogonia
- Tall white violet

Associated Rare Animals

- Early hairstreak

Examples on Conservation Lands You Can Visit

- Baxter State Park – Piscataquis Co.
- Big & Little Squaw Mountain Public Lands – Piscataquis Co.
- Bigelow Preserve Public Lands – Franklin/Somerset Co.
- Deboulle Ponds Public Lands – Aroostook Co.
- Grafton Notch State Park & Mahoosuc Public Lands – Oxford Co.
- White Mountain National Forest – Oxford Co.



Northern Hardwoods Forest

pattern, which is at the scale of single trees or small groups of trees. Large (>1000 acres) examples reflecting only natural disturbance are scarce statewide, and intact examples in central and southern Maine tend to be smaller and more isolated.

Beech scale disease (Nectria) has devastated beech in many stands in eastern Maine. Although beech regenerates vigorously from sprouts after the trees have died, most sprouts succumb to the disease by the time they reach maturity. There are indications that some trees may express a genetic resistance to this disease.

Distribution

One of the predominant forest types in the New England - Adirondack Province and Laurentian Mixed Forest Province. Extends east, west, and north from Maine; occurs only as scattered areas southward.



Landscapes
Pattern: Matrix, typically hundreds of quality patches usually now smaller.

American Beech with Beech Nuts



Maine Department of Conservation
Natural Areas Program

Carex adusta Boott

Swarthy Sedge

Habitat: Dry, open places. [Rocky coastal (non-forested, upland)]

Range: Newfoundland south to New Brunswick, Maine and northern New York, west to Michigan, Minnesota, and British Columbia.

Phenology: Fruits July - September.

Family: Cyperaceae

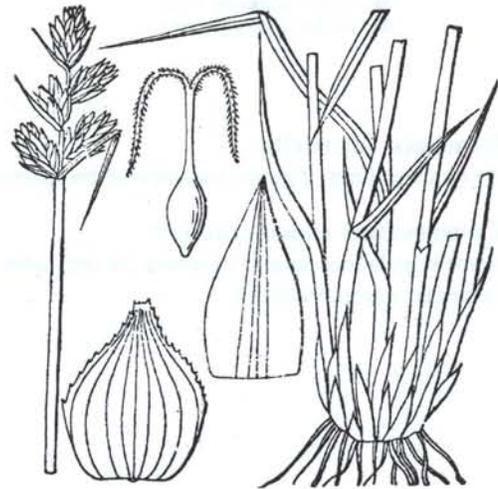


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Aids to Identification: Identification of species of the genus *Carex* is usually difficult and dependent upon rather technical characters. *C. adusta* is in the section *Ovales* and it is distinguished by the following characteristics: densely tufted growth; lower leaves are merely scales; 4-15 spikes are crowded into a cluster 2-3 cm long; perigynia are 4.2-5.2 mm long and half as wide, with fine dorsal nerves; floral scales as long as the perigynia; upper portion of the leaf sheath is smooth, lacking minute papillae.

Ecological characteristics: Known to occur in Maine on sandy roadsides and disturbed, dry clearings. This is a pioneer species of open areas that have been recently disturbed by fire or mechanical means, so that mineral soil is exposed. In Maine, it seems to be most common in the coastal region.

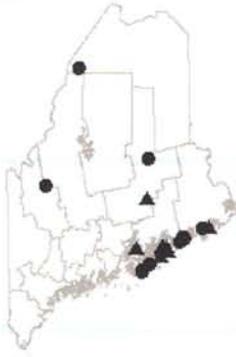
Synonyms:

Rarity of *Carex adusta*

State Rank:	S2	Imperiled in Maine because of rarity or vulnerability to further decline.
New England Rank:	Division 2	Regionally rare plant: Fewer than 20 current (seen since 1970) occurrences within New England.
Global Rank:	G5	Demonstrably widespread, abundant, and secure globally.

Status of *Carex adusta*

Federal Status:	None	No Federal Status.
State Status:	Endangered	Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered. Listing criteria met: Few individuals, At edge of range, Declining populations, Vulnerable to human activity



- ▲ Historical (before 1982)
- Recent (1982 - present)

Known Distribution in Maine:

This rare plant has been documented from a total of 14 town(s) in the following county(ies): Aroostook, Franklin, Hancock, Knox, Penobscot, Washington.

Dates of documented observations are: 1883, 1890, 1891 (2), 1897, 1898, 1899 (2), 1914, 1916, 1949, 1988, 1991 (3), 1995 (2), 1997 (3), 1999, 2000 (2), 2002

Reason(s) for rarity:

At southern limit of range; habitat may be ephemeral.

Conservation considerations:

Some populations appear to persist for only a few years. All occur in locations where natural or artificial disturbance maintains open conditions.

Plant rarity and status is based on 2008 data and the rest of the information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 06 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

If you know of locations for this plant or would like more information on this species, please contact the Natural Areas Program
 State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.





Carex gynocrates Wormsk. ex Drej.

Northern Bog Sedge

Habitat: Peaty soils, often with circumneutral pH.
[Conifer forest (forest, upland); Forested wetland]

Range: Circumboreal, south to Pennsylvania, Michigan, Minnesota, and Utah.

Phenology: Fruits June - August.

