APPENDIX

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PEATLAND #6 - BREEDING BIRD AND NIGHTJAR SURVEYS (WSP, 2021)

July 27, 2021

Matt Theriault
Theriault & Hachey Peat Moss Ltd.
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Subject: Peatland #6 - Breeding Bird and Nightjar Surveys

Dear Mr. Theriault,

WSP Canada Inc. (WSP) was retained by Theriault & Hachey Peat Moss Ltd. (T&H) to conduct breeding bird and nightjar surveys for a peat bog harvesting development project ("the Project"). This report presents the results of the breeding bird and nightjar 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 using machinery to dry the peat. 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 1.1 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 breeding bird and nightjar surveys be completed within the Project footprint to evaluate general bird habitat usage and identify the potential presence of Species at Risk (SAR), including, but not limited to, Canada Warbler (*Cardellina canadensis*), Common Nighthawk (*Chordeiles minor*), Eastern Whip-poor-will (*Antrostomus vociferus*), and Olive-sided Flycatcher (*Contopus cooperi*).

WSP requested a data report from the Atlantic Canada Conservation Data Centre (AC CDC) in advance of the field surveys. The report lists occurrence records within 5 km of Peatland #6 for the following priority species: Barn Swallow (*Hirundo rustica*), Canada Warbler, Common Nighthawk, Eastern Kingbird (*Tyrannus tyrannus*), Olive-sided Flycatcher, Scarlet Tanager (*Piranga olivacea*), and Wilson's Snipe (*Gallinago delicata*). Priority species are defined as follows:

- **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

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- **Species of Conservation Concern (SOCC):** SOCC are species listed as S1-S3S4 (provincial rarity rankings) by AC CDC.

METHODOLOGY

The following subsections describe the methods and protocols implemented for the breeding bird and nightjar surveys. All surveys were completed by a qualified WSP ecologist.

BREEDING BIRD SURVEY

The breeding bird survey implemented a 10-minute point count survey at 11 pre-determined locations throughout the Project area. The locations were selected based on the preliminary site design (i.e., proposed roads and staging areas) and adjacency to suitable bird habitat. The breeding bird surveys were completed in the dawn hours, beginning no earlier than 30 minutes prior to sunrise and finishing four and a half hours after sunrise or by 10 a.m. (whichever came first). Due to the size of the Project area, surveys were completed over two mornings. Two rounds of surveys were completed, equalling four survey days.

During each point count survey, the WSP ecologist recorded all birds detected audibly and/or visually. Survey effort was primarily concentrated within a 100 m radius of the point count station; birds detected beyond 100 m were recorded if they could be identified and considered to be incidental observations. For individuals, pairs, or groups of birds observed, the following information was collected:

- Species;
- Number observed;
- Age and sex;
- Type of detection (audible/visual);
- Distance and direction from survey station (priority species only);
- Whether the bird was in transit (i.e., fly-by); and,
- Relevant behaviours and observations (i.e., singing males, copulation display, adults carrying food).

Furthermore, the ecologist recorded basic data for each survey station such as date and time, UTM coordinates, weather conditions, and took photographs as a record of habitat characteristics.

NIGHTJAR SURVEY

The nightjar surveys were targeted at evaluating the presence of two species: Common Nighthawk and Eastern Whip-poor-will, which are known to occur within and around peatlands. Four survey stations were placed within or in proximity to suitable habitat for Common Nighthawk and Eastern Whip-poor-will. These species are typically found in transitional habitats near forest edges, adjacent to open areas for foraging. Both species are most active at dawn and dusk, and therefore the surveys were conducted in the evening hours, beginning 30 minutes before sunset and finishing one hour after sunset.

The nightjar surveys generally followed the methods described in the '*Canadian Nightjar Survey Protocol 2019.*'[1] As this protocol is targeted towards roadside surveys, the methods were adapted to suit the conditions within the Project area. Survey stations were placed at least 600 m apart and selected based on proximity to suitable habitat. The biologist completed a 10-minute passive point count at each survey station (the *Canadian Nightjar Survey Protocol* requires a six-minute point count survey, but this was increased to maximize active survey duration while

[1] Knight, E. (2019). Canadian Nightjar Survey Protocol. Retrieved from http://wildresearch.ca/wp-content/uploads/2019/05/National-Nightjar-Survey-Protocol-WildResearch-2019.pdf

still adhering to the start and end times for each survey round). Two rounds of surveys were completed, with one round conducted within one week of the June full moon (June 24th, 2021), as per the survey protocol.

