



**CENTRAL MAINE
POWER**

August 8, 2018

Ms. Kristen Puryear, Ecologist
Maine Natural Areas Program
State House Station 93
Augusta, ME 04333-0093

Mr. Mark McCollough, Endangered Species Specialist
US Fish and Wildlife Service
Maine Fish and Wildlife Service Complex
306 Hatchery Road
East Orland, Maine 04431

**RE: New England Clean Energy Connect Project
Rare Plant and Unique Natural Community Survey – Preliminary Results**

Dear Ms. Puryear and Mr. McCollough:

Central Maine Power Company (CMP) is pleased to provide the preliminary results of rare plant and exemplary natural community surveys conducted in July 2018 on the New England Clean Energy Connect (NECEC) project.

The preliminary results package is being submitted electronically and includes the following:

- MNAP survey data forms and corresponding photographs
- Preliminary data package summary spreadsheet
- Maps documenting occurrence locations

CMP intends to submit the final rare plant and exemplary natural community report on or before August 24, 2018.

If you have any questions or comments regarding the preliminary results, please call or email (207-629-9717; gerry.mirabile@cmpco.com).

Sincerely,

Gerry J. Mirabile
Manager – Environmental Projects
Environmental Permitting
AVANGRID Networks, Inc.

Enclosures



**CENTRAL MAINE
POWER**

cc: Don Cameron, MNAP; Wende Mahaney, USFWS; James Beyer, MDEP; Jay Clement, USACE; Samantha Horn, LUPC; Bill Hinkel, LUPC; Naomi Kirk-Lawlor, LUPC; Christopher Lawrence, USDOE; Melissa Pauley, USDOE; Bernardo Escudero, CMP; Mark Goodwin, Burns & McDonnell; Matt Manahan, Pierce Atwood; Jared des Rosiers, Pierce Atwood

File: New England Clean Energy Connect

ATTACHMENT
MNAP SURVEY DATA FORMS AND CORRESPONDING PHOTOGRAPHS

SPECIAL PLANT SURVEY FORM

Site: <u>NECEC CMP Power</u>	Survey Site: <u>Bell Farms Area/S. of Cotton Road</u>
Quad name: <u>Lewiston</u>	Quad code: <u>44070A2</u>
County: <u>Androscoggin</u>	Town: <u>Lewiston</u>

Plant Name: Carex siccata (CASI01AR_02AR) New Update Occurrence #:

Date: 3July2018	Surveyor(s): Art Gilman and Anna Ritchie	Sourcecode (MNAP assigns):
Primary Surveyor Address: Gilman and Briggs Environmental 1 Conti Cir # 5, Barre, VT 05641	Phone: (802) 479-7480	Email: avgilman@together.net

GPS Datum WGS 84 NAD 83 NAD 27 Other
 GPS Coordinates UTM Zone 19N Decimal Degrees (dd.dddd) Deg Min Sec (dd mm ss) GPS (dd mm.mm) Other
 North West Additional Coordinates Lat. 44.023698 Long. -70.175755

Directions to Occurrence: Located south of Cotton Road, on the low river terrace at the powerline crossing
 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 3000-5000 <input type="checkbox"/> Individuals <input checked="" type="checkbox"/> Ramets Population Structure 99 % Vegetative 1 % Reproductive	Phenology <input type="checkbox"/> In leaf <input type="checkbox"/> In bud <input type="checkbox"/> In flower <input type="checkbox"/> Immature fruit <input checked="" 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 type="checkbox"/> 5 – 20 square yards <input type="checkbox"/> 20 – 100 square yards <input checked="" 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: Slightly suppressed; competing vegetation Evidence disease, predation, etc? Explain: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Type of reproduction? Explain: <input checked="" type="checkbox"/> Sexual <input checked="" type="checkbox"/> Asexual <input type="checkbox"/> Not Observed
Other Comments: Mapped outer extent of two population groups. Large clonal patches			

GENERAL DESCRIPTION

Associated natural community: Riverbank terrace/powerline corridor
Associated plant species: Rubus flagellaris, Elymus repens
Substrate/soil type: Sand; stable/fully vegetated
Threats to Population:
Conservation/Management/Research needs:

Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE <input type="checkbox"/> E <input type="checkbox"/> NW <input checked="" type="checkbox"/> S <input type="checkbox"/> SE <input type="checkbox"/> W <input type="checkbox"/> SW <input type="checkbox"/> Flat or NA	<input type="checkbox"/> Flat <input checked="" type="checkbox"/> 0-10 <input type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> Vertical	<input checked="" type="checkbox"/> Open <input type="checkbox"/> Partial <input type="checkbox"/> Filtered <input type="checkbox"/> Shade	<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	<input type="checkbox"/> Inundated <input type="checkbox"/> Saturated (wet mesic) <input type="checkbox"/> Moist (mesic) <input checked="" type="checkbox"/> Dry-mesic <input type="checkbox"/> Dry (xeric)
Max ft / m					



Photo 1. Carex siccata growing in patch near river.



Photo 2. View of Carex siccata population along river terrace.



Photo 3. Close-up of fruiting bodies of Carex siccata.



Photo 4. Close-up view of Carex siccata growing in amongst poison ivy and raspberry.

SPECIAL PLANT SURVEY FORM

Site:	NECEC CMP Power	Survey Site:	Off of Stream Road/S. of Deadwater Radar Station
Quad name:	Mahoney Hill	Quad code:	45069A7
County:	Somerset	Town:	Moscow

Plant Name: Dryopteris goldieana New Update Occurrence #:

Date: 12July2018	Surveyor(s): Art Gilman and Anna Ritchie	Sourcecode (MNAP assigns):
Primary Surveyor Address:	Phone:	Email:

GPS Datum WGS 84 NAD 83 NAD 27 Other
 GPS Coordinates UTM Zone 19N Decimal Degrees (dd.dddd) Deg Min Sec (dd mm ss) GPS (dd mm.mm) Other
 North West Additional Coordinates Lat. 45.117098, Long. -69.861951

Directions to Occurrence: Take Stream Road, off of Highway 16 (north of Bingham) to where it parallels the existing powerline. Just before the powerline bends to the east, there is a side road that takes off towards Austin Stream. Stop here and head northwest. The population is local swampy draw/old road, approximately 70 feet into the woods from the west side of the ROW clearing

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 2 <input checked="" type="checkbox"/> Individuals <input type="checkbox"/> Ramets Population Structure 30 % Vegetative 70 % Reproductive	Phenology <input type="checkbox"/> In leaf <input type="checkbox"/> In bud <input type="checkbox"/> In flower <input checked="" 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 checked="" type="checkbox"/> 1 – 5 square yards <input 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: Evidence disease, predation, etc? Explain: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Type of reproduction? Explain: spores and multiple plants from one crown <input checked="" type="checkbox"/> Sexual <input checked="" type="checkbox"/> Asexual <input type="checkbox"/> Not Observed
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Other Comments: Took a single point between the two individuals; wich were approximately 3 ft apart

GENERAL DESCRIPTION

Associated natural community: Moist clearing in mucky loam in drainage/old road bed embedded in beech-maple-birch forest

Associated plant species: Impatiens capensis (presumed, no flowers seen); Glyceria striata, Alnus serrulata,

Substrate/soil type: Mucky loam, spongy with high organics

Threats to Population:

Conservation/Management/Research needs:

Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min 1120' ft / m	<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	<input type="checkbox"/> Flat <input checked="" type="checkbox"/> 0-10 <input type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> Vertical	<input type="checkbox"/> Open <input type="checkbox"/> Partial <input checked="" type="checkbox"/> Filtered <input type="checkbox"/> Shade	<input type="checkbox"/> Crest <input checked="" type="checkbox"/> Upper Slope <input type="checkbox"/> Mid-slope <input type="checkbox"/> Lower Slope <input type="checkbox"/> Bottom <input type="checkbox"/> Level Plain	<input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated (wet mesic) <input checked="" type="checkbox"/> Moist (mesic) <input type="checkbox"/> Dry-mesic <input type="checkbox"/> Dry (xeric)
Max ft / m					

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Do other members of this genus occur at this site? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes Dryopteris carthusiana
	Collection #	If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
	Repository	Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain

Landowner name/address for entire population (attach additional owner information on a separate sheet):	Phone	Is landowner aware of plant? <input type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input 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 checked="" 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: Powerline corridor nearby

- 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:** Small population (likely one clone), limited available habitat in small swale; managed powerline corridor nearby and old logging activity crisscrosses the area

SIZE / QUALITY: How large is this population relative to typical populations of this species? Small
 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: Consists of one clone, but that appears to be fairly old with several "crowns" off one rhizome.

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: C

- 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: in woods off of cleared powerline corridor in rural managed forest area

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:



Photo 1. *Dryopteris goldiana*. One plant with six separate crowns.



Photo 2. *Dryopteris goldiana*. Top side of plant.



Photo 3. *Dryopteris goldiana*. Underside of plant.



Photo 4. *Dryopteris goldiana*. Showing immediate surrounding habitat, including impatiens, sedges, yellow birch.

I. IDENTIFIERS / LOCATION

Site Name: Livermore Falls Upper Floodplain Hardwood Forest		Obs. Pt. #:	Quadcode:
Field-assigned Community Type: Upper Floodplain Hardwood Forest		USGS 7.5' Quad Name: Livermore Falls	
Identification or classification difficulties? Describe: Does not completely comport with description, although topographic position is appropriate, and the site is hardwood dominated.		Town: Livermore Falls	
MNAP REVIEWED/EdITED TYPE:		Occurrence #:	County: Androscoggin
LANDOWNER INFORMATION: for each landowner		Date: 7/7/18	Surveyors: A. Gilman
Map	Lot	Name (& address if new landowner)	
		SourceCode: F _____	
		Biophysical Region:	

GPS Coordinates (NAD 83, UTM Zone 19N; Other-please specify) Lat. 44.403416, Long. -70.148538

Directions to occurrence:

Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.

FEATURE MAP. Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation. Locational uncertainty refers to any uncertainty there is as to where the actual observation occurred. Confidence extent indicates how confident you are that the observed area represents the full extent of the feature.

Locational Uncertainty:

Areal delimited

Mapped to within 12.5 m of actual location

Greater uncertainty (please indicate)

_____50_____ m / ft / km / miles

Confidence Extent:

Y - Confident full extent of feature **IS** known

N - Confident full extent is **NOT** known

? - **Uncertain** whether full extent is known

GENERAL DESCRIPTION OF COMMUNITY(See instructions for guidelines):

The community is dominated by red oak, yellow birch, white ash, and red maple, with minor component of black cherry. "Rich forest" components" such as sugar maple and basswood are not importantly represented but note the presence of at least one butternut tree. (Also note the lack of silver maple or cottonwood). Many trees are of large size (ca.14" – 16") and there is good forest structure. Shrubs are nearly lacking (a few speckled alder). The understory comprises mainly ferns: Sensitive fern, interrupted fern, and lady fern are most prominent, with a few ostrich fern present.

The site is nearly level and the community occurs slightly up-gradient and down-gradient of the delineated wetland boundary. Slightly to the south a stream enters from the east, and the canopy opens to a high-herb streamside community. Beyond that, there is general floodplain forest. To the north, the community is bounded by rising terrain and mixed forest on sand deposits.

The community was not investigate further west (towards River Road) than the NENEC project study area. Note this area was previously mapped (by the same investigator) as "maple-basswood floodplain forest" but basswood is now not apparent.

SAMPLE TYPE: <input checked="" type="checkbox"/> X Brief descriptive – NOT SUFFICIENT FOR DOCUMENTING NEW EOS <input type="checkbox"/> Generalized cover estimates & dbhs (p2) <input type="checkbox"/> Nested plot samples (N = _____) (attach)	Additional sampling recommended? <input type="checkbox"/> <u>Yes</u> <input type="checkbox"/> No Photos: <input type="checkbox"/> Yes <input type="checkbox"/> No
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II. VEGETATION BY STRATA

Community name & EO#:

TREE LAYER (canopy plus emergents, everything ≥ 10 cm dbh)								
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				Total Basal Area: ft ² /acre NC	Conifer %:0	Canopy height <u>40</u> m or ft Supercanopy spp? No		
Species name/code	Cover class*	Dbh range <input checked="" type="checkbox"/> in <input type="checkbox"/> cm	Core ages	Species name/code	Cover class*	Dbh range <input type="checkbox"/> in <input type="checkbox"/> cm	Core ages	<input type="checkbox"/> check here if plot data are attached instead
Quercus rubra	19	12"-16"+	NA					
Betula allegh	19	12"-16"	NA					
Acer rubrum	37	10"-15"	NA					

SAPLING / TALL SHRUB LAYER (> 3 m tall and < 10 cm dbh)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
NA				

SHRUB LAYER (woody plants ~1 - 3 m tall)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
NA				

HERB / DWARF SHRUB LAYER (all herbaceous vascular plants plus any woody plants < 1 m tall)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%			DOMINANCE : tree regen _____%; shrub _____%; graminoid <u>0</u> _____%; forb <u>75</u> _____%	
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
Onoclea sensibilis	19			
Athyrium angustum	19			
Osumnda claytoniana	19			
		No spring ephemerals were observed due to mid-summer site visit.		

BRYOID LAYER (all ground-layer non-vascular plants; do not include epiphytes)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%			DOMINANCE: bryophytes _____<5% _____% lichens <u>0</u> _____%	
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
No observed				

*cover classes (midpoint): < 2%= 1, 2-5%= 3, 6-12%= 9, 13-24%= 19, 25-49%= 37, 50-74%= 63, 75-100%= 87

ADDITIONAL SPECIES within area where vegetation cover by strata were taken						OTHER PLANT SPP seen in community (spp codes), for complete plant species list	
Stratum	Species code	Cover class	Stratum	Species code	Cover class	Dryopteris carthusiana	

III. ENVIRONMENTAL SETTING

Community name & EO#:

<p>SOILS (rooting zone): Sample # _____</p> <p>Depth to which soil examined NA (soils not examined)</p> <p>Organic layer depth _____ cm or <input type="checkbox"/> >1 m</p> <p>Mineral layer below organic? _____ depth _____</p> <p>Mottling in top 30 cm? _____ depth _____</p> <p>Depth to water table: _____</p> <p>Depth to obstruction: _____ nature of obstruction: _____</p> <p>Stoniness: <input type="checkbox"/> very little (<1%) / <input type="checkbox"/> moderate (2-25%) / <input type="checkbox"/> very (>25%)</p> <p>pH: _____ measured in <input type="checkbox"/> soil or <input type="checkbox"/> interstitial water</p> <p>vonPost decomposition (peat substrates only) _____ at _____ deep</p>	<p>ELEVATION: 290 ft</p> <p><input type="checkbox"/> m or <input checked="" type="checkbox"/> ft?</p>	<p>ASPECT (TRUE):</p>	<p>SLOPE: Include units! (45° = 100%)</p> <p>0%-2%, estimated</p> <p><input type="checkbox"/> measured <input checked="" type="checkbox"/> estimated</p>	
	<p>HYDROLOGIC REGIME:</p> <p><input checked="" type="checkbox"/> upland</p> <p><input checked="" type="checkbox"/> nontidal wetland:</p> <p><input type="checkbox"/> perm flooded</p> <p><input type="checkbox"/> semiper flooded</p> <p><input checked="" type="checkbox"/> seasonally fld.</p> <p><input type="checkbox"/> saturated</p> <p><input type="checkbox"/> tidal – irreg. fld.</p> <p><input type="checkbox"/> tidal – reg. fld.</p> <p><input type="checkbox"/> saltwater</p> <p><input type="checkbox"/> brackish</p> <p><input type="checkbox"/> freshwater</p> <p><input type="checkbox"/> unknown</p>	<p>HABITAT PATCHINESS (describe zones or patches if present): Fairly uniform</p>		<p>MICROTOPOGRAPHY: NA</p>
<p>AVERAGE TEXTURE:</p> <p><input type="checkbox"/> gravel</p> <p><input type="checkbox"/> sand</p> <p><input type="checkbox"/> loamy sand / sandy loam</p> <p><input type="checkbox"/> loam</p> <p><input type="checkbox"/> silt loam</p> <p><input type="checkbox"/> clay loams</p> <p><input type="checkbox"/> sandy clay / clay</p> <p><input type="checkbox"/> peat</p> <p><input type="checkbox"/> muck</p>	<p>DRAINAGE & MOISTURE REGIME (see MAPPSS key):</p> <p><input type="checkbox"/> very poorly drained</p> <p><input type="checkbox"/> poorly drained</p> <p><input type="checkbox"/> somewhat poorly drained</p> <p><input type="checkbox"/> moderately well drained</p> <p><input type="checkbox"/> well drained</p> <p><input type="checkbox"/> somewhat excessively drained</p> <p><input type="checkbox"/> excessively drained</p>	<p>BEDROCK TYPE:</p> <p><input type="checkbox"/> Igneous</p> <p><input type="checkbox"/> granite</p> <p><input type="checkbox"/> dioritic</p> <p><input type="checkbox"/> gabbroic</p> <p><input type="checkbox"/> Metamorphic</p> <p><input type="checkbox"/> slate/phyllite</p> <p><input type="checkbox"/> schist/gneiss</p> <p><input type="checkbox"/> Sedimentary</p> <p><input type="checkbox"/> limestone</p> <p><input type="checkbox"/> other</p> <p>details? Limy marine shale</p>	<p>TOPOGRAPHIC POSITION</p> <p><input type="checkbox"/> D drainage channel</p> <p><input checked="" type="checkbox"/> P low plain, level</p> <p><input type="checkbox"/> N narrow valley</p> <p><input type="checkbox"/> T toe of slope</p> <p><input type="checkbox"/> L lower slope</p> <p><input type="checkbox"/> M middle slope</p> <p><input type="checkbox"/> T hillside terrace</p> <p><input type="checkbox"/> U upper slope</p> <p><input type="checkbox"/> E cliff/ledge</p> <p><input type="checkbox"/> S ridge, summit, crest</p>	<p>SURFICIAL DEPOSIT:</p> <p><input type="checkbox"/> bedrock</p> <p><input type="checkbox"/> talus slope</p> <p><input type="checkbox"/> glacial till</p> <p><input type="checkbox"/> moraine</p> <p><input type="checkbox"/> esker/outwash</p> <p><input type="checkbox"/> glacial delta</p> <p><input checked="" type="checkbox"/> lacustrine/fluvial</p> <p><input type="checkbox"/> marine</p> <p><input type="checkbox"/> aeolian</p> <p><input type="checkbox"/> other:</p>

<p>THREATS TO COMMUNITY?</p> <p>MANAGEMENT / PROTECTION NEEDS?</p>
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OTHER COMMENTS: animal use, species distribution notes, etc.