Family: Cyperaceae

Aids to Identification: Identification of species of the genus *Carex* is usually difficult and dependent upon rather technical characters. *C. gynocrates* is the only member of the section *Dioicae* in this region. It is identified by its loosely rhizomatous growth, lenticular achenes, slender leaves (1mm wide), solitary spike, and ovoid perigynia, 3-3.5mm long.

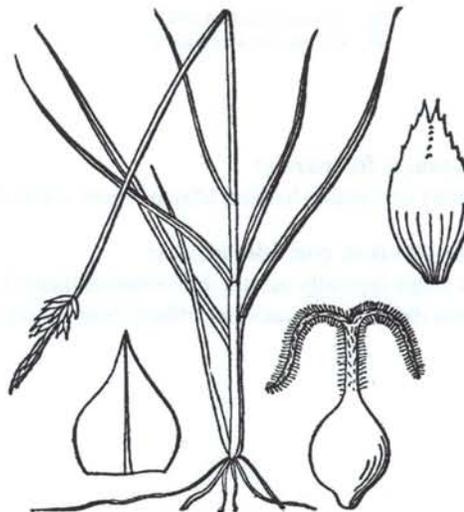


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Ecological characteristics: This sedge is often found in association with Northern White Cedar fens in Maine.

Synonyms: Sometimes placed as subspecies *gynocrates* in the circumboreal taxon *C. dioica* (Gleason and Cronquist second ed., 1991), but separated by most authors as a distinct species.

Rarity of *Carex gynocrates*

State Rank:	S2	Imperiled in Maine because of rarity and vulnerability to further decline.
New England Rank:	INDT	Indeterminate. Under review for inclusion in appropriate division. Taxonomy, nomenclature, or status not clearly understood.
Global Rank:	G5	Demonstrably widespread, abundant, and secure globally.

Status of *Carex gynocrates*

Federal Status:	None	No Federal Status.
State Status:	Special Concern	
Proposed State Status:	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.



Known Distribution in Maine:

This rare plant has been documented from a total of 11 town(s) in the following county(ies): Aroostook, Penobscot, Piscataquis.

Dates of documented observations are: 1898, 1984, 1987, 1989 (2), 1990, 1991, 1993, 2001 (2), 2002, 2003

- ▲ Historical (before 1983)
- Recent (1983 - present)

Reason(s) for rarity:

Scarcity of suitable habitat. May be more common than records indicate.

Conservation considerations:

This sedge typically occurs in forested habitats. Effects of logging are unknown, but partial removal of the canopy would be less likely to have adverse effects than would complete removal of the canopy.

The information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 06 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

If you know of locations for this plant or would like more information on this species,
please contact the Natural Areas Program
State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.





Maine Department of Conservation
Natural Areas Program

Cypripedium reginae Walt.

Showy Lady's-slipper

Habitat: Circumneutral peatlands (often at edges) or sunlit openings of mossy woods. [Forested wetland; Open wetland, not coastal nor rivershore (non-forested, wetland)]

Range: Newfoundland to North Dakota and Manitoba, south in Appalachians to Georgia.

Phenology: In Maine flowers late June to July.

Family: Orchidaceae

Aids to Identification: The largest and showiest of our lady's-slippers. Foliage of non-flowering plants emerging in early spring may be mistaken for false hellebore. Flowering plants are unique with their tall leafy stems bearing one or two large flowers with white petals and sepals contrasting with magenta pink pouch. Densely pubescent throughout, the hairs may cause a rash similar to poison ivy.

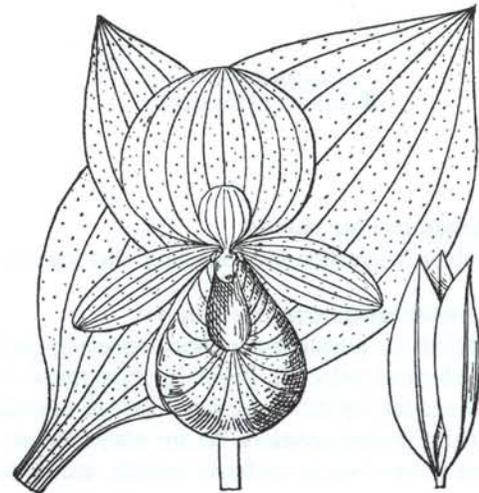


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Ecological characteristics: Showy lady's-slippers apparently require constant moisture, some sunlight and circumneutral soil conditions. In acid bogs their roots go under the acid *Sphagnum* to more neutral groundwater below. In clearings or woods edges colonies may be very large and flowering abundant, but plants in deep shade often lack flowers. *C. reginae* seeds seem to germinate best at depths of at least 5 cm. It has been suggested that this may account for the presence of dense colonies in deer yards where the deer hooves may help to push seeds to the appropriate depth. *C. reginae* takes about 15 years to reach flowering age, which explains why they are slow to reappear after colonies have been dug up.

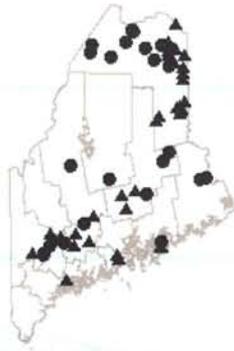
Synonyms: Formerly known as *Cypripedium spectabile* Salisb.

Rarity of *Cypripedium reginae*

State Rank:	S3	Rare in Maine.
New England Rank:	None	
Global Rank:	G4	Widespread, abundant, and apparently secure globally, but with cause for long-term concern.

