THE PEAT INDUSTRY

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Field Trip Guide

Introduction to field operations, processing of peat and site restoration.

The Peat Industry

FIELD TRIP GUIDE

INTRODUCTION

Peatlands are widespread ecosystems in the northern hemisphere and they cover an impressive 11% of Canada's land mass. In New Brunswick, they cover 2% of the land area equivalent to 140 000 ha.

Peatlands are ecosystems characterized by water-saturated and oxygen poor conditions, where the production of biomass exceeds its decomposition. The result is the accumulation of organic matter coming from plant debris and especially Sphagnum mosses that dominate peatland vegetation. This more or less decomposed plant biomass forms the peat.

The rate of accumulation of peat is only about 0.5 to 1 mm per year. Thus, deep peat deposits are the result of thousands of years of accumulation of plant debris.

Most of the peat produced in the Province of New Brunswick is used in horticultural applications as a soil amendment or as a component of growing mixes. Peat moss is a good organic soil conditioner, assisting in loosening clay soils and in raising moisture retention in sandy soils. Peat is also used to manufacture containers for plants and tree seedlings.

This field trip is designed to give participants an opportunity to become familiar with the field equipment used to harvest peat moss and to provide them with an understanding of the production flow in processing plants. Of special interest are the post-production sectors where a natural peatland vegetation cover has successfully been restored.

PEAT HARVESTING AND PEATLAND RESTORATION

1- Peat harvesting equipment and harvesting method

After cutting a drainage network on the peatland, the production fields are profiled with a leveler. Following this initial preparation, various types of harrows are used to mill the surface peat and enhance the drying process. The dry peat layer is then collected by vacuum harvesters.

Figure 1a – Excavating a peripheral ditch

Figure 1b – Crowning the fields with a screw leveller

Figure 1c – Harrowing the surface to loosen and fluff the peat moss

Figure 1d – Collecting the dry surface peat layer with a vacuum harvester

Figure 1e – Dumping the collected peat at the end of the production fields

Figure 1f – Transporting the peat from the piles in the field to the processing plant

2 – Processing and bagging of peat moss

From the production fields, peat is transported to the processing plant where it is screened and packaged. Elsewhere in the Province, some larger facilities are equipped to produce peat-based soil mixes through the controlled addition of fertilizers and other materials such as perlite or vermiculite.

3 – Restoration of former peat harvest sites

The Birch Ridge peatland has been in operation since 1983 and today, large sections of the bog are inactive. Restoration work has been ongoing for a number of years using the moss transfer technique developed by the Peatland Ecological Research Group (PERG) at Laval University, Québec. Some of the vegetation cuttings used for restoration have been obtained from a natural donor site at the periphery of the production fields.

Figure 3a – Spreading plant cuttings on the bare residual peat

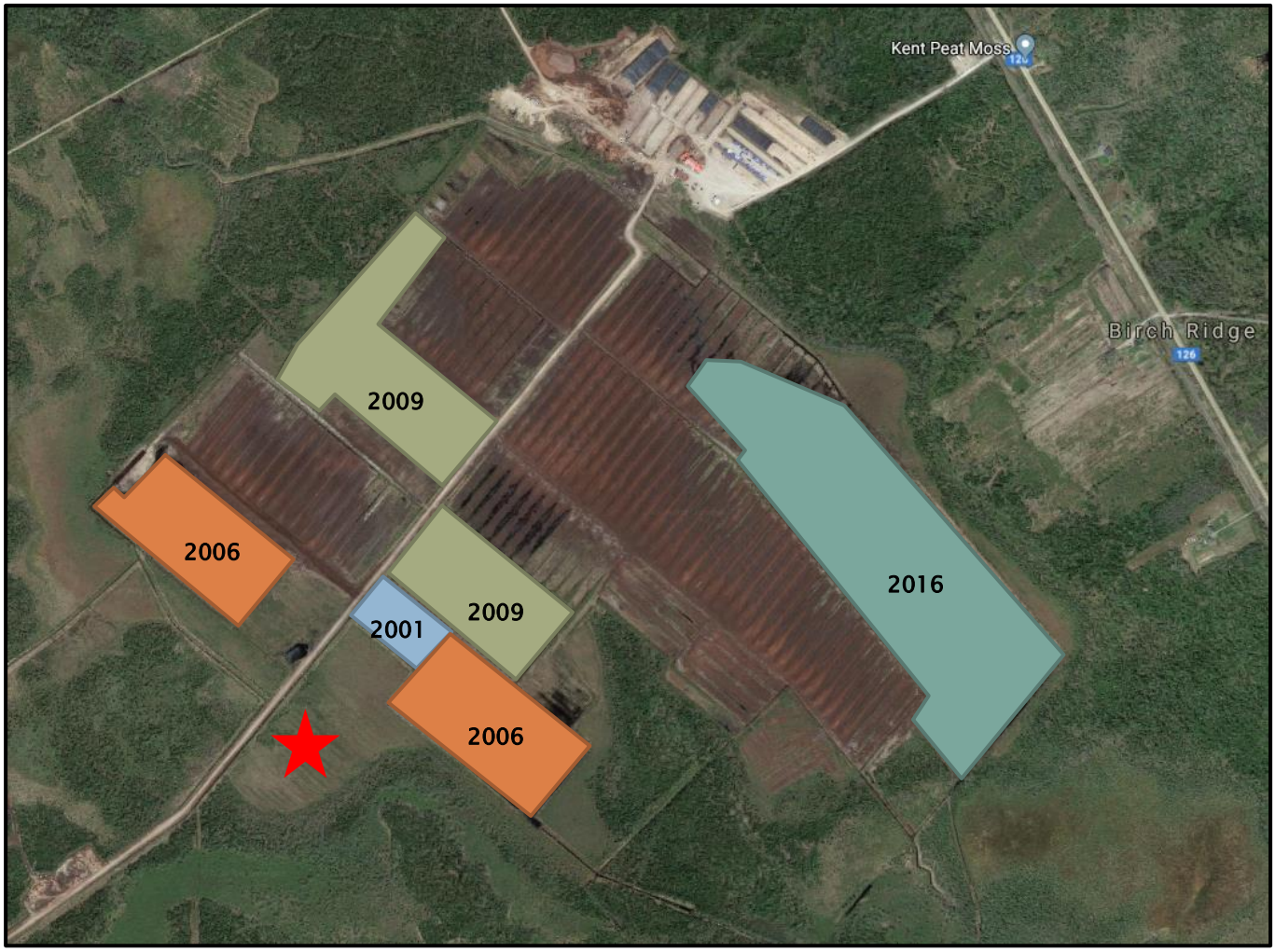
Figure 3b – Covering the plant cuttings with a straw mulch for protection against frost and dessication

Figure 3c – After two to three years, Sphagnum moss forms nucleus of growth; other plant species take root

Figure 3d – After ten years, the vegetation cover has been restored and the ecosystem begins the process of peat accumulation

4 – Peatland 41 – Sun Gro Horticulture Canada (Kent Division)

Site map of Peatland 41 showing the sections restored since 2001. The star symbol indicates the location of the vegetation borrow area.



5 – The Peatland Restoration Guide

This internationally recognized 2003 publication by François Quinty and Line Rochefort is available on line at:

http://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/Minerals-Minerales/Peatland_Restoration-e.pdf