This community is a fairly small patch but is mature and has well-developed forest structure; there are few invasives.

IV. SUMMARY AND RANKING

Community name & EO#: Hardwood river terrace forest /Upper floodplain hardwood forest

Applicable National Type:	NVC CODE: CEGL00 _____	Comment re fit to type?
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COMMUNITY RANKING

1. CURRENT CONDITION and quality of the community itself.

- Comment on the species composition and biological structure of the community (species diversity, indicator species, development/maturity, etc.) For forests: Do you consider this to be old growth? If so, based on what?
 Not particularly enriched (no sugar maple, little basswood); nor particularly diverse (due to shading) but spring ephemeral community not assessed; not old growth although mature.
- Natural and anthropogenic disturbance **within** the community (check off, then describe extent and how recent below)

<input type="checkbox"/> Logging – most recently c. _____ yrs ago	<input type="checkbox"/> Animal effects (insect outbreaks, browsing)
<input type="checkbox"/> Agriculture / pasture	<input type="checkbox"/> Erosion
<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or Mining
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> ORV / vehicle disturbance
<input type="checkbox"/> Impoundment	<input type="checkbox"/> Trails / roads
<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Other, list: Adjacent powerline corridor; snowmobile trail, otherwise seems fairly intact.

List disturbance(s): to what degree have these altered natural ecological processes, and/or do they appear to effect the population?

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

2. SIZE / QUALITY:
 What is the approximate size of the community occurrence? _____ 2-3 _____ acres / hectares

Covers the natural extent of this community type Has been truncated through adjacent land use

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

3. LANDSCAPE CONTEXT of the area surrounding the community:

What land uses and/or natural communities surround the observed area? Describe the types and extent of anthropogenic disturbance **around** the observed area, and to what degree this may affect the observed community. To what degree can the observed community be protected from effects of adjacent land uses?
 Powerline; road (west); not fully assessed due to limited study area.

A – Community surrounded by >= 1000 acres of undisturbed landscape.
 B – Community surrounded by fairly intact landscape, though there may be cuts nearby.
 C – Community surrounded by fragmented forest or rural landscape.
 D – Surrounding area developed.

OVERALL RANK for Community **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant
 based on your experience
 Comments: Small size, does not comport 100% with published description, not enriched.

MNAP reviewed / verified rank

A – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Date:

Reviewer:

Rationale:



Photo 1. Upper Floodplain Hardwood Forest – Livermore Falls.
Hardwood dominated stand with a fern-dominated understory.



Photo 2. Upper Floodplain Hardwood Forest – Livermore Falls.
Hardwood-dominated stand with a fern-dominated understory.

I. IDENTIFIERS / LOCATION

Site Name: North Anson River Terrace Hardwood /Upper Floodplain Hardwood Forest		Obs. Pt. #:	Quadcode:
Field-assigned Community Type: As above		USGS 7.5' Quad Name: Madison West	
Identification or classification difficulties? Describe: Does not completely comport with description, although topographic position is appropriate and the site is hardwood dominated.		Town: Anson	
MNAP REVIEWED/EDITED TYPE:		Occurrence #:	County: Somerset
LANDOWNER INFORMATION: for each landowner		Date: 27 July 2018	
Map	Lot	Name (& address if new landowner)	
		Surveyors: A. V. Gilman	
		SourceCode: F _____	
		Biophysical Region:	

GPS Coordinates (NAD 83, UTM Zone 19N; Other-please specify) Lat. 44.853352, Long. -69.886138

Directions to occurrence:
Park under CMP powerlines on Madison Street, north of the Carrabasset Stream, and follow powerlines S across an agricultural field (in corn in 2018) to riverside; community is on the W side of the powerlines between the cornfield and the river.

Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.

FEATURE MAP. Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation. Locational uncertainty refers to any uncertainty there is as to where the actual observation occurred. Confidence extent indicates how confident you are that the observed area represents the full extent of the feature.

Locational Uncertainty:

Areal delimited

Mapped to within 12.5 m of actual location

Greater uncertainty (please indicate)

_____50_____ m / ft / km / miles

Confidence Extent:

Y - Confident full extent of feature **IS** known

N - Confident full extent is NOT known

? - **Uncertain** whether full extent is known

GENERAL DESCRIPTION OF COMMUNITY(See instructions for guidelines):

The community is on an upper terrace associated with Carrabasset Stream not far above its confluence with the Kennebec River (and likely back-flooded from the river at extremes). The riverside terrace is silver maple floodplain forest; this area is slightly upgradient and has a different community that is dominated by green ash and red oak with minor component of elm. The age structure is young except for a few large red oak and green ash. It is not an enriched community.

The forest is rather heavily invaded by invasive honeysuckles (much more so than when observed by the same surveyor in 2007); these comprise an understory of about 40%-50% cover overall. Understory herbs are typical, but lack elements of richness such as blue cohosh, wild leek, etc.

It is bounded south by silver maple floodplain forest, a narrow strip along river's edge (in the surveyor's judgement too narrow to consider as a natural community although containing some typically large trees). It is bounded north by cornfield

Note, as can be seen on aerial photos, the overall canopy is of small trees, vs. areas of larger trees upstream on the N side of the Carrabasset River.

SAMPLE TYPE: ____ Brief descriptive – NOT SUFFICIENT FOR DOCUMENTING NEW EOs __X__ Generalized cover estimates & dbhs (p2) ____ Nested plot samples (N = _____) (attach)	Additional sampling recommended? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Photos: <input type="checkbox"/> Yes <input type="checkbox"/> No
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II. VEGETATION BY STRATA

Community name & EO#:

TREE LAYER (canopy plus emergents, everything ≥ 10 cm dbh)								
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				Total Basal Area: ft ² /acre NC	Conifer %:0	Canopy height ___40'___m or ft Supercanopy spp? 50', Quercus rubra		
Species name/code	Cover class*	Dbh range <input checked="" type="checkbox"/> in <input type="checkbox"/> cm	Core ages	Species name/code	Cover class*	Dbh range <input type="checkbox"/> in <input type="checkbox"/> cm	Core ages	<input type="checkbox"/> check here if plot data are attached instead
Quercus rubra	9	20"-24"						
Fraxinus penns	63	8"-14"						
Ulmus americana	9	3"-16"						
At field edge: one basswood, some black cherry; on slightly higher elevation.								

SAPLING / TALL SHRUB LAYER (> 3 m tall and < 10 cm dbh)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
Ulmus americana	3			
Fraxinus pensilvanica	3			

SHRUB LAYER (woody plants ~1 - 3 m tall)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
Lonicera cf. morrowii	37			

HERB / DWARF SHRUB LAYER (all herbaceous vascular plants plus any woody plants < 1 m tall)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%			DOMINANCE : tree regen ___% ; shrub ___% ; graminoid 0 ___% ; forb 75 ___%	
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
Onoclea sensibilis	19	Rosa multiflora	1	
Athyrium angustum	3			
Matteuccia struthiopteris	9	Note absence: cinnamon fern,		
Circaea canadensis	1	Interrupted fern		
Viola pensylvanica	1			
Solidago flexicaulis	1			
Geum canadense	1			
Carex cf. blanda	1			
			No spring ephemerals were observed due to mid-summer site visit.	

BRYOID LAYER (all ground-layer non-vascular plants; do not include epiphytes)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%			DOMINANCE: bryophytes <5% ___% lichens 0 ___%	
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if
None observed				

NATURAL COMMUNITY SURVEY

Survey Area:

Obs. Pt.

				plot data are attached instead <input type="checkbox"/>

*cover classes (**midpoint**): < 2%= **1**, 2-5%= **3**, 6-12%= **9**, 13-24%= **19**, 25-49%= **37**, 50-74%= **63**, 75-100%= **87**

ADDITIONAL SPECIES within area where vegetation cover by strata were taken						OTHER PLANT SPP seen in community (spp codes), for complete plant species list	
Stratum	Species code	Cover class	Stratum	Species code	Cover class	Black cherry	

III. ENVIRONMENTAL SETTING

Community name & EO#:

<p>SOILS (rooting zone):</p> <p>Sample # _____</p> <p>Depth to which soil examined <u>NA (soils not examined)</u></p> <p>Organic layer depth _____ cm or <input type="checkbox"/> >1 m</p> <p>Mineral layer below organic? _____ depth _____</p> <p>Mottling in top 30 cm? _____ depth _____</p> <p>Depth to water table: _____</p> <p>Depth to obstruction: _____ nature of obstruction: _____</p> <p>Stoniness: <input type="checkbox"/> very little (<1%) / <input type="checkbox"/> moderate (2-25%) / <input type="checkbox"/> very (>25%)</p> <p>pH: _____ measured in <input type="checkbox"/> soil or <input type="checkbox"/> interstitial water</p> <p>vonPost decomposition (peat substrates only) _____ at _____ deep</p>		<p>ELEVATION: <u>250 ft</u></p> <p><input type="checkbox"/> m or <input checked="" type="checkbox"/> ft?</p>		<p>ASPECT (TRUE):</p>		<p>SLOPE: Include units! (45° = 100%)</p> <p><u>0%-2%, estimated</u></p> <p><input type="checkbox"/> measured <input checked="" type="checkbox"/> estimated</p>	
<p>AVERAGE TEXTURE:</p> <p><input type="checkbox"/> gravel</p> <p><input type="checkbox"/> sand</p> <p><input type="checkbox"/> loamy sand / sandy loam</p> <p><input type="checkbox"/> loam</p> <p><input type="checkbox"/> silt loam</p> <p><input type="checkbox"/> clay loams</p> <p><input type="checkbox"/> sandy clay / clay</p> <p><input type="checkbox"/> peat</p> <p><input type="checkbox"/> muck</p>		<p>DRAINAGE & MOISTURE REGIME (see MAPPSS key):</p> <p><input type="checkbox"/> very poorly drained</p> <p><input type="checkbox"/> poorly drained</p> <p><input type="checkbox"/> somewhat poorly drained</p> <p><input type="checkbox"/> moderately well drained</p> <p><input type="checkbox"/> well drained</p> <p><input type="checkbox"/> somewhat excessively drained</p> <p><input type="checkbox"/> excessively drained</p>		<p>HYDROLOGIC REGIME:</p> <p><input checked="" type="checkbox"/> upland</p> <p><input checked="" type="checkbox"/> nontidal wetland:</p> <p><input type="checkbox"/> perm flooded</p> <p><input type="checkbox"/> semiper flooded</p> <p><input checked="" type="checkbox"/> seasonally fld.</p> <p><input type="checkbox"/> saturated</p> <p><input type="checkbox"/> tidal – irreg. fld.</p> <p><input type="checkbox"/> tidal – reg. fld.</p> <p><input type="checkbox"/> saltwater</p> <p><input type="checkbox"/> brackish</p> <p><input type="checkbox"/> freshwater</p> <p><input type="checkbox"/> unknown</p>		<p>HABITAT PATCHINESS (describe zones or patches if present): <u>Fairly uniform</u></p>	
<p>BEDROCK TYPE:</p> <p><input type="checkbox"/> Igneous</p> <p><input type="checkbox"/> granite</p> <p><input type="checkbox"/> dioritic</p> <p><input type="checkbox"/> gabbroic</p> <p><input type="checkbox"/> Metamorphic</p> <p><input type="checkbox"/> slate/phyllite</p> <p><input type="checkbox"/> schist/gneiss</p> <p><input type="checkbox"/> Sedimentary</p> <p><input type="checkbox"/> limestone</p> <p><input type="checkbox"/> other</p> <p>details? <u>Limy marine shale</u></p>		<p>TOPOGRAPHIC POSITION</p> <p><input type="checkbox"/> D drainage channel</p> <p><input checked="" type="checkbox"/> <u>P low plain, level</u></p> <p><input type="checkbox"/> N narrow valley</p> <p><input type="checkbox"/> T toe of slope</p> <p><input type="checkbox"/> L lower slope</p> <p><input type="checkbox"/> M middle slope</p> <p><input type="checkbox"/> T hillside terrace</p> <p><input type="checkbox"/> U upper slope</p> <p><input type="checkbox"/> E cliff/ledge</p> <p><input type="checkbox"/> S ridge, summit, crest</p>		<p>SURFICIAL DEPOSIT:</p> <p><input type="checkbox"/> bedrock</p> <p><input type="checkbox"/> talus slope</p> <p><input type="checkbox"/> glacial till</p> <p><input type="checkbox"/> moraine</p> <p><input type="checkbox"/> esker/outwash</p> <p><input type="checkbox"/> glacial delta</p> <p><input checked="" type="checkbox"/> <u>lacustrine/fluviol</u></p> <p><input type="checkbox"/> marine</p> <p><input type="checkbox"/> aeolian</p> <p><input type="checkbox"/> other:</p>			
<p>THREATS TO COMMUNITY?</p>		<p>MANAGEMENT / PROTECTION NEEDS?</p>					

OTHER COMMENTS: animal use, species distribution notes, etc.

This c

IV. SUMMARY AND RANKING

Community name & EO#: Hardwood river terrace forest /Upper floodplain hardwood forest

Applicable National Type:	NVC CODE: CEGL00 _____	Comment re fit to type?
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COMMUNITY RANKING

1. CURRENT CONDITION and quality of the community itself.

- Comment on the species composition and biological structure of the community (species diversity, indicator species, development/maturity, etc.) For forests: Do you consider this to be old growth? If so, based on what?
 Not particularly enriched (no sugar maple, little basswood); nor particularly diverse (due to shading) but spring ephemeral community not assessed; forest is young; not old growth.
- Natural and anthropogenic disturbance **within** the community (check off, then describe extent and how recent below)

<input type="checkbox"/> Logging – most recently c. _____ yrs ago	<input type="checkbox"/> Animal effects (insect outbreaks, browsing)
<input type="checkbox"/> Agriculture / pasture	<input type="checkbox"/> Erosion
<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or Mining
<input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> ORV / vehicle disturbance
<input type="checkbox"/> Impoundment	<input type="checkbox"/> Trails / roads
<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Other, list: Adjacent powerline corridor; adjacent farm field

List disturbance(s): to what degree have these altered natural ecological processes, and/or do they appear to effect the population?
 Quite invaded by honeysuckle; this may affect soil pH. quality and structure, and may limit regeneration of hardwood trees.

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

2. SIZE / QUALITY:
 What is the approximate size of the community occurrence? _____ 7 acres _____ acres / hectares
 (Exclusive of lands E, and exclusive of an island W). Only observed in the project study area.

Covers the natural extent of this community type Has been truncated through adjacent land use

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

3. LANDSCAPE CONTEXT of the area surrounding the community:

What land uses and/or natural communities surround the observed area? Describe the types and extent of anthropogenic disturbance **around** the observed area, and to what degree this may affect the observed community. To what degree can the observed community be protected from effects of adjacent land uses?
 Powerline; farmland; not fully assessed due to limited study area. There appear to be larger communities both upstream and down.

A – Community surrounded by >= 1000 acres of undisturbed landscape.
 B – Community surrounded by fairly intact landscape, though there may be cuts nearby.
 C – Community surrounded by fragmented forest or rural landscape.
 D – Surrounding area developed.

OVERALL RANK for Community **A** – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant
 based on your experience
 Comments: Does not fully comport with published description (too much green ash, lack of diversity), young age, invaded by honeysuckle

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MNAP reviewed / verified rank

A – Excellent **B** – Good **C** – Fair **D** – Poor **E** – Extant

Date:

Reviewer:

Rationale:



Photo 1. Upper Floodplain Hardwood Forest – North Anson. Community is on an upper terrace associated with Carrabassett Stream. Forest structure is young.



Photo 2. Upper Floodplain Hardwood Forest – North Anson. Young hardwood stand with fern and other typical understory herbs, but lacking in indicators of rich soil.

