

Final Report

Phase I - Bluff Trail Stewardship Program (BTSP) 1 April - 30 September 2017

Submitted to

Five Bridges Wilderness Heritage Trust Stewardship Grants Program

by

Saint Margaret's Bay Stewardship Association (SMBSA)

& Woodens River Watershed Environmental

Organization (WRWEO)

October 2017

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Introduction

The **Bluff Trail Stewardship Program (BTSP)** is a joint project of the **St. Margaret's Bay Stewardship Association (SMBSA)** and the **Woodens River Watershed Environmental Organization (WRWEO)**. It is designed to redress the increasing number and severity of harmful human impacts on The Bluff Wilderness Hiking Trail which have accompanied the increased number of users on the trail.

This report serves as the final report for Phase I (1 April – 30 September 2017) of the Bluff Trail Stewardship Program and is submitted to **Five Bridges Wilderness Heritage Trust (FBWHT)** in accordance with the requirements of the **Environmental Stewardship Grant** awarded to the BTSP in April 2017.

BTSP relies on volunteer stewards to submit reports documenting their hours and activities while on the trail. While BTSP received ninety-four reports from April to September, there were times when stewards visited the trail and did not submit a report. There are also volunteers who, even without BTSP training, perform stewardship activities and contribute to the maintenance of the trail, but do not record nor report their work to the BTSP. Therefore, the data presented in this report represents only the recorded and reported portion of the stewardship activities on and around the trail.

The report is divided into two sections. The first section, "BTSP by the Numbers", gives a tally of quantifiable data related to the program and includes the number of:

- BTSP Reports Submitted
- Days with BTSP presence on the trail
- BTSP hours (on-trail)
- BTSP stewards trained
- Number of People observed on the trail
- Number Dogs observed on the trail
- Remediation & repair activities
- 'Check-ins' at designated leave no trace educational camping sites; and
- In-kind contributions made to the program

The second section, "Summary of Program Events & Activities", offers a brief description of some of the most important initiatives and activities undertaken by the BTSP from April to September 2017. This section includes information on growing the BTSP team, the type of work

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that BTSP stewards perform on the trail, and examples of public outreach and education initiatives which take place both on and off of the trail.

The contents of this report clearly demonstrate that The Bluff Trail Stewardship Program (BTSP) has successfully:

- increased the positive presence of stewardship on the trail;
- increased the timeliness of remediation and clean-up efforts on the trail;
- increased support and assistance for visitors seeking information such as directions;
- increased the knowledge of both flora and fauna species present in the area of the trail; increased our knowledge and understanding of all activities (human and non-human) on and around the trail.

BTSP provides a valuable and positive contribution to the stewardship of The Bluff Wilderness Hiking Trail and the Five Bridge Lakes Wilderness Area, and also offers a useful resource and support to those who visit the trail and the surrounding area.

The St. Margaret's Bay Stewardship Association and the Woodens River Watershed Environmental Organization wish to express their sincere appreciation for the support of the Five Bridges Wilderness Heritage Trust through its Stewardship Grants Program. Without this generous support, the BTSP would not have been able to do this this work. SMBSA and WRWEO would also like to thank Nova Scotia Environment – Protected Areas and Ecosystems Branch, RBC Community and Sustainability Grant, and the many individual donors who have made the BTSP possible.

BTSP by the Numbers

Number of BTSP Reports Submitted:

94

Type of Reports

Trail Reports	60	64%
Summer Stewardship Assistant Reports	14	15%
Event Summaries	9	10%
BTSP Training/Work Day Reports	4	4%
Trail Counts	3	3%
Intern & Coop Student Work Day Reports	2	2%
OFF-Trail Activity Reports	1	1%
Parking Lot Reports	1	1%
Total	94	100%

Submitted By

BTSP Assistant	32	34%
BTSP Coordinator	15	16%
BTSP Stewards	21	22%
Summer Stewardship Assistants	14	15%
WRWEO Directors, Volunteers & Trail Users	12	13%
Total	94	100%

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Number of days with BTSP presence on the trail:

70/183 (38%)

BTSP Presence by Loop

Pot Lake Loop (1 st)	63/183	34%
Mi'kmaw Hill Loop (2 nd)	31/183	17%
Bluff Loop (3 rd)	17/183	9%
Hay Marsh Loop (4 th)	13/183	7%

Number of BTSP Hours (On-Trail):

1,027.85

BTSP Hours On-Trail

Paid Hours On-Trail	446.15	44%
Unpaid Hours On-Trail	581.70	57%

Number of BTSP Stewards Trained:

17

Total Number of BTSP Stewards Trained:

31

Number of BTSP Volunteer Stewards Trained

23 April 2017	6
7 May 2017	1
18 June 2017	3
8 July 2017	2
5 August 2017	4
16 September 2017	1

NOTE: Fourteen (14) BTSP Stewards had been trained between January and March 2017, prior to FBWHT funding

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Number of People Observed on the Trail:

1792

Number of People Observed & Engaged

Number of people observed	1792	
Number of people engaged	689	38%

NOTE: To avoid the possibility of double counting, the number of people observed includes only the largest count reported on any given day. If all reported counts were included the total number of people observed would be 2134 and percentage of people engaged would be 32%.

