

Maine Natural Areas Program

17 Elkins Lane

State House Station #93

Augusta, Maine 04333

Date: March 21, 2011

To: Frederick Todd, Project Planner, LURC

From: Don Cameron, Botanist/Ecologist - *DC*

Re: Rare and exemplary botanical features, DP 4889, First Wind - Champlain Wind LLC, Carroll Plantation, Penobscot County, and Kossuth Township, Washington County, ME.

I have searched the Natural Areas Program's Biological and Conservation Data System files for rare or unique botanical features in the vicinity of the proposed project in response to your request of March 17, 2011 for our agency's comments on the project.

The only records we are aware of for the project area are those that were discovered by the project consultant, Stantec, during the site assessment for the project and are listed in the application in Section 13 of the project narrative and also in Exhibit 13. They include populations of four rare plant species, male fern (*Dryopteris filix-mas*), Orono sedge (*Carex oronensis*), large toothwort (*Cardamine maxima*), and swamp fly-honeysuckle (*Lonicera oblongifolia*).

Maine Natural Areas Program staff worked with the project consultant on the development of avoidance and minimization plans for the four rare species occurrences. Of greatest concern is the population of male fern (*Dryopteris filix-mas*), a state listed Endangered species. The project has been designed to completely avoid impact to the population of this species by keeping construction and vegetation disturbances 100 feet or more away from the location where it grows.

Considerations for the other three species are as follows:

Orono sedge (*Carex oronensis*), listed State Threatened - this species, which is endemic to central Maine, thrives in open, periodically disturbed habitats such as those created by powerline rights-of-way, and for this reason, we have no particular concerns for its persistence on this project. The avoidance and minimization measures listed in the application are considered adequate for its maintenance.

Large toothwort (*Cardamine maxima*), listed Special Concern - This is a spring ephemeral herb species of damp ground, and the avoidance and minimization measures listed in the application are considered adequate for its maintenance.

Swamp fly-honeysuckle (*Lonicera oblongifolia*), listed Special Concern - This is a shrub of cedar swamps and cedar woodland fens, and the avoidance and minimization measures listed in the application are considered adequate for its maintenance.

The table below provides information on the rare plants in terms of state rank and element occurrence rank.

Scientific Name	Common Name	Status	State Rank
<i>Cardamine maxima</i>	large toothwort	Special Concern	S3
<i>Carex oronensis</i>	Orono sedge	Threatened	S3
<i>Dryopteris filix-mas</i>	male fern	Endangered	S1
<i>Lonicera oblongifolia</i>	swamp fly-honeysuckle	Special Concern	S3

*An explanation of ranks is attached to the end of this memo.

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

STATE RARITY RANKS

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

ELEMENT OCCURRENCE RANKS - EO RANKS

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

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

These three factors are combined into an overall ranking of the feature of **A**, **B**, **C**, or **D**, where **A** indicates an **excellent** example of the community or population and **D** indicates a **poor** example of the community or population. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.