

# APPENDIX

**C**

**PEATLAND #6 - RARE PLANT AND  
SOUTHERN TWAYBLADE SURVEYS  
(WSP, 2021)**





September 20<sup>th</sup>, 2021

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**Subject: Peatland #6 - Rare Plant and Southern Twayblade Surveys**

Dear Mr. Theriault,

WSP Canada Inc. (WSP) was retained by Theriault & Hachey Peat Moss Ltd. (T&H) to conduct rare plant and targeted Southern Twayblade (*Neottia bifolia*) surveys for a peat bog harvesting development project (“the Project”). This report presents the results of the vegetation surveys that were conducted at Peatland #6, located approximately 20 kilometres (km) south of the City of Miramichi, New Brunswick.

## BACKGROUND

The proposed Project consists of developing the infrastructure necessary for harvesting peat from Peatland #6. The peatland will be drained through digging ditches and trenches and the peat will harrowed to favor natural drying by sun and wind exposure. The peat will be harvested and transported to the T&H plant in Baie Sainte-Anne, NB, for additional processing, mixing, and bagging. The harvested area is expected to cover approximately 176 hectares (ha). The Project is also expected to require constructing a 1.17 km access road, which will be branched off of an existing forestry road.

The Environmental Impact Assessment (EIA) Branch and the Project’s Technical Review Committee (TRC) requested a general rare plant survey and a targeted survey for Southern Twayblade be completed within the peatland to identify the potential presence of priority vegetation species within the peatland. Priority species are defined as follows:

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- **Species at Risk (SAR):** A SAR is any species which is listed (on Schedule 1) as Endangered, Threatened or of Special Concern under the federal *SARA* (Government of Canada, 2002) and any species listed as Endangered, Threatened or Special Concern under the provincial NB *Species at Risk Act* (NB SARA) (*Species at Risk Act*, S.N.B 2012, c.6); and
- **Species of Conservation Concern (SOCC):** SOCC are species listed as S1-S3S4 (provincial rarity rankings) by the Atlantic Canada Conservation Data Centre (AC CDC).

WSP requested a data report from the AC CDC in advance of the field surveys. The report lists occurrence records within 5 km of Peatland #6 for the following priority vegetation species: Peppered Moon Lichen (*Stricta fuliginosa*)

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and White-rimmed Shingle Lichen (*Fuscopannaria leucosticta*). Both species were observed approximately 4.9 km from the Project area.

## METHODOLOGY

The following subsections describe the methods and protocols implemented for the rare plant and Southern Twayblade surveys.

### RARE PLANT SURVEY

The field survey method used is described in *A Guide to Environmental Impact Assessment in New Brunswick. Appendix 2: Recommended Methods for the Surveying of Vascular Plants at Risk (Rare, Threatened, Regionally Endangered or Endangered) for EIA or Similar Studies* by the New Brunswick Department of the Environment.

The rare plant survey was conducted by qualified ecologists (Derrick Mitchell, Boreal Environmental & Cody Pytlak, WSP Canada Inc.) within the peatland limits of the Project area. The survey consisted of walking transects throughout the peatland while actively searching and documenting the presence of both rare plants and general vegetation. Transects were spaced approximately 150 metres (m) apart, as habitat diversity within the peatland is low. Transitional microhabitats, such as pond and peatland edges, were surveyed more rigorously as these areas generally have greater diversity and more likely to be suitable for rare species. In compliance with the provincial EA regulations for peatland developments, the rare plant survey was completed over three days in August (August 4<sup>th</sup> – August 6<sup>th</sup>, 2021)

Any rare plants encountered during the survey were identified and location recorded with a handheld GPS.

In addition to documenting rare plants, surveyors recorded general vegetation species throughout the surveyed area. Incidental observations of non-plant priority species were also documented.

### SOUTHERN TWAYBLADE SURVEY

A targeted search for Southern Twayblade was completed by a qualified ecologist (C. Pytlak). The survey consisted of walking wandering transects through suitable transitional peatland edge habitat and actively searching and documenting any observations of Southern Twayblade. In accordance with the provincial EA regulations for peatland developments, the Southern Twayblade survey was completed over two days in mid-June (June 16<sup>th</sup> – June 17<sup>th</sup>, 2021) during the flowering period for the plant.