Among the most common topics of engagement are:

- BTSP
- Safety
- Fires
- Trail Maintenance
- Directions
- Camping / LNT
- Volunteering
- Flora/Fauna
- Dogs

Number of Dogs Observed on the Trail:

309

Number of Dogs Observed on the Trail

Dogs OFF leash	68%
Dogs ON leash	32%

NOTE: To avoid the possibility of double counting, the number of dogs observed includes only the largest count on any given day. If all reported counts were included the total number of dogs observed would be 346.

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Number of Remediation & Repair Activities:

280

Although not all remediation and repair activities are reported by volunteer stewards the table below offers some examples of the type of work documented in the trail reports.

Number of Remediation & Repair Activities

spur barriers built or refurbished	89
trail barriers built or refurbished	76
fire pits remediated	33
signs posted/repared	18
rock hardening constructed	51 ft.
deadfall removed	6
holes in trail surface filled	3
wobbling rock on trail surface fixed	1
abandoned camps/structures removed	2
rock formations (cairn/inuksuk) removed	1
Paradise Cove Clean-Up event	1

NOTE: During the Paradise Cove Clean-Up event the BTSP Stewardship Coordinator and eight volunteers from WRWEO & Canoe Kayak Nova Scotia (CKNS) removed approximately 700lbs of garbage from the boat graveyard on Upper Five Bridge Lake, Paradise Cove, and other locations on Hubley Big Lake.

Number of 'Check-Ins' at designated Leave No Trace Educational Camping Sites:

62

Number of 'Check-Ins' at designated LNT Sites

Coyote/U'lukwej (44.64224, -63.78316)	22
Crow/Ka'qaquj (44.64116, -63.78411)	22
Squirrel/Atutu'wej (44.63094, -63.7953)	9
Moose/Tia'm (44.63124, -63.81186)	9

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In-Kind Contributions:

\$20,566.75

In-Kind Contributions

ON-Trail Volunteer Labour	571.25 hrs.	@20.10/hr	11,486.15
OFF-Trail Volunteer Labour	403.5 hrs.	@20.10/hr	8,110.35
Materials, Equipment, & Services (See below for calculations)			970.25
Total			\$20,566.75

NOTE: WRWEO calculates the value of volunteer labour according to the 2015 study titled *Working for a Living, Not Living for Work*, released by the Canadian Centre for Policy Alternatives – Nova Scotia in partnership with United Way – Halifax. The report used the Canadian Living Wage Framework to calculate the living wage for Halifax at \$20.10/hr.

Materials & Equipment

24 to 25 May: Use of 1 canoe for 2 days of NRET trail assessment	80.50
4 July: Use of 1 canoe for 1 day to designate Moose/Tia'm LNT site and check on Coyote/U'lukwej & Crow/Ka'qaquj LNT sites	40.25
17 to 19 July: Use of 2 canoes for 3 days to conduct forest sampling on west shore of Big Five Bridge Lake	241.50
27 July: Use of 1 canoe for 1 day for work on outer loops	40.25
9 Aug: Use of 1 canoe for 1 day for assessment of boat graveyard on Upper Five Bridge Lake and inspection of three LNT sites	40.25
1 Sept: Use of 1 kayak for 1 day to inspect unmonitored campsite on Hubley Big Lake and check Moose/Tia'm LNT site	46.00
5 Sept: Use of 1 canoe for 1 day to examine the south side of the FBLWPA and assessed impacts on 'Otter Lake' look-off	40.25
9 Sept: Use of 4 canoes for 1 day to conduct the Paradise Cove Clean Up event	161.00
9 Sept: Use of approx. 15 heavy duty garbage bags for Paradise Cove Clean Up event	10.00
10 Sept: Garbage pick-up service to remove approx. 700lbs of garbage at Big Hubley Lake Rd.	230.00
22 Sept: Use of 1 canoe for 1 day to inspect illegal deer blind near Paradise Cove portage and check on Squirrel/Atutu'wej & Moose/Tia'm LNT sites	40.25
Total Estimated In-Kind Contributions of Materials and Equipment (April to Sept. 2017)	\$970.25

NOTE: Dollar values assigned to canoe and kayak use is based on rental rates at Mountain Equipment Coop (MEC); value of garbage pick-up is estimated using 1-800-GOT-JUNK rates.