Status of *Cypripedium reginae*

Federal Status:	None	No Federal Status.
State Status:	Threatened	Rare and, with further decline, could become endangered; or federally listed as Threatened. Listing criteria met: Declining populations, Vulnerable to human activity



○ Historical (before 1983)
● Recent (1983- present)

Known Distribution in Maine:

This rare plant has been documented from a total of 52 town(s) in the following county(ies): Androscoggin, Aroostook, Cumberland, Hancock, Kennebec, Knox, Oxford, Penobscot, Piscataquis, Somerset, Washington.

Dates of documented observations are: 1874, 1880, 1889 (2), 1891, 1896, 1903, 1904, 1906, 1907 (2), 1908, 1910 (3), 1914, 1924, 1925, 1935, 1940 (2), 1943, 1950, 1978, 1981 (6), 1982, 1983 (3), 1984, 1985, 1989 (3), 1990 (4), 1991, 1992, 1993, 1995, 1997, 1998 (3), 19XX (2), 2000 (2), 2001 (2), 2002 (6)

Reason(s) for rarity:

Habitat destruction and collecting, also scarcity of suitable habitat.

Conservation considerations:

Orchids are popular among some speciality gardeners, and populations of this species are vulnerable to unscrupulous or uneducated collectors. Plants dug from the wild usually do not survive; more importantly, removing these plants harms the natural population and may cause its eventual disappearance. Tissue-culture propagation of this species has been tried in limited instances, but any plants offered for sale have almost certainly been dug from the wild. This orchid grows and flowers best in moderate sunlight, and partial removal of the canopy can benefit the populations, if done correctly.

Plant rarity and status is based on 2008 data and the rest of the information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 29 APR 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

If you know of locations for this plant or would like more information on this species, please contact the Natural Areas Program
State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.





Maine Department of Conservation
Natural Areas Program

Lonicera oblongifolia (Goldie) Hook.

Swamp Fly-honeysuckle

- Habitat:** Bogs, swampy thickets and wet woods.
[Forested wetland; Open wetland, not coastal nor rivershore (non-forested, wetland)]
- Range:** New Brunswick and Quebec to Manitoba, New York, Pennsylvania, Michigan and Minnesota.
- Phenology:** Flowers May - June.
- Family:** Caprifoliaceae



Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Aids to Identification: Swamp fly-honeysuckle is a shrub that grows up to 1.5 m high with upward pointing branches covered with small hairs, and opposite oval leaves 2-5 cm in length. The flowers, borne in pairs, are yellow, two-lipped, and narrow. The fleshy red berries also occur in pairs. The only other honeysuckle that is found in similar communities is *Lonicera villosa*, the mountain fly honeysuckle. It is distinguished by its blue berries and winter buds covered by 2 valvate scales (vs. several imbricate scales).

Ecological characteristics: Because of the specific habitat requirements of swamp fly-honeysuckle -- open areas of cool cedar swamps underlain by limestone -- it is not widespread, but populations may be plentiful where it does occur.

Synonyms:

Rarity of *Lonicera oblongifolia*

State Rank:	S3	Rare in Maine.
New England Rank:	None	
Global Rank:	G4	Widespread, abundant, and apparently secure globally, but with cause for long-term concern.

Status of *Lonicera oblongifolia*

Federal Status:	None	No Federal Status.
State Status:	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.



▲ Historical (before 1983)
● Recent (1983 - present)

Known Distribution in Maine:

This rare plant has been documented from a total of 25 town(s) in the following county(ies): Aroostook, Penobscot, Piscataquis, Somerset, Washington.

Dates of documented observations are: 1883 (2), 1937, 1938 (2), 1941, 1945, 1983, 1984, 1985, 1986, 1987, 1988, 1989 (2), 1993 (4), 1994, 1997, 2001 (2), 2002 (5), 2003 (2)

Reason(s) for rarity:

Specific habitat requirements.

Conservation considerations:

Appears reasonably secure; known populations are persistent.

The information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 13 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

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State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.





Maine Department of Conservation
Natural Areas Program

Ranunculus gmelinii DC.
Small Yellow Water Crowfoot

Habitat: Springy rills, clear cold ponds, shores and meadows. [Open water (non-forested, wetland)]

Range: Eastern Quebec and Nova Scotia to Alaska, south to Maine, Michigan and Minnesota. Also in Asia.

Phenology: Flowers in July and August.

Family: Ranunculaceae



Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Aids to Identification: This species differs from the common buttercup in being semi-aquatic, the elongate stems creeping or floating in shallow water or sprawling on muddy shores or in meadows. The underwater leaves have long stalks, are flaccid in texture and are semi-transparent. The above-water leaves are thicker with 3 to 5 lobes. The golden-yellow, 5-petaled flowers occur in clusters of one to four, and mature into a cluster of achenes (dry fruits containing seeds) in a rounded head. These achenes have a persistent style that protrudes like a beak. It somewhat resembles *R. flabellaris*, the yellow water crowfoot, a species that is more common in Maine. *R. gmelinii* is recognized by its smaller size (petals 3-7 mm long, achenes 1-1.6 mm long with a beak 0.4-0.8 mm long) and achenes that are not thickened and spongy in the basal half.

Ecological characteristics: Ecological relationships in Maine are not well known.

Synonyms: Formerly known as *Ranunculus gmelinii* DC. var. *hookeri* (D. Don) L. Benson and also var. *purshii* (Richards.) Hara.