I. IDENTIFIERS / LOCATION

Site Name: Robinson's Way Hardwood Community		Obs. Pt. #:	Quadcode:
Field-assigned Community Type: Enriched Hardwood Forest		USGS 7.5' Quad Name: The Forks	
Identification or classification difficulties? Describe: Forest matches natural community description. It IS partially within a delineated wetland, which required review of both forested wetland and upland community types		Town: Moxie Gore	
MNAP REVIEWED/EdITED TYPE:		Occurrence #:	County: Somerset
LANDOWNER INFORMATION: for each landowner		Date: 7/26/18	
Map	Lot	Name (& address if new landowner)	
		Surveyors: M. Lin	
		SourceCode: F _____	
		Biophysical Region:	

GPS Coordinates (NAD 83, UTM Zone 19N; Other-please specify) Lat. 45.35697517, Long. -69.89488551

Directions to occurrence: Enriched Hardwood community is located between Robinson's Way and Moxie Lake Road. The community is just east of Robinson's Way and approximately 0.2 mile north of Moxie Lake Road. The community extended south, beyond the Project Area delineated for the survey effort

Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.

FEATURE MAP. Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation. Locational uncertainty refers to any uncertainty there is as to where the actual observation occurred. Confidence extent indicates how confident you are that the observed area represents the full extent of the feature.

Locational Uncertainty:

Areal delimited

Mapped to within 12.5 m of actual location

Greater uncertainty (please indicate)

_____50_____ m / ft / km / miles

Confidence Extent:

Y - Confident full extent of feature **IS** known

N - Confident full extent is **NOT** known

? - **Uncertain** whether full extent is known

GENERAL DESCRIPTION OF COMMUNITY(See instructions for guidelines):

The forest is dominated by Black Ash, American Elm, and Ironwood. Sugar Maple and Yellow Birch were also common. Maiden hair fern and silver spleenwort are common. Wetter areas contained jewel weed and dwarf enchanters nightshade as well as other herbaceous species. Basswood was observed, though infrequent.

The community is on a generally north-facing slope with a low gradient of 0-10% slope. Loamy soils ranged from silty sandy loam to silty loam. The soils were rich and contained well developed structure in the more upland areas.

The community extended beyond the boundaries of our survey area, to the south and was therefore not mapped beyond that point

SAMPLE TYPE: <input checked="" type="checkbox"/> Brief descriptive – NOT SUFFICIENT FOR DOCUMENTING NEW EOs <input type="checkbox"/> Generalized cover estimates & dbhs (p2) <input type="checkbox"/> Nested plot samples (N = _____) (attach)	Additional sampling recommended? <input type="checkbox"/> Yes <input type="checkbox"/> No Photos: <input type="checkbox"/> Yes <input type="checkbox"/> No
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II. VEGETATION BY STRATA

Community name & EO#:

TREE LAYER (canopy plus emergents, everything ≥ 10 cm dbh)								
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				Total Basal Area: ft ² /acre NC	Conifer %:0	Canopy height <u>40</u> m or ft Supercanopy spp? No		
Species name/code	Cover class*	Dbh range <input type="checkbox"/> in <input checked="" type="checkbox"/> cm	Core ages	Species name/code	Cover class*	Dbh range <input type="checkbox"/> in <input type="checkbox"/> cm	Core ages	<input type="checkbox"/> check here if plot data are attached instead
Acer saccharum	19	10-60	NA					
Fraxinus nigra	19	10-50	NA					
Ulmus americana	9	10-25	NA					
Carpinus caroliniana	9	10-20						

SAPLING / TALL SHRUB LAYER (> 3 m tall and < 10 cm dbh)								
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%								
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead				
Ulmus americana	9							
Acer saccharum	19							
Carpinus caroliniana	19							
Tilia americana	1							

SHRUB LAYER (woody plants ~1 - 3 m tall)								
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%								
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead				
Acer saccharum	9							
Viburnum lantanoides	3							
Fraxinus nigra	9							

HERB / DWARF SHRUB LAYER (all herbaceous vascular plants <u>plus</u> any woody plants < 1 m tall)								
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				DOMINANCE : tree regen _____%; shrub _____%; graminoid <u>0</u> _____%; forb <u>75</u> _____%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead				
Adiantum pedatum	19							
Deparia acrostichoides	19							
Matteuccia struthiopteris	9							
Aralia nudicaulis	9							
Polystichum acrostichoides	3							

BRYOID LAYER (all ground-layer non-vascular plants; do not include epiphytes)								
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				DOMINANCE: bryophytes _____<5% _____% lichens <u>0</u> _____%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead				
Minimal and not keyed out	1							

*cover classes (midpoint): < 2%= 1, 2-5%= 3, 6-12%= 9, 13-24%= 19, 25-49%= 37, 50-74%= 63, 75-100%= 87

ADDITIONAL SPECIES within area where vegetation cover by strata were taken						OTHER PLANT SPP seen in community (spp codes), for complete plant species list
Stratum	Species code	Cover class	Stratum	Species code	Cover class	
						Enchanters nightshade, maple, white ash, yellow birch, small component of balsam fir, knapweed, jewelweed and sedges (in wetter areas), jack in the pulpit, woodfern

III. ENVIRONMENTAL SETTING

Community name & EO#:

<p>SOILS (rooting zone): Only brief inspection of soils conducted</p> <p>Sample # _____</p> <p>Depth to which soil examined <u>2</u> in _____</p> <p>Organic layer depth _____ cm or <input type="checkbox"/> >1 m</p> <p>Mineral layer below organic? _____ depth _____</p> <p>Mottling in top 30 cm? _____ depth _____</p> <p>Depth to water table: _____</p> <p>Depth to obstruction: _____ nature of obstruction: _____</p> <p>Stoniness: <input checked="" type="checkbox"/> very little (<1%)/ <input type="checkbox"/> moderate (2-25%)/ <input type="checkbox"/> very (>25%)</p> <p>pH: _____ measured in <input type="checkbox"/> soil or <input type="checkbox"/> interstitial water</p> <p>vonPost decomposition (peat substrates only) _____ at _____ deep</p> <p>AVERAGE TEXTURE:</p> <p><input type="checkbox"/> gravel</p> <p><input type="checkbox"/> sand</p> <p><input checked="" type="checkbox"/> loamy sand / sandy loam</p> <p><input type="checkbox"/> loam</p> <p><input checked="" type="checkbox"/> silt loam</p> <p><input type="checkbox"/> clay loams</p> <p><input type="checkbox"/> sandy clay / clay</p> <p><input type="checkbox"/> peat</p> <p><input type="checkbox"/> muck</p> <p>DRAINAGE & MOISTURE REGIME (see MAPPSS key):</p> <p><input type="checkbox"/> very poorly drained</p> <p><input type="checkbox"/> poorly drained</p> <p><input checked="" type="checkbox"/> somewhat poorly drained</p> <p><input checked="" type="checkbox"/> moderately well drained</p> <p><input type="checkbox"/> well drained</p> <p><input type="checkbox"/> somewhat excessively drained</p> <p><input type="checkbox"/> excessively drained</p>	<p>ELEVATION: 1000</p> <p><input type="checkbox"/> m or <input checked="" type="checkbox"/> ft?</p>	<p>ASPECT (TRUE):</p> <p>North</p>	<p>SLOPE: Include units! (45° = 100%)</p> <p>0% - 5</p> <p><input type="checkbox"/> measured <input checked="" type="checkbox"/> estimated</p>
	<p>HYDROLOGIC REGIME:</p> <p><input checked="" type="checkbox"/> upland</p> <p><input checked="" type="checkbox"/> nontidal wetland:</p> <p><input type="checkbox"/> perm flooded</p> <p><input type="checkbox"/> semiper flooded</p> <p><input checked="" type="checkbox"/> seasonally fld.</p> <p><input type="checkbox"/> saturated</p> <p><input type="checkbox"/> tidal - irreg. fld.</p> <p><input type="checkbox"/> tidal - reg. fld.</p> <p><input type="checkbox"/> saltwater</p> <p><input type="checkbox"/> brackish</p> <p><input type="checkbox"/> freshwater</p> <p><input type="checkbox"/> unknown</p>	<p>HABITAT PATCHINESS (describe zones or patches if present): Patches of wetter areas with jewelweed and enchanters nightshade; damp silty loam and evidence of surface flow channels throughout. Higher elevation areas had a more developed mineral soil with a sandy loam texture</p> <p>MICROTOPOGRAPHY: some low hill with channel topography, where wetland and upland soils meet.</p>	
<p>BEDROCK TYPE:</p> <p><input type="checkbox"/> Igneous</p> <p><input type="checkbox"/> granite</p> <p><input type="checkbox"/> dioritic</p> <p><input type="checkbox"/> gabbroic</p> <p><input type="checkbox"/> Metamorphic</p> <p><input type="checkbox"/> slate/phyllite</p> <p><input type="checkbox"/> schist/gneiss</p> <p><input type="checkbox"/> Sedimentary</p> <p><input type="checkbox"/> limestone</p> <p><input type="checkbox"/> other</p> <p>details?</p>	<p>TOPOGRAPHIC POSITION</p> <p><input type="checkbox"/> D drainage channel</p> <p><input type="checkbox"/> P low plain, level</p> <p><input type="checkbox"/> N narrow valley</p> <p><input type="checkbox"/> T toe of slope</p> <p><input type="checkbox"/> L lower slope</p> <p><input checked="" type="checkbox"/> M middle slope</p> <p><input type="checkbox"/> T hillside terrace</p> <p><input type="checkbox"/> U upper slope</p> <p><input type="checkbox"/> E cliff/ledge</p> <p><input type="checkbox"/> S ridge, summit, crest</p>	<p>SURFICIAL DEPOSIT:</p> <p><input type="checkbox"/> bedrock</p> <p><input type="checkbox"/> talus slope</p> <p><input type="checkbox"/> glacial till</p> <p><input type="checkbox"/> moraine</p> <p><input type="checkbox"/> esker/outwash</p> <p><input type="checkbox"/> glacial delta</p> <p><input checked="" type="checkbox"/> lacustrine/fluvial</p> <p><input type="checkbox"/> marine</p> <p><input type="checkbox"/> aeolian</p> <p><input type="checkbox"/> other:</p>	

THREATS TO COMMUNITY?
Logging potential, evidence of past logging

MANAGEMENT / PROTECTION NEEDS?

OTHER COMMENTS: The forest is relatively well delineated based on the distribution of the Northern maidenhair fern and silvery spleenwort. There is a mix of upland and wetland areas but an overall dominance of the enriched hardwood characteristics.

IV. SUMMARY AND RANKING

Community name & EO#: Hardwood river terrace forest /Upper floodplain hardwood forest

Applicable National Type:	NVC CODE: CEGL00 _____	Comment re fit to type?
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COMMUNITY RANKING

1. CURRENT CONDITION and quality of the community itself.

- Comment on the species composition and biological structure of the community (species diversity, indicator species, development/maturity, etc.) For forests: Do you consider this to be old growth? If so, based on what?

Second- or third-growth forest, some larger trees, but dominated by mid-sized trees and saplings. Forest structure is developing nicely, though. Indicator species for this habitat type were common, animal use was evident, and invasive species were minimum
- Natural and anthropogenic disturbance **within** the community (check off, then describe extent and how recent below)

<input checked="" type="checkbox"/> Logging – most recently c. <u>>50</u> yrs ago	<input checked="" type="checkbox"/> Animal effects (insect outbreaks, browsing)
<input type="checkbox"/> Agriculture / pasture	<input type="checkbox"/> Erosion
<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or Mining
<input checked="" type="checkbox"/> Wind or ice damage	<input type="checkbox"/> ORV / vehicle disturbance
<input type="checkbox"/> Impoundment	<input type="checkbox"/> Trails / roads
<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Other, list:

List disturbance(s): to what degree have these altered natural ecological processes, and/or do they appear to effect the population?
 Past logging likely had a large impact on the population, however it appears to be recovering nicely, browsing and insect damage appear to be within healthy ranges. Wind damage was evident though minor and much less than in adjacent habitats
 Logging has occurred in the past, as evidenced by decaying stumps. Habitat is near roads

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

2. SIZE / QUALITY:
 What is the approximate size of the community occurrence? _____ 3-5 _____ acres / hectares
 Covers the natural extent of this community type Has been truncated through adjacent land use

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

3. LANDSCAPE CONTEXT of the area surrounding the community:

What land uses and/or natural communities surround the observed area? Describe the types and extent of anthropogenic disturbance **around** the observed area, and to what degree this may affect the observed community. To what degree can the observed community be protected from effects of adjacent land uses?
 Area is near roads, powerline corridor and houses, however there is fairly contiguous forest, in different stages of development, nearby

A – Community surrounded by >= 1000 acres of undisturbed landscape.
 B – Community surrounded by fairly intact landscape, though there may be cuts nearby.
 C – Community surrounded by fragmented forest or rural landscape.
 D – Surrounding area developed.

<p>OVERALL RANK for Community based on your experience</p> <p>Comments: Nice community with typical indicator species present; appears to be relatively small, although entire extent is not known of limits of survey area. Within hardwood matrix forest.</p>			<input type="checkbox"/> A – Excellent <input checked="" type="checkbox"/> B – Good <input type="checkbox"/> C – Fair <input type="checkbox"/> D – Poor <input type="checkbox"/> E – Extant
<p>MNAP reviewed / verified rank</p> <p>Date: Reviewer: Rationale:</p>			<input type="checkbox"/> A – Excellent <input type="checkbox"/> B – Good <input type="checkbox"/> C – Fair <input type="checkbox"/> D – Poor <input type="checkbox"/> E – Extant



Photo 1. Enriched Northern Hardwood Forest. Rich forest spanning drier areas of wetland.



Photo 2. Enriched Northern Hardwood Forest. Slight northern aspect, abundant maidenhair fern and only occasional basswood.

SPECIAL PLANT SURVEY FORM

Site: <u>NECEC Segment 1</u>	Survey Site: <u>FID #14 GALKAM001DMC</u>
Quad name: <u>Tumbledown Mountain Quadrangle</u>	Quad code: <u>USGS X24K45909</u>
County: <u>Somerset</u>	Town: <u>Appleton Township</u>

Plant Name: Galium Kamschaticum New Update Occurrence #:

Date: 7/11/18	Surveyor(s): Duane Choquette & Tom Errico	Sourcecode (MNAP assigns):
Primary Surveyor Address: 6 Ashley Drive, Scarborough, maine 04072	Phone: 518-222-1383	Email: dchoquette@trcsolutions.com

GPS Datum WGS 84 NAD 83 NAD 27 Other
 GPS Coordinates UTM Zone 19N Decimal Degrees (dd.dddd) Deg Min Sec (dd mm ss) GPS (dd mm.mm) Other
 North West Additional Coordinates Lat: 45.46625971 Long: -70.46817762

Directions to Occurrence: North slope of Tumbledown Mountain, access from Appleton Road to the west.
 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 506 <input checked="" type="checkbox"/> Individuals <input type="checkbox"/> Ramets Population Structure 80 % Vegetative 20 % Reproductive	Phenology <input checked="" type="checkbox"/> In leaf <input checked="" type="checkbox"/> In bud <input checked="" type="checkbox"/> In flower <input checked="" type="checkbox"/> Immature fruit <input checked="" 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 + 13 sq yds~area actual habitat 30 sq yds~ area potential habi	Vigor? <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Other than normal Explain: Evidence disease, predation, etc? Explain: Browsing damage to tips of plants <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Type of reproduction? Explain: Fruit present <input checked="" type="checkbox"/> Sexual <input type="checkbox"/> Asexual <input type="checkbox"/> Not Observed
Other Comments:			

GENERAL DESCRIPTION

Associated natural community: Northern Hardwood forest

Associated plant species: Acer saccharum, Betula alleghaniensis, Acer pensylvanicum, Glyceria striata, Impatiens capensis, Thalictrum polygamum, Oxalis montana, Galium palustre, Circaea alpina, sambucus racemosa

Substrate/soil type: Mucky Mineral

Threats to Population: Damage caused by moose wallowing and moose trails. Logging

Conservation/Management/Research needs:

Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min 2200 ft / m	<input checked="" 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 type="checkbox"/> Flat or NA	<input type="checkbox"/> Flat <input type="checkbox"/> 0-10 <input checked="" type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> Vertical	<input type="checkbox"/> Open <input type="checkbox"/> Partial <input checked="" type="checkbox"/> Filtered <input type="checkbox"/> Shade	<input type="checkbox"/> Crest <input type="checkbox"/> Upper Slope <input checked="" type="checkbox"/> Mid-slope <input type="checkbox"/> Lower Slope <input type="checkbox"/> Bottom <input type="checkbox"/> Level Plain	<input type="checkbox"/> Inundated <input type="checkbox"/> Saturated (wet mesic) <input checked="" type="checkbox"/> Moist (mesic) <input type="checkbox"/> Dry-mesic <input type="checkbox"/> Dry (xeric)
Max 2310 ft / m					



Photo #1- Overview of multiple stems of *Galium kamtschaticum* in old logging trail/actively used moose path GALKAM001DMC.



Photo #2- Stem of flowering *Galium kamtschaticum* GALKAM001DMC.



Photo #3- *Galium kamtschaticum* GALKAM001DMC.



Photo #4- Habitat overview of *Galium kamtschaticum* for GALKAM001DMC.

