

Endangered Boreal Felt Lichen Special Management Practices

Introduction

The Boreal Felt Lichen (*Erioderma pedicellatum*) is an epiphytic (grows on trees), foliose (leafy) lichen which occurs in temperate and boreal Northern Hemisphere. It has been extirpated in New Brunswick but is still found in Nova Scotia and Newfoundland where it is declining in abundance. The world population of the Boreal Felt Lichen is listed as Endangered (IUCN 2010). It is extant at only one site in Scandinavia.

The Atlantic population of Boreal Felt Lichen is listed Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and under the Canada Species at Risk Act (SARA). The Nova Scotia population is listed Endangered (NS Endangered Species Act (NESA), 2003). A survey of historical sites has documented a 90% decline in the known population in Nova Scotia in recent decades (Maas and Yetman, 2002). This decline has been attributed to air pollution, acid rain and habitat loss due to forestry and development.

The 2002 COSEWIC Status Report identified only three locations in Nova Scotia at which Boreal Felt Lichen was still extant (a total of only 14 thalli). The Mersey Tobeatic Research Institute (MTRI) has been conducting surveys in Nova Scotia since 2005 (MTRI, 2009). As of 2010, Boreal Felt Lichen was found at 67 sites in Nova Scotia including about 200 thalli (Environment Canada 2010). These included 41 sites on Mainland Nova Scotia and 26 sites on Cape Breton Island.

Habitat

Cyanobacteria are the photosynthetic partners of the Boreal Felt Lichen fungus placing it within the group referred to as the Cyanolichens. Such lichens are particularly sensitive to air pollution and water stress. The Boreal Felt Lichen occurs almost entirely on the trunks of Balsam fir, and less commonly black spruce and red maple. It is found in boggy balsam fir forest with a cool moist oceanic climate and often at or near base of north facing slopes. Many of the sites where Boreal Felt Lichen occurs are located along the border of open peatlands along small streams (ie. Fens). Good habitat indicators are sphagnum moss and cinnamon fern.

Habitat Modeling

Boreal Felt Lichen surveys conducted in Nova Scotia through MTRI have been facilitated by the development of a GIS habitat model beginning in 2005, which is used to predict areas where Boreal Felt Lichen is most likely to occur (Cameron and Neily, 2008). The algorithm identifies all forest stands in NSDNR's GIS forest layer in which balsam fir is listed as a primary or secondary species and which occur within 80 meters of a mapped peatland (bog or fen) within NSDNR's GIS wetlands layer. The model further confines the search to only those forest stands located within 30 kilometers of the Atlantic Coast. The habitat model is available as an Arcview GIS .shp file.

Special Management Practices:

The manager (eg. License or lease holder) for an area of provincial Crown land is responsible for ensuring that the Special Management Practice for the Boreal Felt Lichen is implemented.

1. Boreal Felt Lichen Habitat Model: The most recent iteration of the Boreal Felt Lichen habitat model (Cameron and Neily, 2008), will be used to predict areas with high potential for Boreal Felt Lichen occurrence.

2. Boreal Felt Lichen field surveys: All areas of proposed forest harvesting and silviculture operations on provincial Crown lands which overlap with polygons identified in the habitat model (see above) will be surveyed for the presence of Boreal Felt Lichen. Surveyors must be recognized experts in field identification of lichens.

a) All areas surveyed for the presence of BFL must be GPS mapped and GPS tracks of survey routes recorded.

b) All new locations of Boreal Felt Lichen must be GPS mapped and a field report on each occurrence completed including name of surveyor(s), date(s), GPS coordinates, location, species of host tree and number of thalli present.

3. Reporting BFL surveys and BFL locations:

a) Records of all areas surveyed for the presence of the BFL will include: GPS track of the survey route, name of surveyor(s), date(s) conducted and location of the surveys. All survey records must be reported to the Biologist, Species at Risk, NS Department of Natural Resources, and to the NSDNR Regional Biologist responsible for the area.

b) Records of all newly discovered locations of the BFL will include: name of surveyor(s), date(s), GPS coordinates, location, tree species and number of thalli. All new records of the BFL will be reported to the Biologist, Species at Risk, NS Department of Natural Resources, and to the NSDNR Regional Biologist responsible for the area within 48 hours.

4. Boreal Felt Lichen location database: A central database to track and collate all Boreal Felt Lichen locations in Nova Scotia will be maintained by the Nova Scotia Department of Natural Resources Wildlife Division. Information will be sent to research partners and land managers.

5. Forested buffers at BFL sites: Forested buffers measuring a minimum of 100 meters in radius will be maintained around each Boreal Felt Lichen occurrence. In addition to the requirements under the *Wildlife Habitat and Watercourse Protection Regulations*, where a BFL occurrence is located within a peatland or in a forest stand immediately adjoining a peatland, a forested buffer equal to or greater than 20 meters in width will be maintained around the perimeter of the peatland. For larger peatlands which may be only partly surrounded by good BFL habitat, only that portion of the peatland deemed to be good BFL habitat as a result of on-site surveys will require the BFL mandated 20 meter minimum forested buffer. No trees within the BFL buffer zone will be harvested during forest harvest and silviculture operations. The location of each BFL buffer area will be clearly flagged to enable the contractor to exclude the

area from the harvest or silviculture operation. All such forest stands will be appropriately tracked using GIS mapping to ensure long-term maintenance of the buffer stands during ongoing harvesting and silviculture operations.

6. Reporting locations of forested buffers: All locations of forested buffers around Boreal Felt Lichen occurrences on Crown lands will be reported to the NS Department of Natural Resources by the land manager (eg. Crown license or lease holder) responsible for that area of Crown lands on an annual basis. The report must take the form of GIS mapping of each buffer area.

7. Maintenance inspections: NS Department of Natural Resources will annually conduct on site inspections of each harvest or silviculture operation completed on Crown lands which overlaps with a BFL occurrence to ensure that satisfactory maintenance of forested stands at each site has been met.

References

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