The location(s) of any Southern Twayblade plants were recorded with a handheld GPS. The surveyor also evaluated general abundance of the plant and photographed any occurrences. The Southern Twayblade surveys were completed in tandem with the first round of breeding bird surveys. The results of the breeding bird surveys, including any incidental SAR observations, are documented in a separate report (*Peatland #6 – Breeding Bird and Nightjar Surveys, WSP, 2021*).

## RESULTS

The following sections describe the results of the rare plant and Southern Twayblade surveys. **Table 1** lists the dates, effort, and any SAR observations for each survey. **Figure 1** shows the survey area and survey results. Photos of the different habitats are presented at **Appendix A**.

**Table 1: Summary of plant surveys for Peatland 6**

Date	Survey Type	Surveyor	Survey Effort	Priority Species Observed
June 16 <sup>th</sup> – June 17 <sup>th</sup> , 2021	Southern Twayblade Survey	C. Pytlak	Two mornings; 6 hours	None
August 4 <sup>th</sup> – 6 <sup>th</sup> , 2021	Rare Plant Survey	D. Mitchell C. Pytlak	Three days; 20 hours	Cloudberry ( <i>Rubus chamaemorus</i> ) Russet Cottongrass ( <i>Eriophorum russeolum</i> )

## RARE PLANT SURVEY

The rare plant survey was completed on August 4<sup>th</sup> to August 6<sup>th</sup>, 2021. The surveyors walked transects throughout the proposed harvesting area of the peatland while actively searching for and documenting any rare and non-rare plants.

Thirty-nine vegetation species were recorded during the survey; three of which are SOCC: Cloudberry (*Rubus chamaemorus*) Russet Cottongrass (*Eriophorum russeolum*), and White Fringed Orchid (*Platanthera blephariglottis*). Cloudberry and Russet Cottongrass have provincial S-ranks of S3S4 and White-fringed Orchid is classified as S3. None of the three species are listed under provincial or federal SAR legislation. The location of the three species are shown in **Figure 1**. All vegetation species recorded are listed in **Table 2**.

The peatland is dominated by two habitat types: domed bog primarily consisting of Sphagnum moss (*Sphagnum* sp.) and Cottongrass species (*Eriophorum* sp.), and low-shrub bog habitat with moderate to dense ericaceous shrub cover dominated by Leatherleaf (*Chamaedaphne calyculata*), Sheep Laurel (*Kalmia angustifolia*), and Labrador Tea (*Rhododendron groenlandicum*). The peatland has minimal amounts of stunted Black Spruce (*Picea mariana*) and Tamarack (*Larix laricina*) along the peatland edge and in isolated patches within the peatland. Other species commonly encountered during the survey include Bog Rosemary (*Andromeda polifolia*), Black Huckleberry (*Gaylussacia baccata*), Three-leaved False Solomon’s Seal (*Maianthemum trifolium*), and Northern Pitcher Plant (*Sarracenia purpurea*).

Two non-plant SAR, Common Nighthawk (*Chordeiles minor*) and Olive-sided Flycatcher (*Contopus cooperi*), were observed incidentally during the rare plant survey. Both species are listed as ‘Threatened’ under federal and provincial SAR legislation. Two Common Nighthawk were observed flying southeast, approximately 500m east of the Project boundary, and another Common Nighthawk was heard faintly calling along the southern boundary of the Project area. A single Olive-sided Flycatcher was heard singing approximately 200m beyond the eastern boundary of the Project area. Both species prefer semi-open transitional forest habitat, which is common within and around the Project area. The observation locations are shown in **Figure 1**.

## SOUTHERN TWAYBLADE SURVEY

The Southern Twayblade survey was completed on June 16<sup>th</sup> and 17<sup>th</sup>, 2021. The surveyor walked wandering transects along the perimeter of the peatland harvest area in transitional shrub and forest habitats while searching for the plant.

No occurrences of the Southern Twayblade were observed during the survey.