SPECIAL PLANT SURVEY FORM

Site: <u>NECEC Segment 1</u>	Survey Site: <u>FID #14 GALKAM002DMC</u>
Quad name: <u>Tumbledown Mountain Quadrangle</u>	Quad code: <u>USGS X24K45909</u>
County: <u>Somerset</u>	Town: <u>Appleton Township</u>

Plant Name: *Galium Kamschaticum* New Update Occurrence #:

Date: 7/11/18	Surveyor(s): Duane Choquette & Tom Errico	Sourcecode (MNAP assigns):
Primary Surveyor Address: 6 Ashley Drive, Scarborough, maine 04072	Phone: 518-222-1383	Email: dchoquette@trcsolutions.com

GPS Datum WGS 84 NAD 83 NAD 27 Other
 GPS Coordinates UTM Zone 19N Decimal Degrees (dd.dddd) Deg Min Sec (dd mm ss) GPS (dd mm.mm) Other
 North West Additional Coordinates Lat: 45.46604628 Long: -70.46943957

Directions to Occurrence: North slope of Tumbledown Mountain, access from Appleton Road to the west.
 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 16 <input checked="" type="checkbox"/> Individuals <input type="checkbox"/> Ramets Population Structure 95 % Vegetative 5 % Reproductive Other Comments:	Phenology <input checked="" type="checkbox"/> In leaf <input type="checkbox"/> In bud <input checked="" type="checkbox"/> In flower <input type="checkbox"/> Immature fruit <input checked="" type="checkbox"/> Mature fruit <input type="checkbox"/> Seed dispersing <input type="checkbox"/> Dormant	Population Area <input checked="" type="checkbox"/> 1 square yard <input type="checkbox"/> 1 – 5 square yards <input 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 + 0.9 sq yds~area actual habitat 50 sq yds~ area potential habi	Vigor? <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Other than normal Explain: Evidence disease, predation, etc? Explain: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Type of reproduction? Explain: Fruit present <input checked="" type="checkbox"/> Sexual <input type="checkbox"/> Asexual <input type="checkbox"/> Not Observed
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GENERAL DESCRIPTION

Associated natural community: Northern Hardwood forest
Associated plant species: <i>Acer saccharum</i> , <i>Betula alleghaniensis</i> , <i>Acer pensylvanicum</i> , <i>Glyceria striata</i> , <i>Impatiens capensis</i> , <i>Galium palustre</i> , <i>Circaea alpina</i> , <i>sambucus racemosa</i> , <i>Corylus cornuta</i> , <i>Nabalus altissimus</i> , <i>Carex utriculata</i> , <i>Osmunda claytonia</i> , <i>Trillium undulatum</i>
Substrate/soil type: Mucky Mineral
Threats to Population: Old Logging Road, Adjacent to clearcut activities.
Conservation/Management/Research needs:

Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min 2300 ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE	<input type="checkbox"/> Flat	<input type="checkbox"/> Open	<input type="checkbox"/> Crest	<input type="checkbox"/> Inundated
	<input type="checkbox"/> E <input checked="" type="checkbox"/> NW	<input checked="" type="checkbox"/> 0-10	<input 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 checked="" type="checkbox"/> Mid-slope	<input type="checkbox"/> Moist (mesic)
Max 2320 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 type="checkbox"/> Flat or NA	<input type="checkbox"/> Vertical		<input type="checkbox"/> Bottom	<input type="checkbox"/> Dry (xeric)
				<input type="checkbox"/> Level Plain	



Photo #1- Overview of multiple stems of *Galium kamtschaticum* in old logging trail wetland GALKAM002DMC.



Photo #2- Stem of *Galium kamtschaticum* GALKAM002DMC and surrounding herbaceous community.



Photo #3- *Galium kamtschaticum* GALKAM002DMC.

SPECIAL PLANT SURVEY FORM

Site: <u>NECEC Segment 1</u>	Survey Site: <u>FID #14 GALKAM003DMC</u>
Quad name: <u>Tumbledown Mountain Quadrangle</u>	Quad code: <u>USGS X24K45909</u>
County: <u>Somerset</u>	Town: <u>Appleton Township</u>

Plant Name: Galium Kantschaticum New Update Occurrence #:

Date: 7/11/18	Surveyor(s): Duane Choquette & Tom Errico	Sourcecode (MNAP assigns):
Primary Surveyor Address: 6 Ashley Drive, Scarborough, maine 04072	Phone: 518-222-1383	Email: dchoquette@trcsolutions.com

GPS Datum WGS 84 NAD 83 NAD 27 Other
 GPS Coordinates UTM Zone 19N Decimal Degrees (dd.dddd) Deg Min Sec (dd mm ss) GPS (dd mm.mm) Other
 North West Additional Coordinates Lat: 45.46598048 Long: -70.46956785

Directions to Occurrence: North slope of Tumbledown Mountain, access from Appleton Road to the west.
 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 85 <input checked="" type="checkbox"/> Individuals <input type="checkbox"/> Ramets Population Structure 90 % Vegetative 10 % Reproductive Other Comments:	Phenology <input checked="" type="checkbox"/> In leaf <input type="checkbox"/> In bud <input checked="" type="checkbox"/> In flower <input type="checkbox"/> Immature fruit <input checked="" 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 + 7 sq yds~area actual habitat 50 sq yds~ area potential habi	Vigor? <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Other than normal Explain: Evidence disease, predation, etc? Explain: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Type of reproduction? Explain: Fruit present <input checked="" type="checkbox"/> Sexual <input type="checkbox"/> Asexual <input type="checkbox"/> Not Observed
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GENERAL DESCRIPTION

Associated natural community: Northern Hardwood forest
Associated plant species: Acer saccharum, Betula alleghaniensis, Acer pensylvanicum, Glyceria striata, Impatiens capensis, Carex utriculata, Osmunda claytonia, Carex gynandra
Substrate/soil type: Mucky Mineral
Threats to Population: Old Logging Road, Adjacent to clearcut activities.
Conservation/Management/Research needs:

Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min 2300 ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE <input type="checkbox"/> E <input checked="" type="checkbox"/> NW <input type="checkbox"/> S <input type="checkbox"/> SE <input type="checkbox"/> W <input type="checkbox"/> SW <input type="checkbox"/> Flat or NA	<input type="checkbox"/> Flat <input checked="" type="checkbox"/> 0-10 <input type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> Vertical	<input type="checkbox"/> Open <input checked="" type="checkbox"/> Partial <input type="checkbox"/> Filtered <input type="checkbox"/> Shade	<input type="checkbox"/> Crest <input type="checkbox"/> Upper Slope <input checked="" type="checkbox"/> Mid-slope <input type="checkbox"/> Lower Slope <input type="checkbox"/> Bottom <input type="checkbox"/> Level Plain	<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)
Max 2325 ft / m					



Photo #1- Overview of multiple stems of *Galium kamtschaticum* in old logging trail drainage PEM wetland GALKAM003DMC.



Photo #2- *Galium kamtschaticum* GALKAM003DMC.



Photo #3- *Galium kamtschaticum* GALKAM003DMC displaying fruiting bodies.



Photo #4- *Galium kamtschaticum* GALKAM003DMC leaf structure

SPECIAL PLANT SURVEY FORM

Site:	<u>NECEC CMP Power</u>	Survey Site:	<u>S. of Jackson Pond Road</u>
Quad name:	<u>Bingham</u>	Quad code:	<u>45069A8</u>
County:	<u>Somerset</u>	Town:	<u>Concord</u>

Plant Name: Gentiana rubricaulis New Update Occurrence #:

Date: 6July2018	Surveyor(s): Art Gilman and Anna Ritchie	Sourcecode (MNAP assigns):
Primary Surveyor Address: Gilman and Briggs Environmental 1 Conti Cir # 5, Barre, VT 05641	Phone: (802) 479-7480	Email: avgilman@together.net

GPS Datum WGS 84 NAD 83 NAD 27 Other
 GPS Coordinates UTM Zone 19N Decimal Degrees (dd.dddd) Deg Min Sec (dd mm ss) GPS (dd mm.mm) Other
 North West Additional Coordinates Lat. 45.023784, Long. -69.883264

Directions to Occurrence: From Me, Rte. 16 in Concord, take Jackson Pond Road to CMP powerlines. On foot, follow powerlines S over knoll; access/woods road diverges E from open corridor, but follow this around E side of marshy wetland and re-enter open corridor. Plants are at marsh edge mostly along E side of open corridor but extending around powerline structure and across corridor on the side of the marsh and somewhat uphill.

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 150 <input checked="" type="checkbox"/> Individuals <input type="checkbox"/> Ramets Population Structure 100 % Vegetative 0 % Reproductive Other Comments:	Phenology <input checked="" type="checkbox"/> In leaf <input 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 type="checkbox"/> 5 – 20 square yards <input type="checkbox"/> 20 – 100 square yards <input checked="" 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: 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
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GENERAL DESCRIPTION

Associated natural community: Shallow marsh - sloping edge					
Associated plant species: Packera shweinitziana, Geum aleppicum, Thelypteris palustris, Platanthera psychodes,					
Substrate/soil type: Mapped as Berkshire f.s.l					
Threats to Population:					
Conservation/Management/Research needs:					
Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min 450ft ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE <input type="checkbox"/> E <input checked="" type="checkbox"/> NW <input type="checkbox"/> S <input type="checkbox"/> SE	<input type="checkbox"/> Flat <input checked="" type="checkbox"/> 0-10 <input type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> Vertical	<input checked="" type="checkbox"/> Open <input type="checkbox"/> Partial <input type="checkbox"/> Filtered <input type="checkbox"/> Shade	<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	<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)
Max ft / m	<input type="checkbox"/> W <input type="checkbox"/> SW <input type="checkbox"/> Flat or NA				



Photo 1. *Gentiana rubricalis* – S. of Jackson Pond Road. View of a plant from the top, showing shiny thicker leaves, clasping around the stem, and slightly whorled appearance



Photo 2. *Gentiana rubricalis* – S. of Jackson Pond Road. Closer view of a multi-stem cluster near cattails. The shiny leaf appearance and distinct leaf shape are apparent in this photo



Photo 3. *Gentiana rubricalis* – S. of Jackson Pond Road. Plants growing with associated species. This was a common association for the population



Photo 4. *Gentiana rubricalis* – S. of Jackson Pond Road. Plants growing with typical associated species. Photo also shows stem and leaf morphology

SPECIAL PLANT SURVEY FORM

Site:	NECEC CMP Power	Survey Site:	S. of Beaudoin Road
Quad name:	Pleasant Ridge Pit	Quad code:	45069A8
County:	Somerset	Town:	Moscow

Plant Name: Gentiana rubricaulis New Update Occurrence #:

Date: 11 July 2018	Surveyor(s): Art Gilman and Anna Ritchie	Sourcecode (MNAP assigns):
Primary Surveyor Address: Gilman and Briggs Environmental 1 Conti Cir # 5, Barre, VT 05641	Phone: (802) 479-7480	Email: avgilman@together.net

GPS Datum WGS 84 NAD 83 NAD 27 Other
 GPS Coordinates UTM Zone 19N Decimal Degrees (dd.dddd) Deg Min Sec (dd mm ss) GPS (dd mm.mm) Other
 North West Additional Coordinates Lat. 45.094096, Long. -69.878232

Directions to Occurrence: Drive north out of Bingham, take stream road and then a left onto Beaudoin road, follow until you reach the existing R
 Population extends from just south of the road to approximately 800 feet south, along the edges of the wetland along the west side of the clearing
 extending into the forest for approximately 30 feet.
 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 150 <input checked="" type="checkbox"/> Individuals <input type="checkbox"/> Ramets Population Structure 100 % Vegetative 0 % Reproductive	Phenology <input checked="" type="checkbox"/> In leaf <input 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 type="checkbox"/> 5 – 20 square yards <input type="checkbox"/> 20 – 100 square yards <input checked="" 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: 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
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Other Comments: Plants are distributed along the edges of the wetland, rarely extending into the supersaturated areas, however, in the forest, they are located on hummocks within the cedar swamp area.

GENERAL DESCRIPTION

Associated natural community: Shallow marsh - sloping edge and cedar swam hummocks
Associated plant species: Carex flava, Typha latifolia, Salix discolor
Substrate/soil type:
Threats to Population:
Conservation/Management/Research needs:

Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE <input type="checkbox"/> E <input type="checkbox"/> NW <input checked="" type="checkbox"/> S <input type="checkbox"/> SE	<input type="checkbox"/> Flat <input checked="" type="checkbox"/> 0-10 <input type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> Vertical	<input checked="" type="checkbox"/> Open <input type="checkbox"/> Partial <input checked="" type="checkbox"/> Filtered <input type="checkbox"/> Shade	<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	<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)
Max ft / m	<input type="checkbox"/> W <input type="checkbox"/> SW <input checked="" type="checkbox"/> Flat or NA				



Photo 1. *Gentiana rubricalis* – S. of Beaudoin Road. Plants growing along edge of wetland in open ROW.



Photo 2. *Gentiana rubricalis* – S. of Beaudoin Road. Plants growing within forested cedar swamp up to 30 feet into the forest from the open ROW edge



Photo 3. *Gentiana rubricalis* – S. of Beaudoin Road. Plants growing in the forest edge, on hummocks within a forested cedar swamp.



Photo 4. *Gentiana rubricalis* – S. of Beaudoin Road. Typical ROW growing habitat along the edge of a cattail wetland

SPECIAL PLANT SURVEY FORM

Site: <u>NECEC CMP Power</u>	Survey Site: <u>Wyman Dam Access Road</u>
Quad name: <u>Bingham</u>	Quad code: <u>45069A8</u>
County: <u>Somerset</u>	Town: <u>Moscow</u>

Plant Name: *Houstonia longifolia* New Update Occurrence #:

Date: 6 July 2018	Surveyor(s): Art Gilman and Anna Ritchie	Sourcecode (MNAP assigns):
Primary Surveyor Address: Gilman and Briggs Environmental 1 Conti Cir # 5, Barre, VT 05641	Phone: (802) 479-7480	Email: avgilman@together.net

GPS Datum WGS 84 NAD 83 NAD 27 Other
 GPS Coordinates UTM Zone 19N Decimal Degrees (dd.dddd) Deg Min Sec (dd mm ss) GPS (dd mm.mm) Other
 North West Additional Coordinates Lat. 45.067711, Long. -69.898568

Directions to Occurrence: Located to the south side of the Wyman Dam access road, where the current powerline ROW crosses the road as it crosses south from the dam

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 500 <input checked="" type="checkbox"/> Individuals <input type="checkbox"/> Ramets Population Structure 100 % Vegetative 0 % Reproductive	Phenology <input checked="" type="checkbox"/> In leaf <input checked="" 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 type="checkbox"/> 5 – 20 square yards <input type="checkbox"/> 20 – 100 square yards <input checked="" 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: Normal in recently (<10 years) disturbed microhabitats, vigor depressed in more stabilized (lichenized) microhabitats 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: mapped outer extent of disperse population. Individuals were very scattered; sometimes clumped and sometimes disperse. Number of individuals estimated between 400-500			

GENERAL DESCRIPTION

Associated natural community: Shallow marsh - slope edge

Associated plant species: *Danthonia spicata*, *Centaurea stoebe*, *Juniperus communis*, *Drymocallis arguta*, *Lechea intermedia*

Substrate/soil type: Gravel alluvium/ topsoil removed/scraped

Threats to Population:

Conservation/Management/Research needs:

Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE <input type="checkbox"/> E <input checked="" type="checkbox"/> NW <input type="checkbox"/> S <input type="checkbox"/> SE	<input type="checkbox"/> Flat <input checked="" type="checkbox"/> 0-10 <input type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> Vertical	<input checked="" type="checkbox"/> Open <input type="checkbox"/> Partial <input type="checkbox"/> Filtered <input type="checkbox"/> Shade	<input type="checkbox"/> Crest <input type="checkbox"/> Upper Slope <input type="checkbox"/> Mid-slope <input type="checkbox"/> Lower Slope <input type="checkbox"/> Bottom <input checked="" type="checkbox"/> Level Plain	<input type="checkbox"/> Inundated <input type="checkbox"/> Saturated (wet mesic) <input type="checkbox"/> Moist (mesic) <input checked="" type="checkbox"/> Dry-mesic <input type="checkbox"/> Dry (xeric)
Max ft / m	<input type="checkbox"/> W <input type="checkbox"/> SW <input checked="" type="checkbox"/> Flat or NA				

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Do other members of this genus occur at this site? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes Houstonia caerulea (a few)
	Collection #	If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
	Repository	Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Plant habit of two species much different

Landowner name/address for entire population (attach additional owner information on a separate sheet):	Phone	Is landowner aware of plant? <input type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input 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 checked="" 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: Powerline corridor near dam operations on river terrace

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:** Plants most vigorous in areas disturbed for pole intallation a few years ago.

SIZE / QUALITY: How large is this population relative to typical populations of this species? Large
 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: When first observed this was a very large, very vigorous population but is now much smaller in terms of numbers and vigor of plants, due primarily to stabilization of the habitat, especially by lichens (which acidify habitat conditions and suppress plant growth, seedlign survival, etc.).

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:

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: Not a natural habitat; maintained by powerline maintenance

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

Comments: Rank diminishing but still a large population, and likely a large seed-bank present as well.