Any Common Nighthawks and Eastern Whip-poor-wills detected within 400 m were recorded. Any Common Nighthawks or Eastern Whip-poor-will detected beyond 400 m were recorded as incidental observations. Any non-nightjar species were recorded as incidental observations to supplement the breeding bird survey results.

In addition to bird observations, the ecologist also documented the survey start and end times, temperature and general weather conditions, and distance and direction of any nightjar or priority species.

RESULTS

The following sections describe the results of the dedicated breeding bird and nightjar surveys. Table 1 lists the dates, effort, and any SAR observations for each survey. **Figure 1** shows the location of survey stations and any priority species observed.

Table 1: Summary of bird surveys for Peatland 6

Date	Survey Type	Survey Effort	SAR Observed
June 16th – June 17th, 2021	Breeding Bird Survey	Two mornings; 11 point count stations	Olive-sided Flycatcher
June 24th, 2021	Nightjar Survey	40 minutes survey time; 4 point count stations	None
July 5th – July 6th, 2021	Breeding Bird Survey	Two mornings; 11 point count stations	None
July 5th, 2021	Nightjar Survey	40 minutes survey time; 4 point count stations	None

BREEDING BIRD SURVEY

The first round of breeding bird surveys was completed on June 16th and 17th, 2021, and the second round was completed on July 5th and 6th, 2021. The location and habitat of the 11 point count stations are described in **Table 2**. **Figure 1** shows the location of the breeding bird survey stations and the approximate location for observed SAR and SOCC. Photographs from each of the survey stations are included in **Attachment A**.

A total of 78 individual birds, comprised of 26 species were recorded during the breeding bird surveys (**Table 3**). An additional 62 birds were recorded incidentally (>100 m from survey station), with 13 additional species not directly recorded within 100 m of the survey stations; these additional species are indicated as incidentals in **Table 3**. These species include:

Olive-sided Flycatcher, listed as Threatened under the federal and provincial SARA legislation, was detected incidentally during the first round of surveys, at Station 2. It was estimated to be singing approximately 120 m from the survey station. The habitat directly surrounding Station 2 is predominately mid-aged coniferous forest, with a dense understorey of White Spruce (*Picea glauca*) and Balsam Fir (*Abies balsamea*) and Rhodora (*Rhododendron canadense*) and is unlikely to be suitable for Olive-sided Flycatcher, which prefers transitional and semi-open habitats for nesting.

Three provincially rare species were recorded during the survey; Bufflehead (*Bucephala albeola*), Sandhill Crane (*Antigone canadensis*), and Wilson's Snipe. A group of five juvenile Bufflehead were observed in a pond adjacent to Station 11 during the second round of surveys. A single Sandhill Crane was observed flying low across the bog during the first round of surveys, approximately 60 m from Station 7, followed by an incidental observation following the completion of surveys, approximately 450 m northwest of Station 6. A Wilson's Snipe was heard winnowing during the first survey round at Station 8. The bird could not be visually located and was difficult to determine an approximate direction and distance; therefore, the bird was estimated to be >100 m from Station 8.