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Summary of Program Events & Activities

☞ Stewardship Days, Intern Initiatives, & Field Work ☞

During Phase I, the Bluff Trail Stewardship Program employed a part-time Stewardship Coordinator (Mike Lancaster) for 11 hours/week and, beginning in June, a part-time Stewardship Assistant (Fiona Brooks) for 15 hours/week. However, the work of the program far exceeded the hours available to this two-person team. WRWEO was able to augment the BTSP team by securing two Summer Student Assistants (SSAs) for approximately fourteen days of work during July and August. BTSP further leveraged the paid labour of these four workers with the unpaid labour of many more individuals including one coop student from Nova Scotia Environment, one Natural Resources Environmental Technology (NRET) student seeking On-The-Job (OTJ) training, a growing team of volunteer stewards, and a collaborative initiative with the current Natural Resources Environmental Technology (NRET) class of approximately eleven students seeking field work experience.

BTSP Stewardship Days & Volunteer Training:

Each month, BTSP holds a Stewardship Day facilitated by the Stewardship Coordinator and Stewardship Assistant. During the course of the day, volunteers split into two groups. One group consists of new volunteers who receive the training necessary to become a Bluff Trail Steward. The other group consists of trained stewards who perform maintenance and remediation work on the trail. During Phase I, the BTSP held Stewardship Days on the following five dates:

23 April

18 June

8 July

5 August

16 September

Prior to receiving the FBWHT Environmental Stewardship Grant, 14 BTSP stewards had been trained. During Phase I, an additional 17 Stewards received training bringing the total number of BTSP Stewards to 31. Below are images from two of the BTSP Stewardship days.



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Nova Scotia Environment (NSE) Coop Student Initiative:

On 28 April and 19 May, the BTSP Stewardship Coordinator Mike Lancaster supervised Michael Plummer, a Coop Student from Nova Scotia Environment (NSE), for two very productive workdays. During the first work day, they remediated 7 fire pits, constructed or refurbished 5 trail braiding barriers and 4 trail spur barriers, checked on both Coyote/U'lukwej and Crow/Ka'qaqj LNT sites, and engaged 15 trail users. On the second work day, they conducted an assessment of Pot Lake and Mi'kmaw Hill Loops, engaged 47 trail users, constructed or refurbished 38 trail barriers to remediate trail widening and braiding, constructed or refurbished 14 spur barriers, and collected a significant amount of garbage from both loops.

Nova Scotia Community College On-the-Job Training Initiative:

During the month of May, Mike Lancaster, in his role as Stewardship Coordinator for the St. Margaret's Bay Stewardship Association (SMBSA), supervised Alyssa Ottway, a student in the Natural Resources Environmental Technology (NRET) program at Nova Scotia Community College (NSCC) to meet part of her On-The-Job (OTJ) requirements for the NRET program. During her time at SMBSA, she spent a three day secondment (19, 23, 25 May) on the Bluff Wilderness Hiking Trail as a BTSP Steward. On 19 May, Alyssa worked with the Coop Student from NSE to complete the work described above. On 23 May, Alyssa performed BTSP work on the Bluff Loop and completed 23 feet of rock hardening; filled two holes in the trail flagged by Department of Natural Resources; remediated 7 trail spurs; checked the Squirrel/Atutu'wej LNT site and collected a notable amount of garbage. On 25 & 26 May, Alyssa continued BTSP work on the Bluff and Hay Marsh Loop and completed 10.5 feet of rock hardening; remediated 5 fire pits, constructed or refurbished 3 trail-braiding barriers and 2 spur barrier; and removed garbage from both loops.

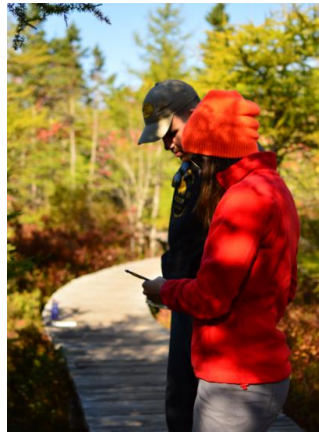
Summer Stewardship Assistant (SSA) Program:

WRWEO was among four local groups which collaborated on the Summer Stewardship Assistant (SSA) program. Along with St. Margaret's Bay Areas Rails to Trails Association (SMBARTA); St. Margaret's Bay Stewardship Association (SMBSTA); and Safety Minded ATV Association (SMATVA), WRWEO secured some funding through the Canada Summer Jobs program and contributed additional funds to ensure that two Summer Stewardship Assistants, Allyssa Poulin and Ryan McKay, were employed for approximately eight (8) weeks during the summer. The SSAs spent 14 days working for the BTSP collecting survey data from trail users, performing maintenance and remediation work, and installing new wooden way markers at the junctions of the Pot Lake and Mi'kmaw Hill Loops. For a more detailed account of their activities, see Appendix 1: SSA Trail Reports.