**Table 2: List of plant species observed during the vegetation inventory for Peatland 6**

Common Name	Scientific Name	Location (Priority Species)		Conservation Status			
		Latitude	Longitude	COSEWIC	SARA	NB SARA	S-RANK (ACCDC) <sup>1</sup>
Alpine Clubrush	<i>Trichophorum alpinum</i>	---	---	---	---	---	S4
Black Chokeberry	<i>Aronia melanocarpa</i>	---	---	---	---	---	S5
Black Crowberry	<i>Empetrum nigrum</i>	---	---	---	---	---	S5
Black Huckleberry	<i>Gaylussacia baccata</i>	---	---	---	---	---	S5
Black Spruce	<i>Picea mariana</i>	---	---	---	---	---	S5
Bog Rosemary	<i>Andromeda polifolia</i>	---	---	---	---	---	S5
Cloudberry	<i>Rubus chamaemorus</i>	-65.339	46.864	---	---	---	S3S4
Common Labrador Tea	<i>Rhododendron groenlandicum</i>	---	---	---	---	---	S5
Creeping Snowberry	<i>Gaultheria hispidula</i>	---	---	---	---	---	S5
Eastern Teaberry	<i>Gaultheria procumbens</i>	---	---	---	---	---	S5
Eastern White Pine	<i>Pinus strobus</i>	---	---	---	---	---	S5
Gray Reindeer Lichen	<i>Cladonia rangiferina</i>	---	---	---	---	---	S5
Heart-leaved Birch	<i>Betula cordifolia</i>	---	---	---	---	---	S5
Horned Bladderwort	<i>Utricularia cornuta</i>	---	---	---	---	---	S5
Juncus sp.	<i>Juncus sp.</i>	---	---	---	---	---	---
Leatherleaf	<i>Chamaedaphne calyculata</i>	---	---	---	---	---	S5
Mountain Holly	<i>Ilex mucronata</i>	---	---	---	---	---	S5
Northern Pitcher Plant	<i>Sarracenia purpurea</i>	---	---	---	---	---	S5
Orchid sp.	<i>Orchid spp</i>	---	---	---	---	---	---
Orchid sp.	<i>Platanthera sp.</i>	---	---	---	---	---	---
Pink Lady's-Slipper	<i>Cypripedium acaule</i>	---	---	---	---	---	S5
Red Maple	<i>Acer rubrum</i>	---	---	---	---	---	S5
Rhodora	<i>Rhododendron canadense</i>	---	---	---	---	---	S5
Round-leaved Sundew	<i>Drosera rotundifolia</i>	---	---	---	---	---	S5
Russet Cottongrass	<i>Eriophorum russeolum</i>	-65.342	46.862	---	---	---	S3S4
Sheep Laurel	<i>Kalmia angustifolia</i>	---	---	---	---	---	S5
Small Cranberry	<i>Vaccinium oxycoccos</i>	---	---	---	---	---	S5
Spoon-leaved Sundew	<i>Drosera intermedia</i>	---	---	---	---	---	S5
Star-tipped Reindeer Lichen	<i>Cladonia stellaria</i>	---	---	---	---	---	S5
Tamarack	<i>Larix laricina</i>	---	---	---	---	---	S5
Tawny Cottongrass	<i>Eriophorum virginicum</i>	---	---	---	---	---	S5
Three-leaved False Solomon's Seal	<i>Maianthemum trifolium</i>	---	---	---	---	---	S5
Tuberous Grass Pink	<i>Calopogon tuberosus</i>	---	---	---	---	---	S4

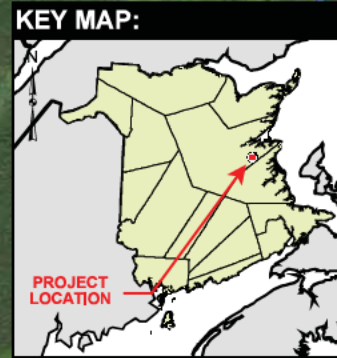


Common Name	Scientific Name	Location (Priority Species)		Conservation Status			
		Latitude	Longitude	COSEWIC	SARA	NB SARA	S-RANK (ACDC) <sup>1</sup>
Tufted Clubrush	<i>Trichophorum cespitosum</i>	---	---	---	---	---	S4
Tussock Cottongrass	<i>Eriophorum vaginatum</i>	---	---	---	---	---	S5
Variegated Pond-Lily	<i>Nuphar variegata</i>	---	---	---	---	---	S5
White Beakrush	<i>Rhynchospora alba</i>	---	---	---	---	---	S5
White Fringed Orchid	<i>Platanthera blephariglottis</i>	-65.339	46.864	---	---	---	S3
Wild Raisin	<i>Viburnum nudum</i>	---	---	---	---	---	S5

1: S-Rank is an indicator of commonness in the Province of New Brunswick. A scale between 1 and 5, with 5 being very common and 1 being least common.