Table 2: Breeding bird survey station locations and habitat descriptions

Station	Zone	Easting	Northing	Habitat
1	20	319948	5192549	Mid-aged coniferous forest with semi-open canopy; dominated by Balsam Fir, and occasional Eastern White Pine (*Pinus strobus*), and Tamarack (*Larix laricina*). Shrub and ground layer predominately Balsam Fir and Red Maple (*Acer rubrum*) saplings with occasional Bracken Fern (*Pteridium aquilinium*) and grasses.
2	20	320383.8	5192327	Coniferous forest with abundant mid-aged White Spruce and Balsam Fir within the canopy and subcanopy layers. Shrub and ground layers are dominated by White Spruce sapling and Rhodora.
3	20	320986	5192407	Disturbed area due to an existing trail/access road with disturbance-tolerant ground vegetation such as Red Clover (*Trifolium pratense*), Creeping Buttercup (*Ranunculus repens*), and Wild Strawberry (*Fragaria virginiana*). Immature coniferous forest present on both sides of the trail with Balsam Fir, Eastern White Pine, and Tamarack present.
4	20	321335.5	5193096	Low shrub bog with abundant Leatherleaf (*Chamaedaphne calyculata*) and sphagnum moss. Frequent to rare abundance of Sheep Laurel (*Kalmia angustifolia*), Rhodora, and Labrador Tea (*Rhododendron groenlandicum*). Scattered saplings of Black Spruce (*Picea mariana*) and Jack Pine (*Pinus banksiana*) are present.
5	20	321569.4	5192709	Low shrub bog with abundant Leatherleaf and Labrador Tea. Sheep Laurel and Rhodora occur occasionally. Stunted Black Spruce and Jack Pine are scattered infrequently, including minor amounts of saplings.
6	20	321669.8	5192181	Ombotrophic domed bog dominated by various species of sphagnum moss; Reindeer lichens (*Cladonia* sp.) also present. Tufted Clubrush (*Trichophorum cespitosum*) and species of Cottongrass (*Eriophorum* sp.) are abundant.
7	20	322261.4	5192012	Treed bog with frequent Black Spruce, Jack Pine, and Tamarack; shrub layer dominated by Labrador Tea and Leatherleaf, with species of Sphagnum moss present throughout. Transitional habitat between low shrub bog edge to coniferous forest.
8	20	321673.2	5191470	Low shrub bog with abundant Leatherleaf and Labrador Tea. Sheep Laurel, Rhodora, and Labrador Tea occur occasionally. Stunted Black Spruce, Tamarack, and Jack Pine are scattered infrequently, including saplings. Cottongrass is occasionally present.
9	20	322193.2	5192527	Low shrub bog with abundant Leatherleaf. Sheep Laurel and Rhodora are frequent. Stunted Black Spruce, Tamarack, and Jack Pine are scattered infrequently, including saplings. Cottongrass is occasionally present. Survey station is within transitional habitat between shrub bog and coniferous forest.
10	20	322541	5193090	Ombotrophic domed bog dominated by various species of sphagnum moss; Reindeer lichens also present. Pockets of Rhodora, Bog

Station	Zone	Easting	Northing	Habitat
				Cranberry (*Vaccinium oxycoccos*) and Black Huckleberry (*Gaylussacia baccata*) are present.
11	20	322078.3	5193204	Transitional habitat between ombotrophic domed bog and low shrub bog. Open bog habitat is predominately sphagnum moss, Tufted Clubrush and Cottongrass. Low shrub bog is dominated by Leatherleaf, Rhodora, and Labrador Tea. An open water pond is located approximately 25m from the survey station.

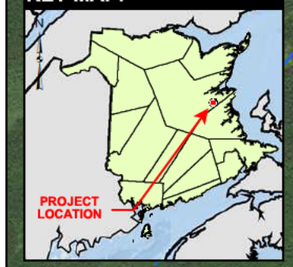
Table 3: Breeding bird survey results

Common Name	Scientific Name	#	Location	Incidental (>100 m)	Conservation Status			
					COSEWIC[1]	SARA	NB SARA	S-RANK (ACCDC)[2]
Alder Flycatcher	*Empidonax alnorum*	1	BBS3	✓	---	---	---	S5B,S5M
Black-and-white Warbler	*Mniotilta varia*	2	BBS2		---	---	---	S5B, S5M
Black-capped Chickadee	*Poecile atricapillus*	1	BBS1		---	---	---	S5
Black-throated Blue Warbler	*Setophaga caerulescens*	3	BBS9 and BBS11		---	---	---	S5B, S5M
Black-throated Green Warbler	*Setophaga virens*	1	BBS3		---	---	---	S5B, S5M
Blue-headed Vireo	*Vireo solitarius*	1	BBS2		---	---	---	S5B, S5M
Bufflehead	*Bucephala albeola*	5	BBS11		---	---	---	S3M, S2N
Chipping Sparrow	*Spizella passerina*	1	BBS4	✓	---	---	---	S5B,S5M
Chestnut-sided Warbler	*Setophaga pensylvanica*	1	BBS1		---	---	---	S5B, S5M
Common Raven	*Corvus corax*	1	BBS4	✓	---	---	---	S5
Common Yellowthroat	*Geothlypis trichas*	10	BBS2, BBS3, BBS7, BBS8, BBS9 and BBS11		---	---	---	S5B, S5M
Dark-eyed Junco	*Junco hyemalis*	3	BBS1 and BBS2		---	---	---	S5
Golden-crowned Kinglet	*Regulus satrapa*	4	BBS1 and BBS5		---	---	---	S5
Hawk species	*Accipiter* sp.	1	BBS9	✓	---	---	---	-
Hermit Thrush	*Catharus guttatus*	5	BBS1, BBS7 and BBS9		---	---	---	S5B, S5M
Least Flycatcher	*Empidonax minimus*	1	BBS2		---	---	---	S5B, S5M
Lincoln's Sparrow	*Melospiza lincolnii*	3	BBS7 and BBS8		---	---	---	S4B, S5M
Magnolia Warbler	*Setophaga magnolia*	5	BBS1, BBS3 and BBS4		---	---	---	S5B, S5M
Nashville Warbler	*Oreothlypis ruficapilla*	6	BBS2, BBS3, BBS5, BBS7 and BBS11		---	---	---	S5B, S5M
Northern Flicker	*Colaptes auratus*	1	BBS7	✓	---	---	---	S5B,S5M
Northern Harrier	*Circus hudsonius*	1	BBS10	✓	NAR	---	---	S4B,S4S5M
Northern Parula	*Setophaga americana*	1	BBS4	✓	---	---	---	S5B,S5M
Olive-sided Flycatcher	*Contopus cooperi*	1	BBS2	✓	SC	THR	THR	S3B,S3M
Palm Warbler	*Setophaga palmarum*	6	BBS2, BBS8 and BBS11		---	---	---	S5B, S5M
Passerine species (Unidentified)	*Passerine* sp.	1	BBS1		---	---	---	-
Red-breasted Nuthatch	*Sitta canadensis*	4	BBS4, BBS9, BBS10 and BBS11	✓	---	---	---	S5
Red-eyed Vireo	*Vireo olivaceus*	1	BBS3		---	---	---	S5B, S5M
Ruby-crowned Kinglet	*Regulus calendula*	3	BBS1, BBS2 and BBS5	✓	---	---	---	S4B,S5M
Sandhill Crane	*Antigone canadensis*	1	BBS7		---	---	---	S1B, S1M