Rarity of *Ranunculus gmelinii*

State Rank:	S2	Imperiled in Maine because of rarity or vulnerability to further decline.
New England Rank:	Division 2	Regionally rare plant. Fewer than 20 current (seen since 1970) occurrences in New England.
Global Rank:	G5T5	Species demonstrably widespread, abundant, and secure globally.

Status of *Ranunculus gmelinii*

Federal Status:	None	No Federal Status.
State Status:	Threatened	Rare and, with further decline, could become endangered; or federally listed as Threatened.



Maine Department of Conservation
Natural Areas Program

Valeriana uliginosa (Torr. & Gray) Rydb.

Marsh Valerian

- Habitat:** Circumneutral fens, in open areas.
[Forested wetland; Open wetland, not coastal nor rivershore (non-forested, wetland)]
- Range:** Quebec to Ontario, Maine, Vermont, New York, Ohio, Indiana, Michigan, and Wisconsin.
- Phenology:** Perennial, flowers May - June.
- Family:** Caprifoliaceae



Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Aids to Identification: Valerians are perennial herbs with opposite, pinnately compound leaves. The flowers are small and white. During flowering, the sepals appear as 5-20 narrow bristles; in fruit these elongate and form a plume that aids in wind dispersal of the fruits, similar to dandelion. *V. uliginosa* is a native species of circumneutral fens with simple basal leaves and glabrous leaflets. The introduced *V. officinalis* occurs in fields and disturbed areas. This similar looking species has pinnately-divided leaves and pubescent leaflets (on the undersurface).

Ecological characteristics: Found in cool, limy swamps associated with larch (*Larix laricina*) and white cedar (*Thuja occidentalis*). May decline as trees encroach on the openings in which it grows.

Synonyms: Former names include *Valeriana sitchensis* Bong. ssp. *uliginosa* (Torr. & Gray) Boivin.

Rarity of *Valeriana uliginosa*

State Rank:	S2	Imperiled in Maine because of rarity or vulnerability to further decline.
New England Rank:	Division 2	Regionally rare plant: Fewer than 20 current (seen since 1970) occurrences within New England.
Global Rank:	G4Q	Widespread, abundant, and apparently secure globally, but with cause for long-term concern (questionable taxonomy).

Status of *Valeriana uliginosa*

Federal Status:	None	No Federal Status.
State Status:	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.



▲ Historical (before 1982)
● Recent (1982- present)

Known Distribution in Maine:

This rare plant has been documented from a total of 22 town(s) in the following county(ies): Aroostook.

Dates of documented observations are: 1896 (2), 1898, 1900, 1909, 1916, 1956, 1983, 1985 (2), 1986, 1987 (2), 1989, 1992, 1998 (2), 1999, 2001 (2), 2002 (4)

Reason(s) for rarity:

Habitat naturally scarce.

Conservation considerations:

Most often found in openings within its cedar bog habitat, suggesting that decreased light with canopy closure may be limiting. Partial removal of the canopy could be beneficial to the species; complete canopy removal could cause more drastic habitat changes and would be more likely to be detrimental.

The information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 17 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

If you know of locations for this plant or would like more information on this species,
please contact the Natural Areas Program
State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.



Rare and Exemplary Botanical Features in the Project Vicinity

Documented within a four-mile radius of the Proposed Potential Transmission Line Corridors, , Project #195600518, Chester to Oakfield, Maine.

Feature Name	Global Rank	State Rank	State Status	EO Number	Last Seen	Habitat
Maple - basswood - ash forest	GNR	S3		38	2004-06-24	Hardwood to mixed forest (forest, upland)
Beech - birch - maple forest	G3G5	S4		49	2004-06-09	Hardwood to mixed forest (forest, upland)
Carex oronensis	G3	S3	T	59	1996-07-10	Old field/roadside (non-forested, wetland or upland)
Valeriana uliginosa	G4Q	S2	SC	28	1988-06-28	Open wetland, not coastal nor rivershore (non-forested, wetland)
Cypripedium reginae	G4	S3	T	70	1988-06-28	Forested wetland
Carex gynocrates	G5	S2	SC	16	1988-06-28	Forested wetland
Northern white cedar woodland fen	GNR	S4		12	2006-09-12	Forested wetland
Sheep laurel dwarf shrub bog	G5	S4		43	2006-07-13	Open wetland, not coastal nor rivershore (non-forested, wetland)
Silver maple floodplain forest	GNR	S3		30	2006-07-18	Forested wetland
Hemlock forest	G4G5	S4		26	2006-06-21	Conifer forest (forest, upland)
Cypripedium reginae	G4	S3	T	71	2006-08-23	Open wetland, not coastal nor rivershore (non-forested, wetland)
Cypripedium reginae	G4	S3	T	72	2006-08-24	Forested wetland
Leatherleaf boggy fen	G5	S4		18	2006-09-07	Open wetland, not coastal nor rivershore (non-forested, wetland)
Unpatterned fen ecosystem	GNR	S4		59	2007-08-15	Forested wetland
Northern white cedar swamp	GNR	S4		20	2007-09-19	Forested wetland
Hypericum ascyron	G4	S1	E	2	2007-07-26	Forested wetland
Northern white cedar woodland fen	GNR	S4		15	2007-06-14	Forested wetland

Rare and Exemplary Botanical Features in the Project Vicinity

Documented within a four-mile radius of the Proposed Potential Transmission Line Corridors, , Project #195600518, Chester to Oakfield, Maine.