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

Date: Reviewer: Rationale:



Photo 1. *Houstonia longifolia*. Plant in flower, growing in lichen cover.



Photo 2. *Houstonia longifolia*. Plants in flower and in leaf. Photo shows the typical growing conditions and view of area on upper river terrace.



Photo 3. *Houstonia longifolia*. Close up view of flower shape and leaf shape; growing in typical substrate.

Photo 4. *Houstonia longifolia*. Robust clump of flowering stems growing in open gravel.

SPECIAL PLANT SURVEY FORM

Site: <u>NECEC CMP Power</u>	Survey Site: <u>NECE - CMP Corridor West</u>
Quad name: <u>Lake Auburn East</u>	Quad code: <u>44070B2</u>
County: <u>Androscoggin</u>	Town: <u>Greene</u>

Plant Name: *Isotria medeoloides* New Update Occurrence #: 1

Date: 5 July2018	Surveyor(s): Art Gilman and Anna Ritchie	Sourcecode (MNAP assigns):
Primary Surveyor Address: Gilman and Briggs Environmental 1 Conti Cir # 5, Barre, VT 05641	Phone: (802) 479-7480	Email: avgilman@together.net

GPS Datum WGS 84 NAD 83 NAD 27 Other
 GPS Coordinates UTM Zone 19N Decimal Degrees (dd.dddd) Deg Min Sec (dd mm ss) GPS (dd mm.mm) Other
 North West Additional Coordinates Lat. 44.221891, Long. -70.168584

Directions to Occurrence: S of Allen Pond Campground Road, W side of CMP corridor, in forest ca. 90" W of treeline.
 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 1 <input checked="" type="checkbox"/> Individuals <input type="checkbox"/> Ramets Population Structure 100 % Vegetative % Reproductive	Phenology <input checked="" type="checkbox"/> In leaf <input 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 checked="" type="checkbox"/> 1 square yard <input type="checkbox"/> 1 – 5 square yards <input 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: Moderate to robust 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: Moderate mixed forest

Associated plant species: Trees 30'=TSUEA 30%, Red oak 40%, Red Maple 15%, Yellow Birch 15%, no understory vegetation in immediate vicinity; no herbs within 2 feet

Substrate/soil type: mineral soil covered by 2 inches of leaf litter and duff (red oak, yellow birch, beech, pine)

Threats to Population: just outside proposed clearing limits for the proposed corridor

Conservation/Management/Research needs:

Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min ft / m	<input checked="" 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 type="checkbox"/> Flat or NA	<input type="checkbox"/> Flat <input type="checkbox"/> 0-10 <input type="checkbox"/> 10-35 <input checked="" type="checkbox"/> 35+ <input type="checkbox"/> Vertical	<input type="checkbox"/> Open <input type="checkbox"/> Partial <input type="checkbox"/> Filtered <input checked="" type="checkbox"/> Shade	<input type="checkbox"/> Crest <input type="checkbox"/> Upper Slope <input checked="" type="checkbox"/> Mid-slope <input type="checkbox"/> Lower Slope <input type="checkbox"/> Bottom <input type="checkbox"/> Level Plain	<input type="checkbox"/> Inundated <input type="checkbox"/> Saturated (wet mesic) <input checked="" type="checkbox"/> Moist (mesic) <input checked="" type="checkbox"/> Dry-mesic <input type="checkbox"/> Dry (xeric)
Max ft / m					

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Do other members of this genus occur at this site? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
	Collection #	If yes, are there hybridization issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
	Repository	Are there identification issues? <input checked="" type="checkbox"/> No; <input type="checkbox"/> Yes; Explain Slight possibility it might be <i>I. verticillata</i> , which is not currently known to be extant in Maine.

Landowner name/address for entire population (attach additional owner information on a separate sheet):	Phone	Is landowner aware of plant? <input type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input 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 ~ >60 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: Approximately 90ft into the forest from edge of existing ROW clearing

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? Low 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: One plant, vigorous but no flowers this year.

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:

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:



Photo 1. *Isotria medeoloides* growing along a steep embankment in leaf litter.



Photo 2. Photo showing habitat *Isotria medeoloides* was growing in; just up and to the right of the tree on the left side of the photo, with the yellow flagging wrapped around it.



Photo 3. *Isotria medeoloides* growing on steep hillslope leading to small forested stream.



Photo 4. Photo showing hillslope plant was growing on, the stream below, and the forest community it is growing within.

I. IDENTIFIERS / LOCATION

Site Name: NECEC FID #11		Obs. Pt. #: JACKPINEWO OD004DMC	Quadcode:
Field-assigned Community Type: Jack Pine Forest		USGS 7.5' Quad Name: Spencer Lake Quadrangle	
Identification or classification difficulties? Describe: None		Town: Bradstreet Township T4 R7	
MNAP REVIEWED/EdITED TYPE:		Occurrence #:	County: Somerset
LANDOWNER INFORMATION: for each landowner		Date: 7/18/18	
Map	Lot	Name (& address if new landowner)	
		Surveyors: Duane Choquette & Tom Errico	
		SourceCode: F _____	
		Biophysical Region: Western Mountains	

GPS Coordinates (NAD 83, UTM Zone 19N; Other-please specify) centerpoint Lat: 45.49568, Long: -70.25400
 Directions to occurrence: From the Town of Jackman, Maine: Take State Route 201 south to Spencer Road. Spencer Road west to Moore Pond, Proceed north to Egg Pond. Jack Pine woodland is northwest of Egg pond, between egg pond and Bitter Brook.

Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.

FEATURE MAP. Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation. Locational uncertainty refers to any uncertainty there is as to where the actual observation occurred. Confidence extent indicates how confident you are that the observed area represents the full extent of the feature.

Locational Uncertainty:None

Areal delimited

Mapped to within 12.5 m of actual location

Greater uncertainty (please indicate)

_____ 50 _____ m / ft / km / miles

Confidence Extent:

Y - Confident full extent of feature **IS** known

N - Confident full extent is **NOT** known

? - **Uncertain** whether full extent is known

GENERAL DESCRIPTION OF COMMUNITY(See instructions for guidelines):

Predominately Jack pine (70%), with mixed white pine, red pine and red spruce in the canopy. The understory is dry and open, with lowbush blueberries and laurels found sporadically in patches. The Jack Pine woodland abuts regenerating clear-cuts to both the east and west, which are dominated by young red spruce, though scattered young jack pines can be found throughout.

<p>SAMPLE TYPE:</p> <p><input type="checkbox"/> Brief descriptive – NOT SUFFICIENT FOR DOCUMENTING NEW EOs</p> <p><input checked="" type="checkbox"/> Generalized cover estimates & dbhs (p2)</p> <p><input type="checkbox"/> Nested plot samples (N = _____) (attach)</p>	<p>Additional sampling recommended?</p> <p>X <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Photos: X <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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II. VEGETATION BY STRATA

Community name & EO#:

TREE LAYER (canopy plus emergents, everything ≥ 10 cm dbh)								
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% <input checked="" type="checkbox"/> 60% <input checked="" type="checkbox"/> 70% 80% 90+%				Total Basal Area: ft ² /acre	Conifer %:100	Canopy height _50ft_____ m or ft Supercanopy spp?		
Species name/code	Cover class*	Dbh range X <input type="checkbox"/> in <input type="checkbox"/> cm	Core ages	Species name/code	Cover class*	Dbh range <input type="checkbox"/> in <input type="checkbox"/> cm	Core ages	<input type="checkbox"/> check here if plot data are attached instead
<i>Pinus banksiana</i>	87							
<i>Pinus strobus</i>	9	6-8						
<i>Picea rubens</i>	9	6-8						
<i>Pinus resinosa</i>	1	4-8						

SAPLING / TALL SHRUB LAYER (> 3 m tall and < 10 cm dbh)				
TOTAL COVER OF STRATUM: <5% <input checked="" type="checkbox"/> 10% 20% 30% 40% 50% 60% 70% 80% 90+%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Picea rubens</i>	3			
<i>Pinus banksiana</i>	9			

SHRUB LAYER (woody plants ~1 - 3 m tall)				
TOTAL COVER OF STRATUM: <5% 10% <input checked="" type="checkbox"/> 20% 30% 40% 50% 60% 70% 80% 90+%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Kalmia angustifolia</i>	19			
<i>Vaccinium angustifolium</i>	19			

HERB / DWARF SHRUB LAYER (all herbaceous vascular plants plus any woody plants < 1 m tall)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% <input checked="" type="checkbox"/> 40% 50% 60% 70% 80% 90+%		DOMINANCE : tree regen__10__%; shrub__10__%; graminoid__0__%; forb__20__%		
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Pteridium aquilinum</i>	37			
<i>Gaultheria procumbens</i>	19			
<i>Cornus canadensis</i>	19			

BRYOID LAYER (all ground-layer non-vascular plants; do not include epiphytes)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% <input checked="" type="checkbox"/> 70% 80% 90+%		DOMINANCE: bryophytes__100__% lichens _____%		
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Pleurozium schreberi</i>	87			
<i>Huperzia lucidula</i>	19			

*cover classes (midpoint): < 2%= 1, 2-5%= 3, 6-12%= 9, 13-24%= 19, 25-49%= 37, 50-74%= 63, 75-100%= 87

ADDITIONAL SPECIES within area where vegetation cover by strata were taken						OTHER PLANT SPP seen in community (spp codes), for complete plant species list
Stratum	Species code	Cover class	Stratum	Species code	Cover class	

III. ENVIRONMENTAL SETTING

Community name & EO#:

<p>SOILS (rooting zone): Sample #_004_</p> <p>Depth to which soil examined ___25cm___</p> <p>Organic layer depth ___12___ cm or <input type="checkbox"/> >1 m</p> <p>Mineral layer below organic? ___yes___ depth ___12cm___</p> <p>Mottling in top 30 cm? ___No___ depth _____</p> <p>Depth to water table: ___unknown___</p> <p>Depth to obstruction: ___25cm___ nature of obstruction: ___bedrock___</p> <p>Stoniness: <input type="checkbox"/> very little (<1%) / <input checked="" type="checkbox"/> moderate (2-25%) / <input type="checkbox"/> very (>25%)</p> <p>pH: ___unknown___ measured in <input type="checkbox"/> soil or <input type="checkbox"/> interstitial water</p> <p>vonPost decomposition (peat substrates only) _____ at _____ deep</p>		<p>ELEVATION: 1200ft <input type="checkbox"/> m or <input checked="" type="checkbox"/> ft?</p>	<p>ASPECT (TRUE): South</p>	<p>SLOPE : Include units! (45° = 100%) 10% = 25% <input type="checkbox"/> measured <input checked="" type="checkbox"/> estimated</p>
<p>AVERAGE TEXTURE: <input type="checkbox"/> gravel <input type="checkbox"/> sand <input checked="" type="checkbox"/> loamy sand / sandy loam <input type="checkbox"/> loam <input type="checkbox"/> silt loam <input type="checkbox"/> clay loams <input type="checkbox"/> sandy clay / clay <input type="checkbox"/> peat <input type="checkbox"/> muck</p>		<p>DRAINAGE & MOISTURE REGIME (see MAPPSS key): <input type="checkbox"/> very poorly drained <input type="checkbox"/> poorly drained <input type="checkbox"/> somewhat poorly drained <input type="checkbox"/> moderately well drained <input type="checkbox"/> well drained <input type="checkbox"/> somewhat excessively drained <input type="checkbox"/> excessively drained</p>		
<p>BEDROCK TYPE: <input type="checkbox"/> Igneous <input checked="" type="checkbox"/> granite <input type="checkbox"/> dioritic <input type="checkbox"/> gabbro <input type="checkbox"/> Metamorphic <input type="checkbox"/> slate/phyllite <input type="checkbox"/> schist/gneiss <input type="checkbox"/> Sedimentary <input type="checkbox"/> limestone <input type="checkbox"/> other details?</p>		<p>HYDROLOGIC REGIME: <input type="checkbox"/> upland <input type="checkbox"/> nontidal wetland: <input type="checkbox"/> perm flooded <input type="checkbox"/> semiper flooded <input type="checkbox"/> seasonally fld. <input type="checkbox"/> saturated <input type="checkbox"/> tidal – irreg. fld. <input type="checkbox"/> tidal – reg. fld. <input type="checkbox"/> saltwater <input type="checkbox"/> brackish <input type="checkbox"/> freshwater <input type="checkbox"/> unknown</p>	<p>HABITAT PATCHINESS (describe zones or patches if present): Dense central stand, outer edges border logging clearcuts with regenerating spuce being dominant.</p>	
<p>TOPOGRAPHIC POSITION <input type="checkbox"/> D drainage channel <input type="checkbox"/> P low plain, level <input type="checkbox"/> N narrow valley <input type="checkbox"/> T toe of slope <input type="checkbox"/> L lower slope <input type="checkbox"/> M middle slope <input checked="" type="checkbox"/> T hillside terrace <input type="checkbox"/> U upper slope <input type="checkbox"/> E cliff/ledge <input type="checkbox"/> S ridge, summit, crest</p>		<p>MICROTOPOGRAPHY: Jack Pine Forest is on a small hill overlooking regenerating clear cuts on West, North and East sides.</p>		
<p>SURFICIAL DEPOSIT: <input checked="" type="checkbox"/> bedrock <input type="checkbox"/> talus slope <input type="checkbox"/> glacial till <input type="checkbox"/> moraine <input type="checkbox"/> esker/outwash <input type="checkbox"/> glacial delta <input type="checkbox"/> lacustrine/fluvial <input type="checkbox"/> marine <input type="checkbox"/> aeolian <input type="checkbox"/> other:</p>				

THREATS TO COMMUNITY? Logging

MANAGEMENT / PROTECTION NEEDS?

OTHER COMMENTS: animal use, species distribution notes, etc.

Jack pine forest northwest of Egg pond. The stand is bordered by three large logging cuts, to the north east, and west. The Jack pine Forest extends south outside of the study corridor. An examination of aerial photography and field reconnaissance shows the jack pine forest ending in a spruce bog community.

IV. SUMMARY AND RANKING

Community name & EO#:

Applicable National Type:	NVC CODE: CEGL00_____	Comment re fit to type?
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COMMUNITY RANKING

1. CURRENT CONDITION and quality of the community itself.

- Comment on the species composition and biological structure of the community (species diversity, indicator species, development/maturity, etc.) For forests: Do you consider this to be old growth? If so, based on what?
- Natural and anthropogenic disturbance **within** the community (check off, then describe extent and how recent below)

<input checked="" type="checkbox"/> Logging – most recently c. <u>20+</u> yrs ago	<input type="checkbox"/> Animal effects (insect outbreaks, browsing)
<input type="checkbox"/> Agriculture / pasture	<input type="checkbox"/> Erosion
<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or Mining
<input type="checkbox"/> Wind or ice damage	<input checked="" type="checkbox"/> ORV / vehicle disturbance
<input type="checkbox"/> Impoundment	<input type="checkbox"/> Trails / roads
<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Other, list

List disturbance(s): to what degree have these altered natural ecological processes, and/or do they appear to effect the population? The surrounding area has been heavily logged, and is not dominated by regenerating spruce stands. The Jack Pine forest is primarily younger trees (<10 dbh), and in the past likely extended into another stand of Jack Pine approximately 500 ft to the west (See JACKPINE WOOD005DMC).

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

2. SIZE / QUALITY:

What is the approximate size of the community occurrence? 2.8 acres acres / hectares

Covers the natural extent of this community type Has been truncated through adjacent land use

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

3. LANDSCAPE CONTEXT of the area surrounding the community:

What land uses and/or natural communities surround the observed area? Describe the types and extent of anthropogenic disturbance **around** the observed area, and to what degree this may affect the observed community. To what degree can the observed community be protected from effects of adjacent land uses?

Upwards of 80% of the surrounding community has been directly impacted from logging activities. To the north, east and west, recent activities have cleared the pre-existing forest terrain, and the area is regenerating with mixed conifers, mainly spruce. To the south the Jack pine forest extends outside the survey area. From aerial imagery it appears the entire stand may encompass approximately 6 acres, though less than 3 acres is located within the project's survey area.

A – Community surrounded by >= 1000 acres of undisturbed landscape.
 B – Community surrounded by fairly intact landscape, though there may be cuts nearby.
 C – Community surrounded by fragmented forest or rural landscape.
 D – Surrounding area developed.