**LEGEND:**

- Rare Plant Survey Area
- Peatland Boundary (GeoNB, 2021)
- Staging Area
- Harvest Field
- Donor Site
- Sedimentation Pond
- Candidate Conservation Area
- Candidate Conservation Area Buffer
- Proposed T&H Conservation Area
- Main Ditch
- Secondary Ditch
- Watercourse (GeoNB, 2021)
- Existing Access Road
- Access Road to be Constructed

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**PROJECT:**

PROJECT:	<b>PEATLAND 6</b>
PROJECT NO.:	<b>211-06686-00</b>
CLIENT:	<b>THERIAULT &amp; HACHEY PEAT MOSS LTD.</b>

**FIGURE:**

TITLE:	<b>RARE PLANT AND SOUTHERN TWAYBLADE SURVEY RESULTS</b>		
FIGURE NO.:	<b>1</b>	REVISION NO.:	<b>0</b>

SCALE: 1:18,000			
DATUM:	NAD 83 CSRS	PROJECTION:	UTM ZONE 20 NORTH

DRAWN BY:	C. PYTLAK	CHECKED BY:	F. QUINTY
CREATED DATE: (YYYY-MM-DD)	2021-09-20	REVISION DATE: (YYYY-MM-DD)	2021-09-20

**Rare Plant Survey**

- Rare Plant Survey Area

**Priority Plant Species Observations**

- Russet Cottongrass
- White Fringed Orchid
- Cloudberry

**Incidental Priority Bird Species Observations**

- Common Nighthawk
- Olive-sided Flycatcher







## SUMMARY

WSP completed a rare plant survey and a targeted Southern Twayblade survey at Peatland 6, located south of Miramichi, New Brunswick. The surveys were conducted in support of a peat harvesting project proposed by T&H. The surveys were intended to document the presence or absence of rare or endangered plant species and evaluate the general vegetation communities within the Project area.

Three SOCC plants were observed during the plant survey: Cloudberry, Russet Cottongrass, and White Fringed Orchid. Cloudberry and Russet Cottongrass have provincial S-ranks of S3S4 and White Fringed Orchid has an S-rank of S3. All three species have secure populations in the province but are less commonly found primarily due to habitat requirements. None of the three species are listed under provincial or federal SAR legislation.

A total of 39 vegetation species were observed during the rare plant survey; most of which are commonly found in peatlands and bogs. The vegetation diversity throughout the peatland was generally limited and habitats are largely homogenous throughout the Project area.

Southern Twayblade was not encountered during the dedicated survey in June.

Two SAR birds were recorded incidentally during the rare plant survey: Common Nighthawk (three observations) and Olive-sided Flycatcher (one observation). These observations were either at or beyond the peatland boundary. Observations of these species are not unexpected, as the surrounding landscape has a multitude of semi-open forested and transitional habitats and large tracts of unfragmented forest.

This report has been prepared for the sole benefit of Theriault & Hachey Peat Moss Ltd. Any other person or entity may not rely on this report without the express written consent of WSP and Theriault & Hachey Peat Moss Ltd. WSP accepts no responsibility for damaged suffered by any third party as a result of decisions made, or actions conducted based on this report. No other warranties are implied or expressed. This report has been prepared by **Cody Pytlak, B.A. (Ecologist)** and reviewed by **Francois Quinty, M.Sc. (Geographer)**.

The findings presented in this report are based on field observations made during the surveys listed in **Table 1**. We trust that this report meets your requirements at this time. If there are any questions, please do not hesitate to contact the undersigned.

Yours sincerely,

Prepared by:

Cody Pytlak  
Ecologist

Reviewed by:

François Quinty  
Geographer

2021-10-21



# ATTACHMENT

**A**

PHOTOGRAPHIC LOG  
FOR PEATLAND #6





**Photo 1:** Low-shrub bog transitional habitat, August 4, 2021



**Photo 2:** Pond edge, northern limit of peatland, August 4, 2021



**Photo 3:** Stunted Black Spruce and shrub bog, August 4, 2021



**Photo 4:** Representative low-shrub bog ground cover, August 4, 2021



**Photo 5:** Low shrub bog representative habitat, August 5, 2021



**Photo 6:** Representative low-shrub bog ground cover, August 5, 2021



**Photo 7:** Pond edge and transitional forest habitat, August 5, 2021



**Photo 8:** Transitional forest and shrub bog habitat, August 5, 2021





**Photo 9:** Representative domed bog habitat, August 6, 2021



**Photo 10:** Carcass remains of an Eastern Moose, August 6, 2021



**Photo 11:** Representative domed bog habitat, August 6, 2021



**Photo 12:** Representative domed bog habitat, August 6, 2021