Feature Name	Global Rank	State Rank	State Status	EO Number	Last Seen	Habitat
Unpatterned fen ecosystem	GNR	S4		64	2007-07-25	Open wetland, not coastal nor rivershore (non-forested, wetland)
Unpatterned fen ecosystem	GNR	S4		65	2007-09-26	Forested wetland
Northern white cedar swamp	GNR	S4		22	2007-09-26	Forested wetland
Leatherleaf boggy fen	G5	S4		20	2007-09-26	Open wetland, not coastal nor rivershore (non-forested, wetland)
Silver maple floodplain forest	GNR	S3		32	2007-09-18	Forested wetland
Cypripedium reginae	G4	S3	T	75	2008-07-02	Open wetland, not coastal nor rivershore (non-forested, wetland)
Valeriana uliginosa	G4Q	S2	SC	29	2008-07-02	Open wetland, not coastal nor rivershore (non-forested, wetland)
Lonicera oblongifolia	G4	S3	SC	44	2008-07-02	Forested wetland
Carex gynocrates	G5	S2	SC	19	2008-07-02	Forested wetland
Dryopteris goldiana	G4	S2	SC	27	2008-09-02	Hardwood to mixed forest (forest, upland)
Carex oronensis	G3	S3	T	53	2007-06-22	Old field/roadside (non-forested, wetland or upland)

Rare and Exemplary Botanical Features in the Project Vicinity

Documented within a four-mile radius of the Proposed Potential Transmission Line Corridors, , Project #195600518, Chester to Oakfield, Maine.

Feature Name	Global Rank	State Rank	State Status	EO Number	Last Seen	Habitat
Red oak - northern hardwoods - white pine forest	GNR	S4		12	1986-11-08	Hardwood to mixed forest (forest, upland)
Red oak - northern hardwoods - white pine forest	GNR	S4		13	2003-06-04	Hardwood to mixed forest (forest, upland)
Mixed graminoid - shrub marsh	GNR	S5		8	1985-07-17	Open wetland, not coastal nor rivershore (non-forested, wetland)
Ranunculus gmelinii var. purshii	G5T5	S2	T	2	2003-09-02	Open water (non-forested, wetland)
Carex oronensis	G3	S3	T	18	2006-06-22	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	21	1987-07-13	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	22	1987-07-13	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	23	2006-06-22	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	24	1998-07-10	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	32	2006-06-20	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	55	1993-07-24	Old field/roadside (non-forested, wetland or upland)
Panax quinquefolius	G3G4	S3	E	31	1999-07-15	Hardwood to mixed forest (forest, upland)
Ranunculus gmelinii var. purshii	G5T5	S2	T	9	1991	Open water (non-forested, wetland)
Juncus subtilis	G4	S1	T	2	1901-09-25	Open wetland, not coastal nor rivershore (non-forested, wetland)
Platanthera flava var. herbiola	G4T4Q	S2	SC	7	1916-07-11	Non-tidal rivershore (non-forested, seasonally wet)
Trichophorum clintonii	G4	S3	SC	6	1916-07-10	Non-tidal rivershore (non-forested, seasonally wet)

Rare and Exemplary Botanical Features in the Project Vicinity

Documented within a four-mile radius of the Proposed Potential Transmission Line Corridors, , Project #195600518, Chester to Oakfield, Maine.

Feature Name	Global Rank	State Rank	State Status	EO Number	Last Seen	Habitat
Carex oronensis	G3	S3	T	66	1916-07-10	Old field/roadside (non-forested, wetland or upland)
Carex praticola	G5	SX	PE	1	1898-06-09	Hardwood to mixed forest (forest, upland)
Valeriana uliginosa	G4Q	S2	SC	15	1896-07	Open wetland, not coastal nor rivershore (non-forested, wetland)
Hypericum ascyron	G4	S1	E	1	1951-08-05	Forested wetland
Carex oronensis	G3	S3	T	3	1916-07-10	Old field/roadside (non-forested, wetland or upland)
Viola novae-angliae	G4Q	S2	SC	13	1916-07-10	Non-tidal rivershore (non-forested, seasonally wet)
Sedge - leatherleaf fen lawn	G4G5	S4		3	2006-06-13	Open wetland, not coastal nor rivershore (non-forested, wetland)
Eccentric bog ecosystem	GNR	S3		7	1987-08-14	Forested wetland
Eccentric bog ecosystem	GNR	S3		8	1987-08-13	Open wetland, not coastal nor rivershore (non-forested, wetland)
Eccentric bog ecosystem	GNR	S3		9	2007-06-14	Forested wetland
Eccentric bog ecosystem	GNR	S3		10	1987-08-07	Open wetland, not coastal nor rivershore (non-forested, wetland)
Eccentric bog ecosystem	GNR	S3		12	2007-08-16	Open wetland, not coastal nor rivershore (non-forested, wetland)
Eccentric bog ecosystem	GNR	S3		16	2006-07-11	Forested wetland
Carex adusta	G5	S2	E	19	1997-08-25	Rocky coastal (non-forested, upland)
Valeriana uliginosa	G4Q	S2	SC	13	1909-06-09	Open wetland, not coastal nor rivershore (non-forested, wetland)
Cardamine maxima	G5	S1	SC	2	2003-06-04	
Hemlock forest	G4G5	S4		21	2003-06-05	Conifer forest (forest, upland)

STATE RARITY RANKS

- S1** Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- S2** Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3** Rare in Maine (20-100 occurrences).
- S4** Apparently secure in Maine.
- S5** Demonstrably secure in Maine.
- SU** Under consideration for assigning rarity status; more information needed on threats or distribution.
- S#?** Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: **State Rarity Ranks** are determined by the Maine Natural Areas Program.