Common Name	Scientific Name	#	Location	Incidental (>100 m)	Conservation Status			
					COSEWIC[1]	SARA	NB SARA	S-RANK (ACCDC)[2]
Savannah Sparrow	*Passerculus sandwichensis*	6	BBS5, BBS6, BBS8 and BBS10		---	---	---	S4S5B, S5M
Sparrow species (Unidentified)	*Sparrow* sp.	2	BBS4 and BBS9		---	---	---	-
Swainson's Thrush	*Catharus ustulatus*	2	BBS3 and BBS4		---	---	---	S5B,S5M
Swamp Sparrow	*Melospiza georgiana*	1	BBS7		---	---	---	S5B, S5M
Tree Swallow	*Tachycineta bicolor*	1	BBS4		---	---	---	S4B, S4M
White-throated Sparrow	*Zonotrichia albicollis*	2	BBS3		---	---	---	S5B, S5M
White-winged Crossbill	*Loxia leucoptera*	5	BBS2		---	---	---	S5
Wilson's Snipe	*Gallinago delicata*	1	BBS8	✓	---	---	---	S3S4B,S5M
Winter Wren	*Troglodytes hiemalis*	1	BBS1	✓	---	---	---	S5B,S5M
Yellow-rumped Warbler	*Setophaga coronata*	1	BBS1		---	---	---	S5B, S5M

1; THR: Threatened, SC: Special Concern, NAR: Not At Risk. 2; 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.

KEY MAP:



Rosaireville Lake

Peatland no. 6

BBS-1
BBS-2
BBS-3
BBS-4
BBS-5
BBS-6
BBS-7
BBS-8
BBS-9
BBS-10
BBS-11
CBS-1
CBS-2
CBS-3
CBS-4

Avian Surveys
- Breeding Bird Survey Station
- Nightjar Survey Station

Priority Species Observations
- Bufflehead
- Olive-sided Flycatcher
- Sandhill Crane
- Wilson's Snipe

bing

LEGEND:
- Peatland Boundary (GeoNB, 2021)
- Staging Area
- Harvest Field
- Donor Site
- Sedimentation Pond
- Candidate Conservation Area
- Candidate Conservation Area Buffer Zone
- Main Ditch
- Secondary Ditch
- Watercourse (GeoNB, 2021)
- Road
- Proposed Access Road

N W E S

PROJECT:

PROJECT: PEATLAND 6

PROJECT NO.: 211-06686-00

CLIENT: THERIAULT & HACHEY PEAT MOSS LTD.