OVERALL RANK for Community 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:

PART II (con't): VEGETATION DATA from PLOT SAMPLING (replacing spp lists on p. 2, in cases where plots are taken)

Community type:		EOnum:													
LAYER	plot #														
TREE list species and dbh for all trees >= 10 cm dbh; <i>count standing</i> <i>dead as 1 species.</i> note units: <u>QUAD SIZE:</u> note which size used 5.64 m radius for 1/100th ha 7.98 m radius for 2/100th ha use same size throughout!															
DEADWOOD (use tree plot) <u>LARGE:</u> (≥ 10cm dia); measure length in plot & middle dia): LIST DOM. SPP (IF KNOWN) <u>SMALL</u> (< 10 cm diameter): 1: < 5% 2: 6-24% 3: 25%+															
SAPLING cover class by species of: trees/shrubs > 3 m tall but < 10 cm dbh; <u>PLOT SIZE:</u> 2.8 m radius															
SHRUB cover class by species of woodies > 1 m tall but < 3 m tall; <u>PLOT SIZE:</u> 2.8 m radius															
HERB cover class* by species for all herbaceous plants <u>plus</u> any woodies < 1 m tall <u>QUAD SIZE:</u> 1 m ² , 4 herb quads per tree plot. Enter individual cover values in right-hand columns Remember the zeros for spp present in some but not all herb quads.	<i>Species</i>					<i>Species</i>					<i>Species</i>				
BRYOID ground-layer mosses, liverwort, lichens in herb quads. resolution (check one): <input type="checkbox"/> "moss"/"liverwort"/"lichen" only; <input type="checkbox"/> identified to major group ("peat mosses, broom mosses, feather mosses", etc.); <input type="checkbox"/> identified to genus; <input type="checkbox"/> identified to species.															
REMARKS:															

In box on p.3, list plant spp. present in the community but not in the sample plots so we have a complete species list.
* cover classes (record midpoint): < 2 1 2-5% 3 6-12% 9 13-24% 19 25-49% 37 50-74% 63 75-100% 87



Photo #1- Overview of Jack Pine Forest Natural Community looking west JACKPINEWOOD004DMC.



Photo #2- Jack Pine Forest community looking west JACKPINEWOOD004DMC.



Photo #3- Jack Pine (*Pinus banksiana*) JACKPINEWOOD004DMC showing characteristic cone morphology.



Photo #4- Jack Pine Forest community looking northwest JACKPINEWOOD004DMC.

I. IDENTIFIERS / LOCATION

Site Name: NECEC FID #11		Obs. Pt. #: JACKPINEWO OD005DMC	Quadcode:
Field-assigned Community Type: Jack Pine Forest		USGS 7.5' Quad Name: Spencer Lake Quadrangle	
Identification or classification difficulties? Describe: No issues with identification		Town: Bradstreet Township T4 R7	
MNAP REVIEWED/EdITED TYPE:		Occurrence #:	County: Somerset
LANDOWNER INFORMATION: for each landowner		Date: 7/18/18	
Map	Lot	Name (& address if new landowner)	
		Surveyors: Duane Choquette & Tom Errico	
		SourceCode: F _____	
		Biophysical Region: Western Mountains	

GPS Coordinates (NAD 83, UTM Zone 19N; Other-please specify) centerpoint Lat: 45.49638, Long: -70.25782
 Directions to occurrence: From the Town of Jackman, Maine: Take State Route 201 south to Spencer Road. Spencer Road west to Moore Pond, Proceed north to Egg Pond. Jack Pine woodland is west-northwest of Egg pond, between egg pond and Bitter Brook.

Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.

FEATURE MAP. Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation. Locational uncertainty refers to any uncertainty there is as to where the actual observation occurred. Confidence extent indicates how confident you are that the observed area represents the full extent of the feature.

Locational Uncertainty:None

Areal delimited

Mapped to within 12.5 m of actual location

Greater uncertainty (please indicate)

_____ 50 _____ m / ft / km / miles

Confidence Extent:

Y - Confident full extent of feature **IS** known

N - Confident full extent is **NOT** known

? - **Uncertain** whether full extent is known

GENERAL DESCRIPTION OF COMMUNITY(See instructions for guidelines):

Predominately Jack pine (90%), with mixed red pine and red spruce in the canopy. The understory is dry and open, with lowbush blueberries, laurels, and snowberries found sporadically in patches, with bracken fern present in areas where the canopy thins. The Jack Pine woodland abuts regenerating clear-cuts to both the east and west, which are dominated by young red spruce, though scattered young jack pines can be found throughout.

<p>SAMPLE TYPE:</p> <p><input type="checkbox"/> Brief descriptive – NOT SUFFICIENT FOR DOCUMENTING NEW EOs</p> <p><input checked="" type="checkbox"/> Generalized cover estimates & dbhs (p2)</p> <p><input type="checkbox"/> Nested plot samples (N = _____) (attach)</p>	<p>Additional sampling recommended?</p> <p>X <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Photos: X <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
---	---

II. VEGETATION BY STRATA

Community name & EO#:

TREE LAYER (canopy plus emergents, everything ≥ 10 cm dbh)								
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% <u>90+</u> %				Total Basal Area: ft ² /acre	Conifer %:100	Canopy height _60ft_____ m or ft Supercanopy spp?		
Species name/code	Cover class*	Dbh range cm <input checked="" type="checkbox"/> in <input type="checkbox"/>	Core ages	Species name/code	Cover class*	Dbh range <input type="checkbox"/> in <input type="checkbox"/> cm	Core ages	<input type="checkbox"/> check here if plot data are attached instead
<i>Pinus banksiana</i>	87	8-10						
<i>Pinus strobus</i>	1	8-10						
<i>Picea rubens</i>	9	6-8						
<i>Pinus resinosa</i>	1	6-8						

SAPLING / TALL SHRUB LAYER (> 3 m tall and < 10 cm dbh)				
TOTAL COVER OF STRATUM: <5% <u>10%</u> 20% 30% 40% 50% 60% 70% 80% 90+%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Picea rubens</i>	19			
<i>Pinus banksiana</i>	63			

SHRUB LAYER (woody plants ~1 - 3 m tall)				
TOTAL COVER OF STRATUM: <5% 10% 20% <u>30%</u> 40% 50% 60% 70% 80% 90+%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Kalmia angustifolia</i>	19			
<i>Vaccinium angustifolium</i>	19			

HERB / DWARF SHRUB LAYER (all herbaceous vascular plants plus any woody plants < 1 m tall)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% <u>40%</u> 50% 60% 70% 80% 90+%			DOMINANCE : tree regen __10__ %; shrub __10__ %; graminoid __0__ %; forb __20__ %	
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Pteridium aquilinum</i>	37			
<i>Gaultheria procumbens</i>	19			
<i>Cornus canadensis</i>	19			
<i>Gaultheria hispidula</i>	9			

BRYOID LAYER (all ground-layer non-vascular plants; do not include epiphytes)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% <u>80%</u> 90+%			DOMINANCE: bryophytes __100__ % lichens _____ %	
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Pleurozium schreberi</i>	87			
<i>Huperzia lucidula</i>	9			

*cover classes (midpoint): < 2%= 1, 2-5%= 3, 6-12%= 9, 13-24%= 19, 25-49%= 37, 50-74%= 63, 75-100%= 87

ADDITIONAL SPECIES within area where vegetation cover by strata were taken			OTHER PLANT SPP seen in community (spp codes), for complete plant species list		
Stratum	Species code	Cover class	Stratum	Species code	Cover class

III. ENVIRONMENTAL SETTING

Community name & EO#:

<p>SOILS (rooting zone): Sample # <u>005</u></p> <p>Depth to which soil examined <u>36</u> cm</p> <p>Organic layer depth <u>15</u> cm or <input type="checkbox"/> >1 m</p> <p>Mineral layer below organic? <input type="checkbox"/> yes depth <u>21</u> cm</p> <p>Mottling in top 30 cm? <input type="checkbox"/> No depth _____</p> <p>Depth to water table: <u>unknown</u></p> <p>Depth to obstruction: <u>36</u> cm nature of obstruction: <u>bedrock</u></p> <p>Stoniness: <input type="checkbox"/> very little (<1%) / <input checked="" type="checkbox"/> moderate (2-25%) / <input type="checkbox"/> very (>25%)</p> <p>pH: <u>unknown</u> measured in <input type="checkbox"/> soil or <input type="checkbox"/> interstitial water</p> <p>vonPost decomposition (peat substrates only) _____ at _____ deep</p>		<p>ELEVATION: 1250ft <input type="checkbox"/> m or <input checked="" type="checkbox"/> ft?</p>	<p>ASPECT (TRUE): South</p>	<p>SLOPE : Include units! (45° = 100%) 10% = 25% <input type="checkbox"/> measured <input checked="" type="checkbox"/> estimated</p>	
<p>AVERAGE TEXTURE:</p> <p><input type="checkbox"/> gravel</p> <p><input type="checkbox"/> sand</p> <p><input checked="" type="checkbox"/> loamy sand / sandy loam</p> <p><input type="checkbox"/> loam</p> <p><input type="checkbox"/> silt loam</p> <p><input type="checkbox"/> clay loams</p> <p><input type="checkbox"/> sandy clay / clay</p> <p><input type="checkbox"/> peat</p> <p><input type="checkbox"/> muck</p>		<p>DRAINAGE & MOISTURE REGIME (see MAPPSS key):</p> <p><input type="checkbox"/> very poorly drained</p> <p><input type="checkbox"/> poorly drained</p> <p><input type="checkbox"/> somewhat poorly drained</p> <p><input type="checkbox"/> moderately well drained</p> <p><input type="checkbox"/> well drained</p> <p><input type="checkbox"/> somewhat excessively drained</p> <p><input type="checkbox"/> excessively drained</p>			
<p>HYDROLOGIC REGIME:</p> <p><input type="checkbox"/> upland</p> <p><input type="checkbox"/> nontidal wetland: <input type="checkbox"/> perm flooded <input type="checkbox"/> semiper flooded <input type="checkbox"/> seasonally fld. <input type="checkbox"/> saturated</p> <p><input type="checkbox"/> tidal - irreg. fld. <input type="checkbox"/> tidal - reg. fld. <input type="checkbox"/> saltwater <input type="checkbox"/> brackish <input type="checkbox"/> freshwater</p> <p><input type="checkbox"/> unknown</p>		<p>HABITAT PATCHINESS (describe zones or patches if present):</p> <p>Dense central stand, outer edges border logging clearcuts with regenerating spuce being dominant.</p>			
<p>MICROTOPOGRAPHY:</p> <p>Jack Pine Forest is surrounded by regenerating clear cuts on West, North and East sides. A depression containing a Black spruce bog is located within the Jack Pine forest along the southern survey limit.</p>		<p>BEDROCK TYPE:</p> <p><input type="checkbox"/> Igneous <input checked="" type="checkbox"/> granite <input type="checkbox"/> dioritic <input type="checkbox"/> gabbroic</p> <p><input type="checkbox"/> Metamorphic <input type="checkbox"/> slate/phyllite <input type="checkbox"/> schist/gneiss</p> <p><input type="checkbox"/> Sedimentary <input type="checkbox"/> limestone <input type="checkbox"/> other</p> <p>details?</p>		<p>TOPOGRAPHIC POSITION</p> <p><input type="checkbox"/> D drainage channel</p> <p><input type="checkbox"/> P low plain, level</p> <p><input type="checkbox"/> N narrow valley</p> <p><input type="checkbox"/> T toe of slope</p> <p><input type="checkbox"/> L lower slope</p> <p><input checked="" type="checkbox"/> M middle slope</p> <p><input type="checkbox"/> T hillside terrace</p> <p><input type="checkbox"/> U upper slope</p> <p><input type="checkbox"/> E cliff/ledge</p> <p><input type="checkbox"/> S ridge, summit, crest</p>	<p>SURFICIAL DEPOSIT:</p> <p><input checked="" type="checkbox"/> bedrock</p> <p><input type="checkbox"/> talus slope</p> <p><input type="checkbox"/> glacial till</p> <p><input type="checkbox"/> moraine</p> <p><input type="checkbox"/> esker/outwash</p> <p><input type="checkbox"/> glacial delta</p> <p><input type="checkbox"/> lacustrine/fluvial</p> <p><input type="checkbox"/> marine</p> <p><input type="checkbox"/> aeolian</p> <p><input type="checkbox"/> other:</p>

THREATS TO COMMUNITY? Logging**MANAGEMENT / PROTECTION NEEDS?****OTHER COMMENTS:** animal use, species distribution notes, etc.

This Jack Pine Forest is located approximately 1500 ft west-northwest of Egg Pond, and extends both north and south from the survey area. In the Southern segment, the Jack Pine Forest surrounds a large depression containing a Black Spruce bog. Heavy logging has occurred to the east and west of the Jack Pine Forest, and scattered jack pine saplings can be found in these regenerating clear-cuts. The clear cuts are spruce dominant.

IV. SUMMARY AND RANKING

Community name & EO#:

Applicable National Type:	NVC CODE: CEGL00_____	Comment re fit to type?
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COMMUNITY RANKING

1. CURRENT CONDITION and quality of the community itself.

- Comment on the species composition and biological structure of the community (species diversity, indicator species, development/maturity, etc.) For forests: Do you consider this to be old growth? If so, based on what?
- Natural and anthropogenic disturbance **within** the community (check off, then describe extent and how recent below)

<input checked="" type="checkbox"/> Logging – most recently c. <u>20+</u> yrs ago	<input type="checkbox"/> Animal effects (insect outbreaks, browsing)
<input type="checkbox"/> Agriculture / pasture	<input type="checkbox"/> Erosion
<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or Mining
<input type="checkbox"/> Wind or ice damage	<input checked="" type="checkbox"/> ORV / vehicle disturbance
<input type="checkbox"/> Impoundment	<input checked="" type="checkbox"/> Trails / roads
<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Other, list

List disturbance(s): to what degree have these altered natural ecological processes, and/or do they appear to effect the population? The surrounding area has been heavily logged, and is not dominated by regenerating spruce stands. The Jack Pine forest is primarily younger trees (<10 dbh), and in the past likely extended into another stand of Jack Pine approximately 500 ft to the west (See JACKPINE WOOD004DMC).

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

2. SIZE / QUALITY:

What is the approximate size of the community occurrence? 4.7 acres acres / hectares

Covers the natural extent of this community type Has been truncated through adjacent land use

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

3. LANDSCAPE CONTEXT of the area surrounding the community:

What land uses and/or natural communities surround the observed area? Describe the types and extent of anthropogenic disturbance **around** the observed area, and to what degree this may affect the observed community. To what degree can the observed community be protected from effects of adjacent land uses?

Upwards of 80% of the surrounding community has been directly impacted from logging activities. To the north, east and west, recent activities have cleared the pre-existing forest terrain, and the area is regenerating with mixed conifers, mainly spruce. To the south the Jack pine forest extends outside the survey area. From aerial imagery it appears the entire stand may encompass approximately 20 acres, though less than 5 acres is located within the project's survey area.

A – Community surrounded by >= 1000 acres of undisturbed landscape.
 B – Community surrounded by fairly intact landscape, though there may be cuts nearby.
 C – Community surrounded by fragmented forest or rural landscape.
 D – Surrounding area developed.

OVERALL RANK for Community 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:



Photo #1- Overview of Jack Pine Forest Natural Community looking northwest JACKPINEWOOD005DMC.



Photo #2- Jack Pine Forest community looking west JACKPINEWOOD005DMC.



Photo #3- Jack Pine Natural community looking west JACKPINEWOOD005DMC.



Photo #4- Jack Pine Forest community looking north along logging trail JACKPINEWOOD005DMC.

I. IDENTIFIERS / LOCATION

Site Name: NECEC FID #12		Obs. Pt. #: JACKPINEWO OD006DMC	Quadcode:
Field-assigned Community Type: Jack Pine Forest		USGS 7.5' Quad Name: Enchanted Pond Quadrangle	
Identification or classification difficulties? Describe: No issues with identification		Town: Bradstreet Township T4 R7	
MNAP REVIEWED/EdITED TYPE:		Occurrence #:	County: Somerset
LANDOWNER INFORMATION: for each landowner		Date: 7/18/18	
Map	Lot	Name (& address if new landowner)	
		Surveyors: Duane Choquette & Tom Errico	
		SourceCode: F _____	
		Biophysical Region: Western Mountains	

GPS Coordinates (NAD 83, UTM Zone 19N; Other-please specify) centerpoint Lat: 45.49638, Long: -70.25782

Directions to occurrence: From the Town of Jackman, Maine: Take State Route 201 south to Spencer Road. Spencer Road approximately 7 miles west. Turn north onto logging road and bear left. The road ends in a log landing at the start of the Jack Pone Forest. Proceed west into the Jack pine Forest.

Strongly recommend use of air photos and USGS topographic maps for relocation of the site on the ground.

FEATURE MAP. Please attach a map, preferably 1:24,000 scale topo map, showing the location of the observation. Locational uncertainty refers to any uncertainty there is as to where the actual observation occurred. Confidence extent indicates how confident you are that the observed area represents the full extent of the feature.

Locational Uncertainty:None

Areal delimited

Mapped to within 12.5 m of actual location

Greater uncertainty (please indicate)

_____ 50 _____ m / ft / km / miles

Confidence Extent:

Y - Confident full extent of feature **IS** known

N - Confident full extent is **NOT** known

? - **Uncertain** whether full extent is known

GENERAL DESCRIPTION OF COMMUNITY(See instructions for guidelines):

Predominately Jack pine (70%), with mixed red pine, red spruce, and balsam fir in the canopy. The understory is dry and open, with brackenfern and bunchberry found throughout. The Jack Pine Forest is fairly extensive, extending outside of the survey area to the north and south. The Forest also spans a large alder-dominant stream valley and two smaller wetland seeps. The Jack Pine gives way to a spruce and fir dominant forest to the south. Sugar maples saplings appear sporadically in the understory in the western edge of the Jack Pine Forest.