GLOBAL RARITY RANKS

- G1** Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.
- G2** Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- G3** Globally rare (20-100 occurrences).
- G4** Apparently secure globally.
- G5** Demonstrably secure globally.
- GNR** Not yet ranked.

Note: **Global Ranks** are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered** and **Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

- E** ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.
- T** THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

- SC** SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
- PE** Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

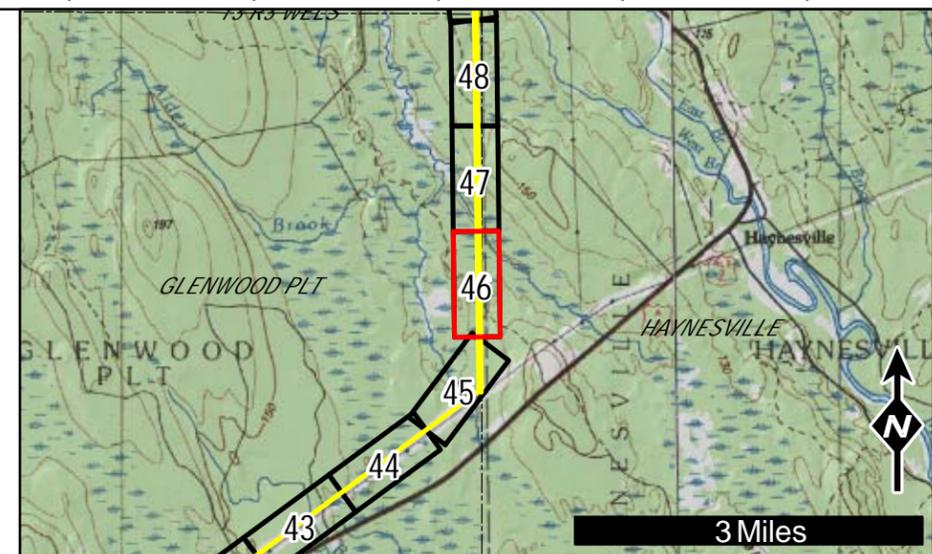
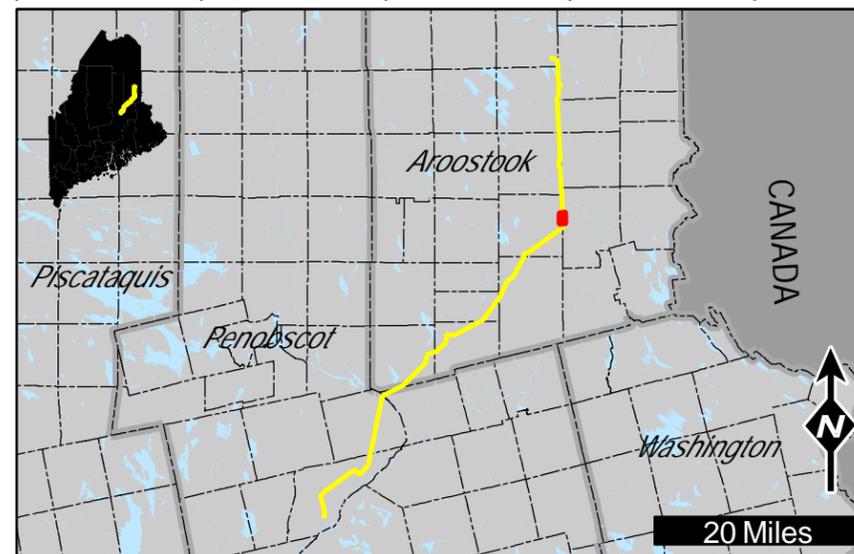
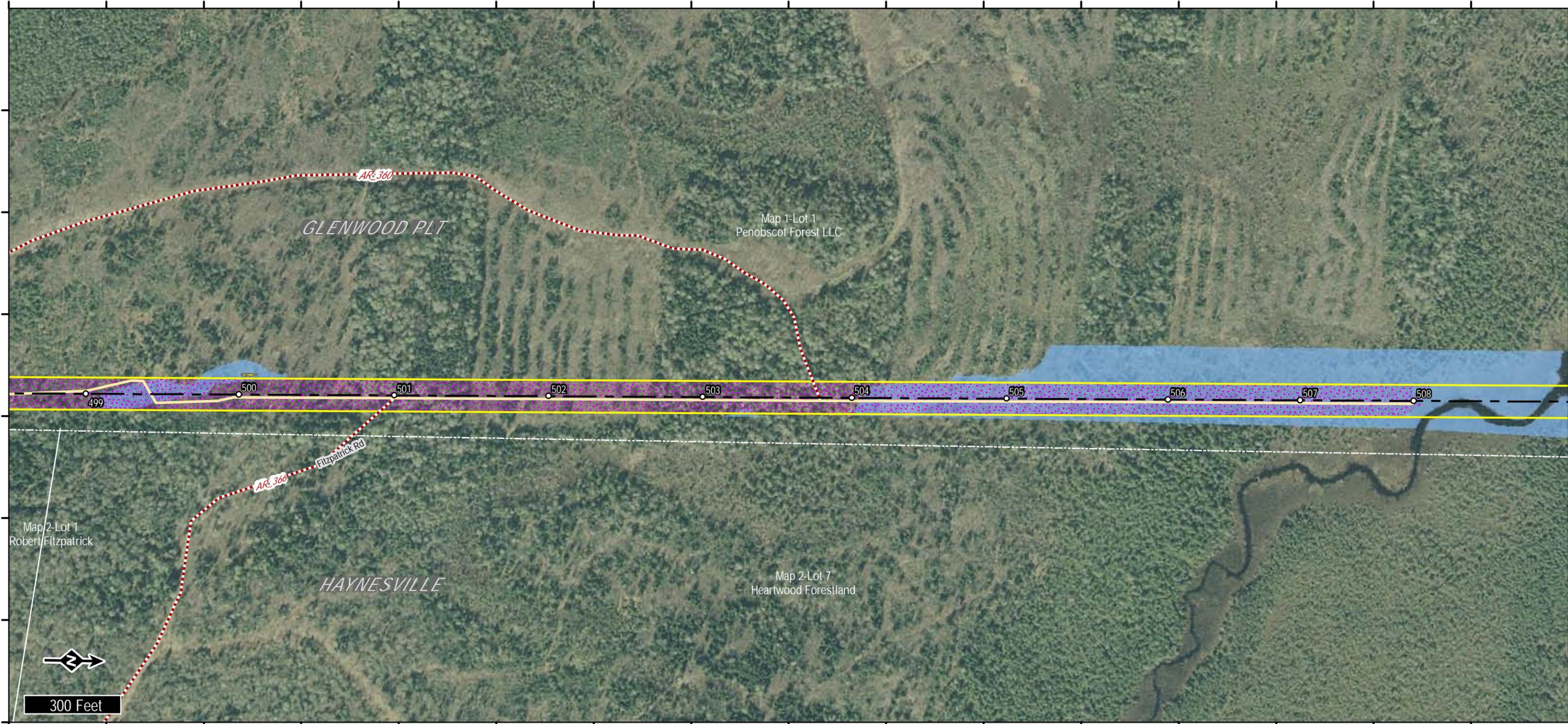
- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A, B, C, or D**, where **A** indicates an excellent example of the community or population and **D** indicates a poor example of the community or population. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program.