FIGURE:

TITLE: BREEDING BIRD AND NIGHTJAR SURVEYS SURVEY SUMMARY

FIGURE NO.:	REVISION NO.:
1	0

SCALE: 1:18,000
0 250 500 1,000 M

DATUM:	PROJECTION:
NAD 83 CSRS	UTM ZONE 20 NORTH
DRAWN BY: C. PYTLAK	CHECKED BY: F. QUINTY
CREATED DATE: (YYYY-MM-DD) 2021-07-27	REVISION DATE: (YYYY-MM-DD) 2021-11-17

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PATH: F:\WSP\211_06686_00 - T&H Peatland 6\8_MXD\REPORT\20211117_211_06686_FIG01_AvianSurveys.mxd

NIGHTJAR SURVEY

Two Nightjar surveys were completed on June 24th and July 5th, 2021. The UTM coordinates and a description of habitat of the four survey stations are listed in **Table 4**.

Table 4: Nightjar survey station locations and habitat descriptions

Station	Zone	Easting	Northing	Habitat
1	20	321211.8	5192261	Low shrub bog with abundant Leatherleaf and Labrador Tea. Sheep Laurel and Rhodora occur occasionally. Stunted Black Spruce and Jack Pine are scattered infrequently, including minor amounts of saplings.
2	20	321903.3	5193039	Low shrub bog dominated by Leatherleaf, Rhodora, and Labrador Tea. Stunted Black Spruce and Jack Pine are present.
3	20	322251.6	5192572	Low shrub bog with abundant Leatherleaf. Sheep Laurel and Rhodora are frequent. Stunted Black Spruce, Tamarack, and Jack Pine are scattered infrequently, including saplings. Cottongrass is occasionally present. Survey station is within transitional habitat between shrub bog and coniferous forest.
4	20	322574.1	5191932	Treed bog with frequent Black Spruce, Jack Pine, and Tamarack; shrub layer dominated by Labrador Tea and Leatherleaf, with species of Sphagnum moss present throughout. Transitional habitat between low shrub bog edge to coniferous forest.

No Common Nighthawks or Eastern Whip-poor-wills were detected during the surveys. Incidental bird species detected during the surveys include Common Yellowthroat (*Geothlypis trichas*), Dark-eyed Junco (*Junco hyemalis*), Hermit Thrush (*Catharus guttatus*), Palm Warbler (*Setophaga palmarum*), Savannah Sparrow (*Passerculus sandwichensis*), Swainson's Thrush, and White-throated Sparrow (*Zonotrichia albicollis*). All the incidental species were observed either directly or incidentally during the breeding bird surveys, and none are considered to be priority species.

SUMMARY

WSP completed two rounds of breeding bird and nightjar surveys 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 general bird habitat usage within the Project area, as well as evaluate the potential presence of SAR, SOCC, and provincially rare species.

One SAR, Olive-sided Flycatcher, was observed incidentally during the first breeding bird survey, approximately 120 m from Station 2. This bird was not detected during the second survey round. Three provincially rare species – Bufflehead, Sandhill Crane, and Wilson's Snipe, were observed either directly or incidentally during the breeding bird surveys. Each of these species were observed only once. Sandhill Crane and Wilson's Snipe were observed within the proposed peat harvesting area, while a group of Bufflehead were observed in a pond that is located outside of the harvesting area.

 This report has been prepared by **Cody Pytlak, B.A. (Ecologist)** and reviewed by **Tiffany MacAulay, MSc (Biologist)**.