<p>SAMPLE TYPE:</p> <p><input type="checkbox"/> Brief descriptive – NOT SUFFICIENT FOR DOCUMENTING NEW EOs</p> <p><input checked="" type="checkbox"/> Generalized cover estimates & dbhs (p2)</p> <p><input type="checkbox"/> Nested plot samples (N = _____) (attach)</p>	<p>Additional sampling recommended?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Photos: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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II. VEGETATION BY STRATA

Community name & EO#:

TREE LAYER (canopy plus emergents, everything ≥ 10 cm dbh)									
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				Total Basal Area: ft ² /acre	Conifer %:100	Canopy height _80ft_____ m or ft Supercanopy spp?			
Species name/code	Cover class*	Dbh range cm	<input checked="" type="checkbox"/> in <input type="checkbox"/>	Core ages	Species name/code	Cover class*	Dbh range <input type="checkbox"/> in <input type="checkbox"/> cm	Core ages	<input type="checkbox"/> check here if plot data are attached instead
<i>Pinus banksiana</i>	87	10-14							
<i>Pinus strobus</i>	3	12-16							
<i>Picea rubens</i>	19	8-10							
<i>Abies balsamea</i>	9								

SAPLING / TALL SHRUB LAYER (> 3 m tall and < 10 cm dbh)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Picea rubens</i>	19			
<i>Pinus banksiana</i>	37			
<i>Abies balsamea</i>	19			

SHRUB LAYER (woody plants ~1 - 3 m tall)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%				
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Kalmia angustifolia</i>	3			
<i>Vaccinium angustifolium</i>	3			

HERB / DWARF SHRUB LAYER (all herbaceous vascular plants plus any woody plants < 1 m tall)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%			DOMINANCE : tree regen__10__%; shrub__10__%; graminoid__0__%; forb__20__%	
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Pteridium aquilinum</i>	37			
<i>Gaultheria procumbens</i>	19			
<i>Cornus canadensis</i>	37			
<i>Gaultheria hispidula</i>	9			

BRYOID LAYER (all ground-layer non-vascular plants; do not include epiphytes)				
TOTAL COVER OF STRATUM: <5% 10% 20% 30% 40% 50% 60% 70% 80% 90+%			DOMINANCE: bryophytes__100__% lichens _____%	
Species name/code	Cover class*	Species name/code	Cover class*	<input type="checkbox"/> check here if plot data are attached instead
<i>Pleurozium schreberi</i>	87			
<i>Huperzia lucidula</i>	9			

*cover classes (midpoint): < 2%= 1, 2-5%= 3, 6-12%= 9, 13-24%= 19, 25-49%= 37, 50-74%= 63, 75-100%= 87

ADDITIONAL SPECIES within area where vegetation cover by strata were taken						OTHER PLANT SPP seen in community (spp codes), for complete plant species list
Stratum	Species code	Cover class	Stratum	Species code	Cover class	

III. ENVIRONMENTAL SETTING

Community name & EO#:

<p>SOILS (rooting zone): Sample # <u>006</u></p> <p>Depth to which soil examined <u>45</u> cm</p> <p>Organic layer depth <u>18</u> cm or <input type="checkbox"/> >1 m</p> <p>Mineral layer below organic? <input type="checkbox"/> yes depth <u>27</u> cm</p> <p>Mottling in top 30 cm? <input type="checkbox"/> No depth _____</p> <p>Depth to water table: <u>unknown</u></p> <p>Depth to obstruction: <u>None encountered</u> nature of obstruction: _____</p> <p>Stoniness: <input type="checkbox"/> very little (<1%) / <input checked="" type="checkbox"/> moderate (2-25%) / <input type="checkbox"/> very (>25%)</p> <p>pH: <u>unknown</u> measured in <input type="checkbox"/> soil or <input type="checkbox"/> interstitial water</p> <p>vonPost decomposition (peat substrates only) _____ at _____ deep</p>		<p>ELEVATION: 1240ft <input type="checkbox"/> m or <input checked="" type="checkbox"/> ft?</p>	<p>ASPECT (TRUE): northwest</p>	<p>SLOPE: Include units! (45° = 100%) 10% = 25% <input type="checkbox"/> measured <input checked="" type="checkbox"/> estimated</p>
<p>AVERAGE TEXTURE:</p> <p><input type="checkbox"/> gravel</p> <p><input type="checkbox"/> sand</p> <p><input checked="" type="checkbox"/> loamy sand / sandy loam</p> <p><input type="checkbox"/> loam</p> <p><input type="checkbox"/> silt loam</p> <p><input type="checkbox"/> clay loams</p> <p><input type="checkbox"/> sandy clay / clay</p> <p><input type="checkbox"/> peat</p> <p><input type="checkbox"/> muck</p>		<p>DRAINAGE & MOISTURE REGIME (see MAPPSS key):</p> <p><input type="checkbox"/> very poorly drained</p> <p><input type="checkbox"/> poorly drained</p> <p><input type="checkbox"/> somewhat poorly drained</p> <p><input type="checkbox"/> moderately well drained</p> <p><input type="checkbox"/> well drained</p> <p><input type="checkbox"/> somewhat excessively drained</p> <p><input type="checkbox"/> excessively drained</p>		
<p>HYDROLOGIC REGIME:</p> <p><input checked="" type="checkbox"/> upland</p> <p><input type="checkbox"/> nontidal wetland: <input type="checkbox"/> perm flooded <input type="checkbox"/> semiper flooded <input type="checkbox"/> seasonally fld. <input checked="" type="checkbox"/> saturated</p> <p><input type="checkbox"/> tidal - irreg. fld. <input type="checkbox"/> tidal - reg. fld. <input type="checkbox"/> saltwater <input checked="" type="checkbox"/> brackish <input type="checkbox"/> freshwater</p> <p><input type="checkbox"/> unknown</p> <p>Stream valley and seepage wetlands within Forest.</p>		<p>HABITAT PATCHINESS (describe zones or patches if present):</p> <p>Large Jack Pine stand located between Horse Brook and one of its tributaries to the east. The Jack pine Forest convert to a spruce and fir forest to the south, and a spruce, fir and sugar maple forest to the west.</p>		
<p>MICROTOPOGRAPHY:</p> <p>Jack Pine Forest is mid-slope on a northwestern facing hillside, and descends in elevation on both the eastern and western sides as it descends into stream valleys.</p>		<p>BEDROCK TYPE:</p> <p><input type="checkbox"/> Igneous <input checked="" type="checkbox"/> granite <input type="checkbox"/> dioritic <input type="checkbox"/> gabbroic</p> <p><input type="checkbox"/> Metamorphic <input type="checkbox"/> slate/phyllite <input type="checkbox"/> schist/gneiss</p> <p><input type="checkbox"/> Sedimentary <input type="checkbox"/> limestone <input type="checkbox"/> other</p> <p>details?</p>	<p>TOPOGRAPHIC POSITION</p> <p><input type="checkbox"/> D drainage channel</p> <p><input type="checkbox"/> P low plain, level</p> <p><input type="checkbox"/> N narrow valley</p> <p><input type="checkbox"/> T toe of slope</p> <p><input type="checkbox"/> L lower slope</p> <p><input checked="" type="checkbox"/> M middle slope</p> <p><input type="checkbox"/> T hillside terrace</p> <p><input type="checkbox"/> U upper slope</p> <p><input type="checkbox"/> E cliff/ledge</p> <p><input type="checkbox"/> S ridge, summit, crest</p>	<p>SURFICIAL DEPOSIT:</p> <p><input checked="" type="checkbox"/> bedrock</p> <p><input type="checkbox"/> talus slope</p> <p><input type="checkbox"/> glacial till</p> <p><input type="checkbox"/> moraine</p> <p><input type="checkbox"/> esker/outwash</p> <p><input type="checkbox"/> glacial delta</p> <p><input type="checkbox"/> lacustrine/fluvial</p> <p><input type="checkbox"/> marine</p> <p><input type="checkbox"/> aeolian</p> <p><input type="checkbox"/> other:</p>

THREATS TO COMMUNITY? Logging**MANAGEMENT / PROTECTION NEEDS?**

OTHER COMMENTS: animal use, species distribution notes, etc.

This community is located on triangular swath of habitat bounded on the south by a spruce/fir forest bordering Spencer Road, the northwestern side by Horde Brook and on the northeastern side by an unnamed tributary of Horse Brook. The site drain northward and into the Moose river.

IV. SUMMARY AND RANKING

Community name & EO#:

Applicable National Type:	NVC CODE: CEGL00_____	Comment re fit to type?
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COMMUNITY RANKING

1. CURRENT CONDITION and quality of the community itself.

- Comment on the species composition and biological structure of the community (species diversity, indicator species, development/maturity, etc.) For forests: Do you consider this to be old growth? If so, based on what?
- Natural and anthropogenic disturbance **within** the community (check off, then describe extent and how recent below)

<input checked="" type="checkbox"/> Logging – most recently c. ___30+___ yrs ago	<input type="checkbox"/> Animal effects (insect outbreaks, browsing)
<input type="checkbox"/> Agriculture / pasture	<input type="checkbox"/> Erosion
<input type="checkbox"/> Fire	<input type="checkbox"/> Dumping or Mining
<input type="checkbox"/> Wind or ice damage	<input checked="" type="checkbox"/> ORV / vehicle disturbance
<input type="checkbox"/> Impoundment	<input type="checkbox"/> Trails / roads
<input type="checkbox"/> Exotic plants	<input type="checkbox"/> Other, list

List disturbance(s): to what degree have these altered natural ecological processes, and/or do they appear to effect the population? The surrounding area has been heavily logged, and is not dominated by regenerating spruce stands. The Jack Pine forest is primarily younger trees (<10 dbh), and in the past likely extended into another stand of Jack Pine approximately 500 ft to the west (See JACKPINE WOOD005DMC).

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

2. SIZE / QUALITY:

What is the approximate size of the community occurrence? _____ 11.4 acres _____ acres / hectares

Covers the natural extent of this community type Has been truncated through adjacent land use

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

3. LANDSCAPE CONTEXT of the area surrounding the community:

What land uses and/or natural communities surround the observed area? Describe the types and extent of anthropogenic disturbance **around** the observed area, and to what degree this may affect the observed community. To what degree can the observed community be protected from effects of adjacent land uses?

This natural community is located between two large stream valleys. Logging activities have heavily impacted the surrounding area, but a large contingent of Jack Pine Forest remains. To the south the Jack pine forest extends outside the survey area.

A – Community surrounded by >= 1000 acres of undisturbed landscape.
 B – Community surrounded by fairly intact landscape, though there may be cuts nearby.
 C – Community surrounded by fragmented forest or rural landscape.
 D – Surrounding area developed.

OVERALL RANK for Community 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:



Photo #1- Overview of Jack Pine Forest Natural Community looking east JACKPINEWOOD006DMC with bracken fern understory.



Photo #2- Jack Pine Forest community looking north along logging road JACKPINEWOOD006DMC.



Photo #3- Jack Pine Natural community looking west JACKPINEWOOD006DMC.



Photo #4- Jack Pine Forest community looking northwest at forest opening JACKPINEWOOD006DMC.

SPECIAL PLANT SURVEY FORM

Site:	<u>NECEC CMP</u>	Survey Site:	<u>S of Plaisted Road</u>
Quad name:	<u>Wilton</u>	Quad code:	<u>4407000</u>
County:	<u>Franklin</u>	Town:	<u>Jay</u>

Plant Name: Lindernia dubia var. anagallidea New Update Occurrence #:

Date: 28 July 2018	Surveyor(s): Art Gilman	Sourcecode (MNAP assigns):
Primary Surveyor Address: Gilman and Briggs Environmental 1 Conti Cir # 5, Barre, VT 05641	Phone: 802-479-7480	Email: avgilman@together.net

GPS Datum WGS 84 NAD 83 NAD 27 Other
 GPS Coordinates UTM Zone 19N Decimal Degrees (dd.dddd) Deg Min Sec (dd mm ss) GPS (dd mm.mm) Other
 North West Additional Coordinates Lat. 44.54054, Long. -70.163594

Directions to Occurrence: In abandoned gravel pit area S of Plaisted Road, under existing powerlines: either enter using access to existing gravel pit, or follow snowmobile trail downslope from Plaisted Road; eventually turn left on old road into pit area; plants in a small mud-puddle area in disturd/abandoned pit floor
 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: Starved/small
# of Plants 15-20	<input checked="" type="checkbox"/> In leaf	<input type="checkbox"/> 1 square yard	Evidence disease, predation, etc? Explain:
<input type="checkbox"/> Individuals	<input type="checkbox"/> In bud	<input checked="" type="checkbox"/> 1 – 5 square yards	<input type="checkbox"/> Yes
<input checked="" 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:
40 % Vegetative	<input checked="" type="checkbox"/> Mature fruit	<input type="checkbox"/> 100 sq yds to 1 acre	<input checked="" type="checkbox"/> Sexual
60 % Reproductive	<input checked="" 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: Very limited availabel habitat (mud-puddle damp, vs. dry sand surrounding)			

GENERAL DESCRIPTION

Associated natural community: NA/ general forest/powerline/gravel pit

Associated plant species: Juncus tenuis, Agalilnis tenuifolia

Substrate/soil type: sandy, slight mud surface

Threats to Population:

Conservation/Management/Research needs:

Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min 590' 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 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 checked="" type="checkbox"/> Moist (mesic)
Max 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	



Photo 1. *Lindernia dubia* var. *anagallidea*. Specimen.

SPECIAL PLANT SURVEY FORM

Site:	<u>NECEC CMP</u>	Survey Site:	<u>N. of Bassett Lane/Chase Stream</u>
Quad name:	<u>Mahoney Hill</u>	Quad code:	<u>45069A7</u>
County:	<u>Somerset</u>	Town:	<u>Moscow</u>

Plant Name: *Trichophorum clintonii* New Update Occurrence #:

Date: 12 July 2018	Surveyor(s): Art Gilman and Anna Ritchie	Sourcecode (MNAP assigns):
Primary Surveyor Address: Gilman and Briggs Environmental 1 Conti Cir # 5, Barre, VT 05641	Phone:	Email: avgilman@together.net

GPS Datum WGS 84 NAD 83 NAD 27 Other
 GPS Coordinates UTM Zone 19N Decimal Degrees (dd.dddd) Deg Min Sec (dd mm ss) GPS (dd mm.mm) Other
 North West Additional Coordinates Lat. 45.101345, Long. -69.872975

Directions to Occurrence: North of Bassett Lane on the west side of the ROW crossing, about 100 ft up the access road. The population is most the east side of the access road, under the bracken fern, with some clumps in the road and along the west side
 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 15+/- <input type="checkbox"/> Individuals <input checked="" type="checkbox"/> Ramets Population Structure 40 % Vegetative 60 % Reproductive	Phenology <input checked="" type="checkbox"/> In leaf <input type="checkbox"/> In bud <input type="checkbox"/> In flower <input type="checkbox"/> Immature fruit <input checked="" type="checkbox"/> Mature fruit <input checked="" 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: Slightly suppressed; competing vegetation 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: Polygon represents approximate distribution of observed clumps; unconventional habitat for species, which is typically found adjacent to rivers/streams.			

GENERAL DESCRIPTION

Associated natural community: Dry sandy soil in and adjacent to access road/powerline corridor
Associated plant species: <i>Pteridium aquilinum</i> , <i>Juncus tenuis</i>
Substrate/soil type: sandy loam with gravel
Threats to Population:
Conservation/Management/Research needs:

Elevation	Aspect	% Slope	Light	Topographic Position	Moisture
Min 650' ft / m	<input type="checkbox"/> N <input type="checkbox"/> NE <input type="checkbox"/> E <input type="checkbox"/> NW <input checked="" type="checkbox"/> S <input type="checkbox"/> SE <input type="checkbox"/> W <input type="checkbox"/> SW <input type="checkbox"/> Flat or NA	<input type="checkbox"/> Flat <input type="checkbox"/> 0-10 <input checked="" type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> Vertical	<input checked="" type="checkbox"/> Open <input type="checkbox"/> Partial <input type="checkbox"/> Filtered <input type="checkbox"/> Shade	<input type="checkbox"/> Crest <input type="checkbox"/> Upper Slope <input checked="" type="checkbox"/> Mid-slope <input type="checkbox"/> Lower Slope <input type="checkbox"/> Bottom <input type="checkbox"/> Level Plain	<input type="checkbox"/> Inundated <input type="checkbox"/> Saturated (wet mesic) <input type="checkbox"/> Moist (mesic) <input checked="" type="checkbox"/> Dry-mesic <input type="checkbox"/> Dry (xeric)
Max ft / m					

Photograph taken? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Specimen collected? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Do other members of this genus occur at this site? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
	Collection # Gilman18024	If yes, are there hybridization issues? <input type="checkbox"/> No; <input type="checkbox"/> Yes; Explain
	Repository avg	Are there identification issues? <input type="checkbox"/> No; <input checked="" type="checkbox"/> Yes; Explain Somewhat depauperate; fruit already dispersed, and unusual habitat

Landowner name/address for entire population (attach additional owner information on a separate sheet):	Phone	Is landowner aware of plant? <input type="checkbox"/> Yes <input type="checkbox"/> No
	Tax map # (if known)	Is landowner protecting plant? <input 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"/> Agriculture / Pasture <input type="checkbox"/> Animal effects (insect outbreaks, browsing) <input type="checkbox"/> Wind or ice damage	<input type="checkbox"/> Fire <input type="checkbox"/> Impoundment <input type="checkbox"/> Exotic plants <input type="checkbox"/> Erosion	<input type="checkbox"/> Dumping or mining <input type="checkbox"/> ORV / Vehicle disturbance <input checked="" type="checkbox"/> Trails / Roads <input checked="" type="checkbox"/> Other <input type="checkbox"/> No Evidence of disturbance
--	---	--

Describe: Powerline corridor

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:** Managed powerline corridor

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: Robust clumps, population fairly large, but atypical 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:

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: Cleared powerline corridor in rural/managed forest setting

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

Comments: Atypical, appears stable but may decline over time.