Visit our website for more information on rare, threatened, and endangered species!
<http://www.maine.gov/doc/nrimc/mnap>

Appendix 9-3



LEGEND

- Proposed Transmission Corridor
- Proposed Transmission Structure
- Proposed Transmission Centerline
- Existing Project Substation
- Proposed Substation
- Existing Non-project Substation
- Existing Transmission Structure
- Existing Transmission Line
- Proposed ROW Access
- Proposed Off-ROW Access
- Proposed Area of Tree Clearing
- Property Boundary
- Natural Resources**
- Rare Plant Location
- Stream
- Wetland
- Vernal Pool
- Significant Vernal Pool
- Significant Vernal Pool Habitat (250')

Sources: Maine Office of GIS (MEGIS), Bangor Hydro Electric (BHE), TRC Companies, Inc. (TRC)
Inset: US Geological Survey 24k topographic map
Orthophotography: Maine Office of GIS 2003 & National Agriculture Imagery Program 2009

Maine GenLead, LLC

Oakfield Project

Map 46 of 64

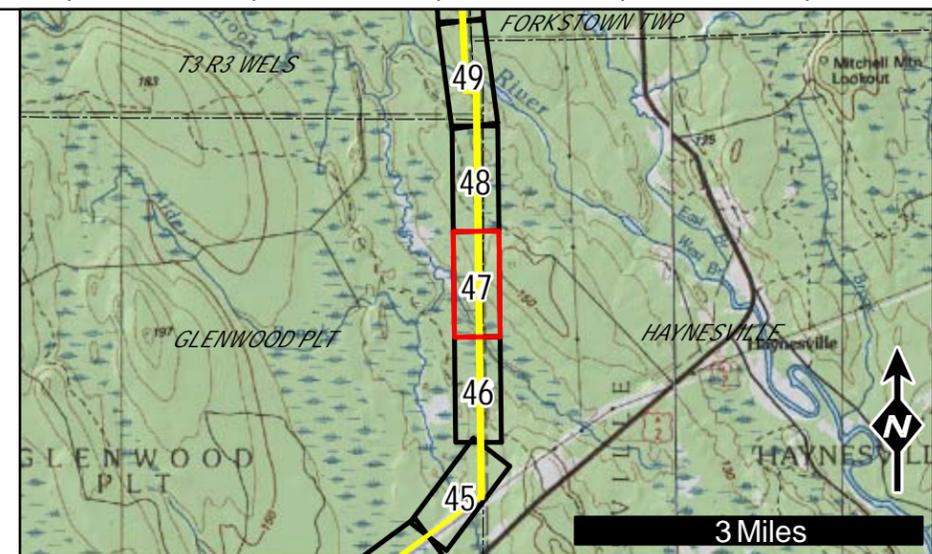
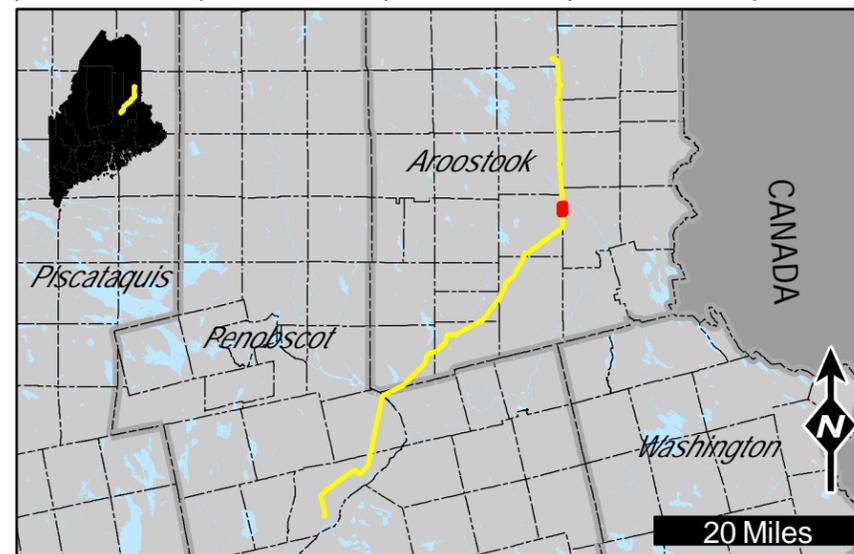
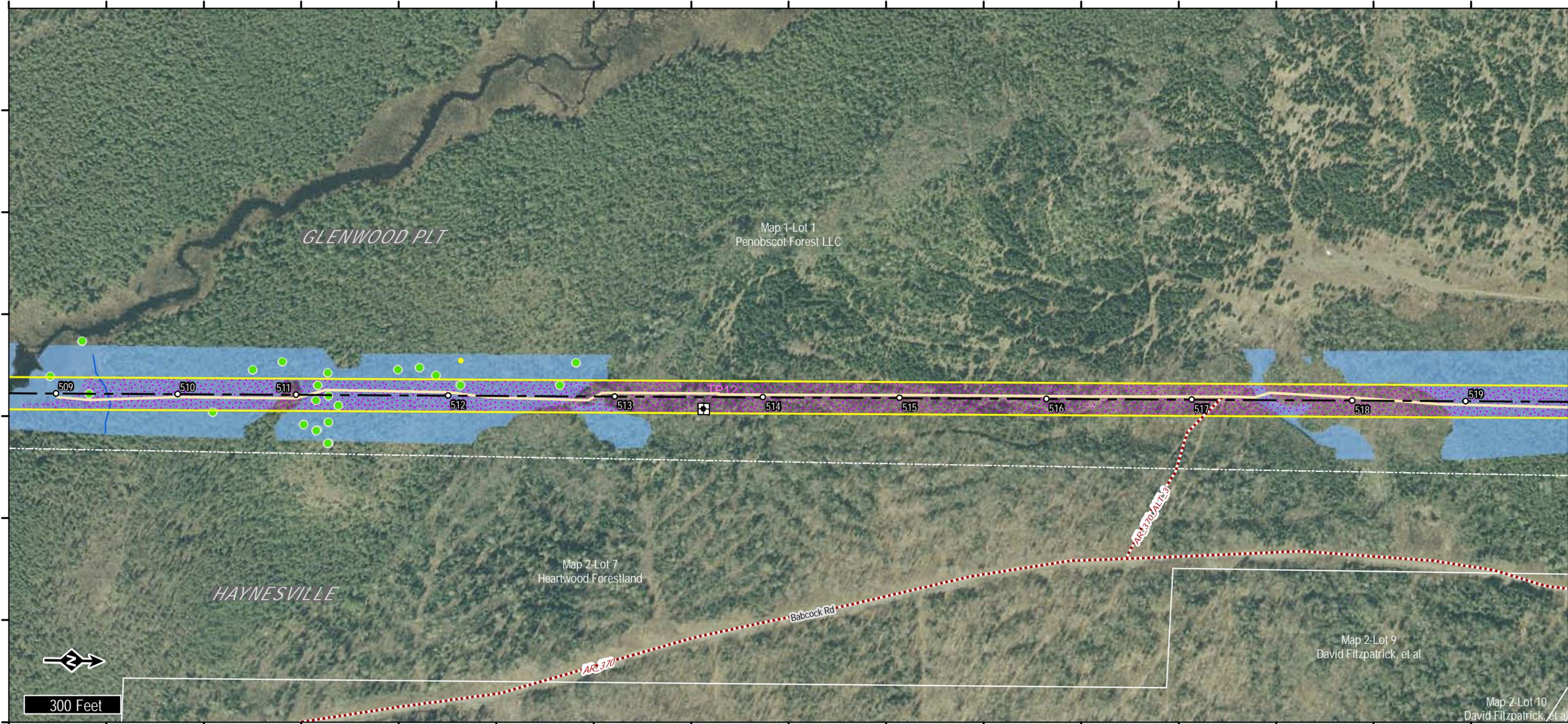
14 Gabriel Dr.
Augusta, ME 04330



Created
8/27/2010

Rev.	Revision	Date
0	Issued For Permit	8/27/2010

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LEGEND

- Proposed Transmission Corridor
- Proposed Transmission Structure
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- Rare Plant Location
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Sources: Maine Office of GIS (MEGIS), Bangor Hydro Electric (BHE), TRC Companies, Inc. (TRC)
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Oakfield Project

Map 47 of 64

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