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,

Cody Pytlak
Ecologist

WSP ref.: 211-06686-00

ATTACHMENT

A PHOTOGRAPHIC LOG FOR PEATLAND #6

Photo 1: Breeding bird survey (BBS) point count station #1, June 16, 2021

Photo 2: BBS point count station #2, June 16, 2021

Photo 3: BBS point count station #3, June 16, 2021

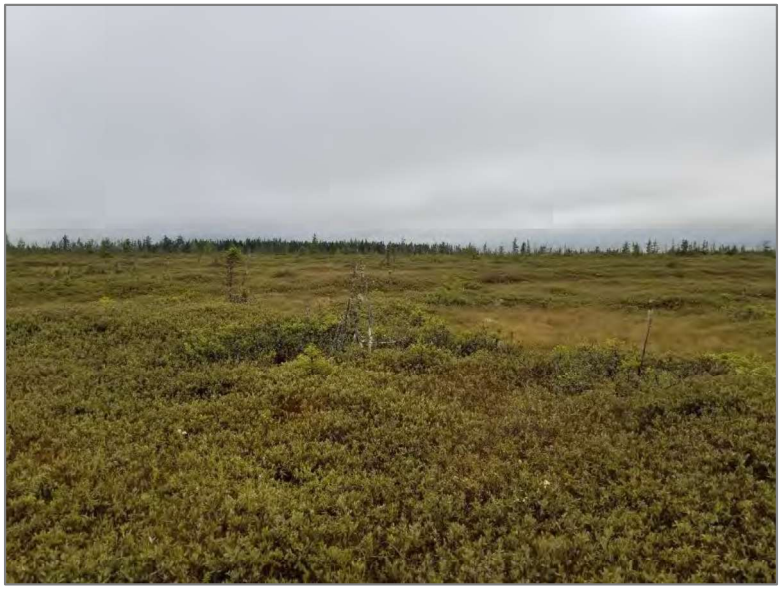

Photo 4: BBS point count station #4, June 16, 2021

Photo 5: BBS point count station #5, June 16, 2021

Photo 6: BBS point count station #6, June 16, 2021

Photo 7: Transitional habitat near BBS point count station #7, June 17, 2021

Photo 8: BBS point count station #8, June 16, 2021

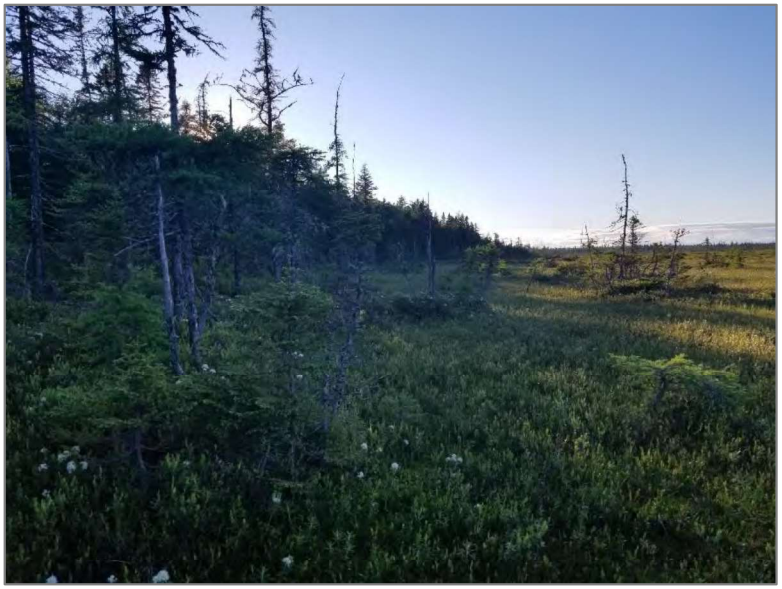

Photo 9: BBS point count station #9, June 17, 2021

Photo 10: BBS point count station #10, June 17, 2021

Photo 11: BBS point count station #11 (1 of 2), June 17, 2021

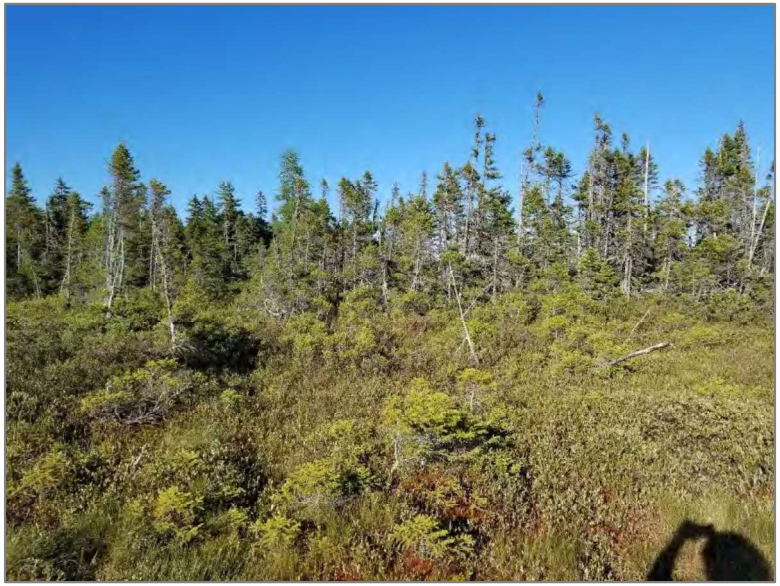

Photo 12: BBS point count station #11 (2 of 2), June 17, 2021