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

Date: Reviewer: Rationale:



Photo 1. *Trichophorum clintonii*. Close-up view of plant and fruiting bodies.



Photo 2. *Trichophorum clintonii*. Typical growth habitat for this population; under bracken fern, in association with bunchberry dogwood.



Photo 3. *Trichophorum clintonii*. Clump along the edge of the bracken fern and access road



Photo 4. *Trichophorum clintonii*. View of population area within the bracken fern and along the edge of the access road.

ATTACHMENT
PRELIMINARY DATA PACKAGE SUMMARY SPREADSHEET

New England Clean Energy Connect - Rare Plant and Exemplary Natural Community Preliminary Data Package Summary

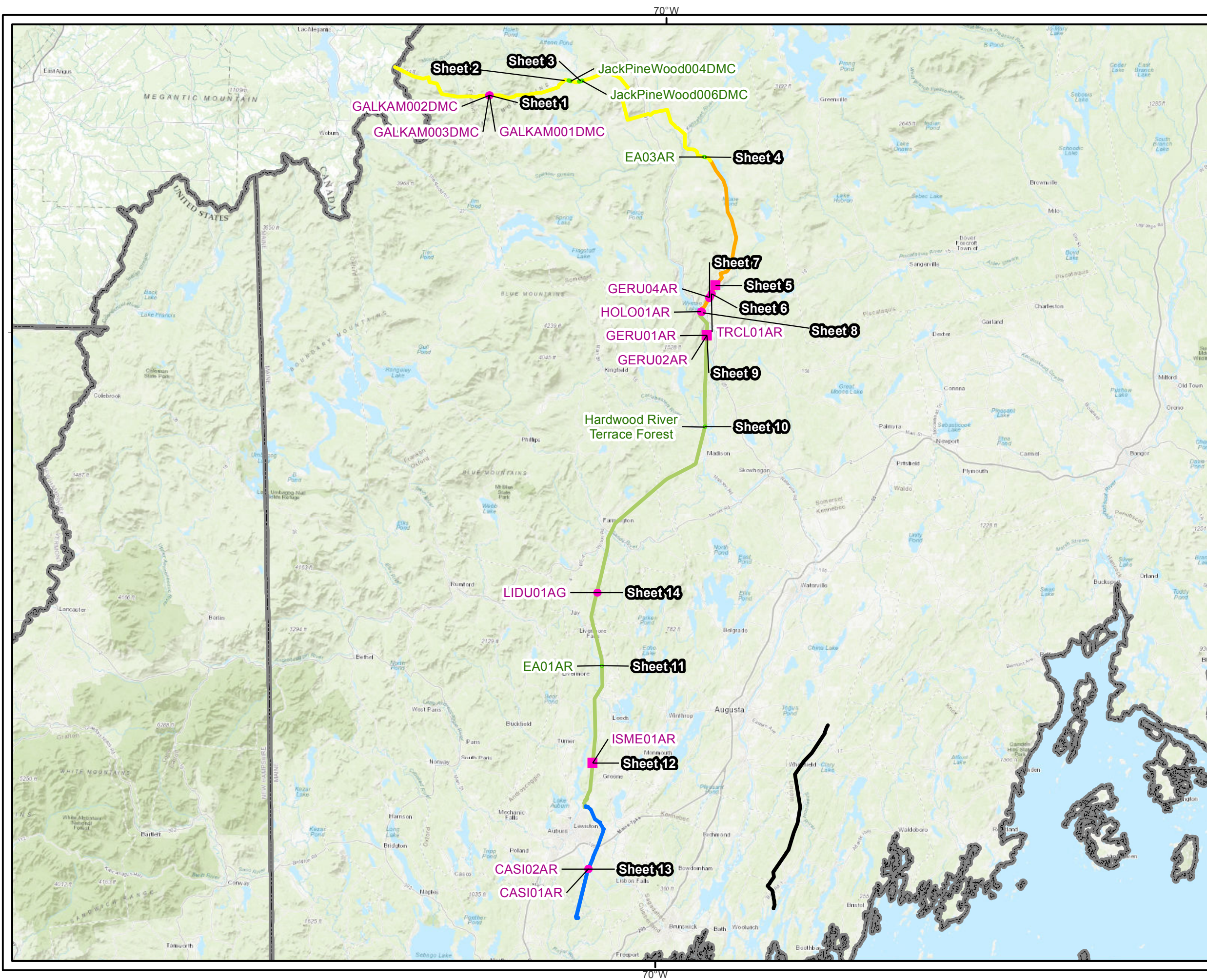
GIS CODE	Date	Lead Surveyor Name	Quad Code Numeric	Quad Names	Town	Latitude	Longitude	Plant Name	Number of Individual	Phenology (in leaf, bud, flower, fruit, etc.)	Associated Natural Community/Habitat	Associated Plant Species	Comments
NA	7/27/2018	Art Gilman				NA	NA	<i>Allium tricoccum</i>	NONE	NA			No plants found during revisit.
CASI01AR CASI02AR	7/3/2018	Art Gilman	44070A2	Lewiston	Lewiston	44.023698	-70.175755	<i>Carex siccata</i>	100 3000	in leaf, fruit	River bank terrace/Powerline corridor	<i>Rubus flagellaris</i> , <i>Elymus repens</i>	Two distinct areas of same population.
DRGO01AR	7/12/2018	Art Gilman	45069A7	Mahoney Hill	Moscow	45.117098	-69.861951	<i>Dryopteris goldiana</i>		in leaf, fruit	Hardwood Seepage Forest	<i>Impatiens capensis</i> , sedges, <i>Betula alleghaniensis</i>	Small area near open ROW, seepage area follows what appears to be an old logging road.
EA03AR	7/26/2018	Mao Lin	45069C8	The Forks	Moxie Gore	45.356975	-69.894886	Enriched Northern Hardwood Forest	NA	NA	Maple - Basswood - Ash Forest	<i>Adiantum pedatum</i> , <i>Deparia acrostichoides</i> , <i>Fraxinus nigra</i> , <i>Carpinus caroliniana</i> , <i>Ulmus americana</i> , <i>Athyrium angustum</i> , <i>Impatiens capensis</i>	Rich forest spanning drier areas of wetland, with loamy soils ranging from silty to sandy. Slight northern aspect, abundant maidenhair fern and only occasional basswood.
NA	7/27/2018	Art Gilman				NA	NA	<i>Fimbristylis autumnalis</i>	NONE	NA			No plants found during revisit.
GALKAM001DMC	7/11/2018	Duane Choquette	45070D4	Tumbledown Mountain	Appleton Township	45.466260	-70.468178	<i>Galium kamtschaticum</i>	506	leaf, bud, flower, imm	Northern Hardwood Forest	<i>Acer saccharum</i> , <i>Betula alleghaniensis</i> , <i>Acer pensylvanicum</i> , <i>Glyceria striata</i> , <i>Impatiens capensis</i> , <i>Thalictrum polygamum</i> , <i>Oxalis montana</i> , <i>Galium palustre</i> , <i>Circaea alpina</i> , <i>Sambucus racemosa</i>	Large population along the edge of an old logging road and active moose trail. The surrounding land is all utilized for logging and is currently in a regenerative state from the last logging cycle.
GALKAM002DMC	7/11/2018	Duane Choquette	45070D4	Tumbledown Mountain	Appleton Township	45.466046	-70.469440	<i>Galium kamtschaticum</i>	16	leaf, flower, mature fr	Northern Hardwood Forest	<i>Acer saccharum</i> , <i>Betula alleghaniensis</i> , <i>Acer pensylvanicum</i> , <i>Glyceria striata</i> , <i>Impatiens capensis</i> , <i>Galium palustre</i> , <i>Circaea alpina</i> , <i>Sambucus racemosa</i> , <i>Corlus cornuta</i> , <i>Nabalus altissimus</i> , <i>Carex utriculata</i> , <i>Osmunda claytonia</i> , <i>Trillium undulatum</i>	Small population. Site is a junction of two old logging roads, with a hillside seep upslope.
GALKAM003DMC	7/11/2018	Duane Choquette	45070D4	Tumbledown Mountain	Appleton Township	45.465980	-70.469568	<i>Galium kamtschaticum</i>	85	leaf, flower, mature fr	Northern Hardwood Forest	<i>Acer saccharum</i> , <i>Betula alleghaniensis</i> , <i>Acer pensylvanicum</i> , <i>Glyceria striata</i> , <i>Impatiens capensis</i> , <i>Carex utriculata</i> , <i>Osmunda claytonia</i> , <i>Carex gynandra</i>	Small population. The surrounding land is all utilized for logging and is currently in a regenerative state from the last logging cycle. A recent clearcut is located <100 feet to the west of the sample site.
GERU01AR GERU02AR GERU03AR	7/6/2018	Art Gilman	45069A8	Bingham	Concord Twp	45.023784	-69.883264	<i>Gentiana rubricaulis</i>	29 120 4 1	in leaf	Mixed Graminoid - Shrub Ma	<i>Typha latifolia</i> , <i>Packeria shweinitziana</i> , <i>Geum aleppicum</i> , <i>Thelypteris palustris</i> , <i>Platanthera psycodes</i>	Four distinct areas of same population. Plants were growing along edge of cattail areas and up into the upland semi-forested areas along the edge of the ROW.
GERU04AR	7/11/2018	Art Gilman	45069A8	Pleasant Ridge Pit	Moscow	45.094096	-69.878232	<i>Gentiana rubricaulis</i>	300 300	in leaf	Mixed Graminoid - Shrub Marsh	<i>Carex flava</i> , <i>Typha latifolia</i> , <i>Salix discolor</i>	Two distinct areas of same population. Northern area goes about 30 ft into cedar swamp forested area west of the cleared ROW.
EA01AR	7/7/2018	Art Gilman	44070D2	Livermore Falls	Livermore Falls	44.403416	-70.148538	Hardwood River Terrace Forest	NA	NA	Upper Floodplain Hardwood Forest	<i>Quercus rubra</i> , <i>Betula alleghaniensis</i> , <i>Acer rubrum</i> , <i>Onoclea sensibilis</i> , <i>Athyrium angustum</i> , <i>Matteuccia struthiopteris</i> , <i>Osmunda claytoniana</i> (interrupted fern)	Previously characterized as Maple-Basswood-Ash. Located on a river floodplain terrace. Presence of at least one butternut tree and trees are of large size with good forest structure and few invasives.
EA02AR	7/27/2018	Art Gilman	44069G8	Madison West	Anson	44.853352	-69.886138	Hardwood River Terrace Forest	NA	NA	River Terrace Hardwood/Upper Floodplain Hardwood Forest	<i>Quercus rubra</i> , <i>Fraxinus pennsylvanica</i> , <i>Ulmus americana</i> , <i>Lonicera morrowii</i> , <i>Onoclea sensibilis</i> , <i>Athyrium angustum</i> , <i>Matteuccia struthiopteris</i>	On an upper terrace associated with Carrabasset Stream not far above its confluence with the Kennebec River (and likely back-flooded from the river at extremes). The community is dominated by green ash and red oak with minor component of elm. The age structure is young except for a few large red oak and green ash. The forest is rather heavily invaded by invasive honeysuckles (about 40%-50% cover overall, which is substantially more than observed in 2007). Understory herbs are typical, but lack elements of richness such as blue cohosh, wild leek, etc.
HOLO01AR	7/6/2018	Art Gilman	45069A8	Bingham	Moscow	45.067711	-69.898568	<i>Houstonia longifolia</i>	500	in leaf, bud, flower	Powerline ROW/Shallow marsh - sloping edge	<i>Danthonia spicata</i> , <i>Centaurea stoebe</i> , <i>Juniperus communis</i> , <i>Dryocallis arguta</i> , <i>Lechea intermedia</i>	Located on high river terrace, within the cleared powerline corridor on bare gravel soil; where lichens and juniper encroach, the plants are much less robust.
ISME01AR	7/5/2018	Art Gilman	44070B2	Lake Auburn East	Greene	44.221891	-70.168584	<i>Isotria medeoloides</i>	1	in leaf	Oak - Pine Forest	<i>Tsuga Canadensis</i> , <i>Quercus rubra</i> , <i>Acer rubrum</i> , <i>Betula alleghaniensis</i>	No herbs in immediate vicinity. Plant was growing on steep embankment leading to a small seasonal stream. Closed forest canopy, with thick litter layer and very little understory or groundcover.

New England Clean Energy Connect - Rare Plant and Exemplary Natural Community Preliminary Data Package Summary

GIS CODE	Date	Lead Surveyor Name	Quad Code Numeric	Quad Names	Town	Latitude	Longitude	Plant Name	Number of Individual	Phenology (in leaf, bud, flower, fruit, etc.)	Associated Natural Community/Habitat	Associated Plant Species	Comments
JackPineWood004DMC	7/18/2018	Duane Choquette	45070D3	Spencer Lake	Bradstreet Township T4 R7	45.495680	-70.254000	Jack Pine Forest	NA	NA	Jack Pine Forest	Pinus banksiana, Pinus strobus, Picea rubens, Pinus resinosa, Huperzia lucidula, Vaccinium angustifolium, Pteridium aquilinum, Gaultheria procumbens, Cornus canadensis, Pleurozium schreberi	Jack pine forest northwest of Egg pond. The stand is bordered by three large logging cuts, to the north east, and west. The Jack pine Forest extends south outside of the study corridor. An examination of aerial photography and field reconnaissance shows the jack pine forest ending in a spruce bog community.
JackPineWood005DMC	7/18/2018	Duane Choquette	45070D3	Spencer Lake	Bradstreet Township T4 R7	45.496380	-70.257820	Jack Pine Forest	NA	NA	Jack Pine Forest	Pinus banksiana, Pinus strobus, Picea rubens, Pinus resinosa, Huperzia lucidula, Vaccinium angustifolium, Pteridium aquilinum, Gaultheria procumbens, Cornus canadensis, Pleurozium schreberi	Predominately Jack pine (90%), with mixed red pine and red spruce in the canopy. The understory is dry and open, with lowbush blueberries, laurels, and snowberries found sporadically in patches, with bracken fern present in areas where the canopy thins. The Jack Pine woodland abuts regenerating clear-cuts to both the east and west, which are dominated by young red spruce, though scattered young jack pines can be found throughout.
JackPineWood006DMC	7/18/2018	Duane Choquette	45070D2	Enchanted Pond	Bradstreet Township T4 R7	45.495550	-70.226780	Jack Pine Forest	NA	NA	Jack Pine Forest	Pinus banksiana, Picea rubens, Pinus strobus, Abies balsamea, Kalmia angustifolia, Vaccinium angustifolium, Pteridium aquilinum, Gaultheria procumbens, Cornus canadensis, Pleurozium schreberi, Huperzia lucidula	Predominately Jack pine (70%), with mixed red pine, red spruce, and balsam fir in the canopy. The understory is dry and open, with bracken fern and bunchberry found throughout. The Jack Pine Forest is fairly extensive, extending outside of the survey area to the north and south. The Forest also spans a large alder-dominant stream valley and two smaller wetland seeps. The Jack Pine gives way to a spruce and fir dominant forest to the south. Sugar maples saplings appear sporadically in the understory in the western edge of the Jack Pine Forest.
LINDU01AG	7/28/2018	Art Gilman	4407000	Wilton	Jay	44.54054	-70.163594	Lindernia dubia var. anagallidea	15-20	in leaf, mature fruit, seed dispersing	general forest/powerline/gravel pit	Juncus tenuis, Agalinis tenuifolia	Very limited available habitat (mud-puddle damp, vs. dry sand surrounding).
TRCL01AR	7/12/2018	Art Gilman	45069A7	Mahoney Hill	Moscow	45.101345	-69.872975	Trichophorum clintonii	25	in leaf, bud, fruit	Powerline ROW	Pteridium aquilinum, Chamaepericlymenum canadense	Upslope from very actively eroding stream, on dry-gravelly soils under bracken fern and in access road.

NA = Not Applicable

ATTACHMENT
NECEC OVERVIEW AND OCCURRENCE MAPS



Legend

- Natural Community
- Rare Plant

NECEC Centerline

- Segment 1, New ROW
- Segment 2, The Forks to Wyman Hydro
- Segment 3, Wyman Hydro to Larrabee Road
- Segment 4, Rebuilds
- Segment 5, Maine Yankee to Coopers

**Rare Plant Survey Overview
July 2018**

Prepared For: **CENTRAL MAINE POWER**

Prepared By: TETRA TECH	Date: 7/2018
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Source: Esri, et. al., 2014; CMP 2018

Coordinate System: North American Datum, 1983
Universal Transverse Mercator, Zone 19 North

Document Path: C:\Users\matt.mercantini\Desktop\Rare Plant Survey Overview.mxd