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NRET Field Day Data Collection:

On 26 September 2017, eleven students and one instructor from the Natural Resources Environmental Technology (NRET) program at Nova Scotia Community College (NSCC) Lunenburg campus spent the day collecting baseline data on both trail width and channelling along either side of the second boardwalk. The NRET class donated approximately 50 hours of volunteer labour and returned on 13 October 2017 to complete the work. (Reports on trail width and channelling data are forthcoming¹).



Remediation, Management, & Monitoring of the Trail

The core purpose of the BTSP is to reduce the increasing volume and severity of harmful human impacts on The Bluff Wilderness Hiking. Therefore, much of the work undertaken by the BTSP team involves the remediation of sites harmed by visitors, maintaining trail infrastructure to ensure that hikers stay safely on the trail, and on-going assessment of trail infrastructure. Another key activity of the BTSP is to observe and document information on the flora and fauna of the area in order to better understand the local ecosystems and improve stewardship strategies moving forward. Below are brief summaries of some of the core work conducted by BTSP between April and September 2017.

Removal of abandoned campsites, illegal structures, and remediation of campfires:

During Phase I of the BTSP, two structures were removed from the trail. On 18 June 2017, during the BTSP Stewardship Day, the group discovered and removed an abandoned camp site

¹ Once received, forthcoming reports will be placed on the WRWEO website and available upon request.

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on Cranberry-Pot Lake portage route. The abandoned site included a tent, some camping gear, assorted items of clothing, and a considerable amount of rotting food. Approximately two months later, on 16 August 2017, a BTSP steward discovered and removed a lean-to constructed on the Mi'kmaw Hill Loop. This illegal structure consisted of four cut trees, plastic tarp, and wire. This site also featured several cut boughs and a ring fire.



As noted earlier, during Phase I, BTSP stewards have documented the remediation of nearly three dozen (33) illegal campfires. The photos below illustrate what campfire sites look like before and after they are remediated.



Garbage Removal:

Approximately half (51) of the BTSP reports documented the removal of assorted litter left by visitors on the trail. From April to June, the two most numerous garbage items recorded by the stewards were toilet paper (61 clumps of toilet paper and one “massive pile”) and cigarette butts (23). Other common garbage items include strips of flagging tape, bags of dog poop, and items from Tim Horton’s such as cups, lids, and sandwich wrappers. For an itemized list of the garbage collected by BTSP stewards see Appendix 2: Waste & Litter Collected from The Bluff Trail. Please note this list does not include the estimated 700 lb of garbage removed from

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locations near Hubley Big Lake and Upper Five Bridge Lake during the Paradise Cove Clean-Up Day on 9 September 2017.

Spur Count:

An unofficial path branching off of the main hiking trail is called a trail spur. Trail spurs are problematic because they represent damage to the protected wilderness area, they often involve illegal tree cutting, and they pose a hazard for hikers who leave the official trail and may become lost. In order to protect against harmful human impacts and to reduce the risk of visitors becoming lost, BTSP stewards spend a significant amount of time constructing and refurbishing spur barriers. To offer some measure of the size of this problem, the Stewardship Assistant conducted a spur count on the Pot Lake Loop on 16 July 2017 and recorded 42 spurs off of the first loop alone. For details of the spur count see Appendix 3: Spur Count.

Boardwalk Assessment:

In addition to removing and remediating human harms from the trail, BTSP also works to address problems that visitors encounter while on the trail. For example, BTSP performed a thorough examination of the boardwalks on the trail and the identification of several boards to be replaced next year. For further details see Appendix 4: Boardwalk Assessment.

New Way Markers at Junctions of Pot Lake and Mi'kmaw Hill Loops:

Despite maps posted at all trail loop junctions, many visitors who reach the junctions of the first and second loops cannot identify which loop returns to the trailhead. There have been many reports of hikers inadvertently continuing further into the wilderness when they intended to turn back toward the trailhead. In an effort to assist visitors, who cannot effectively use the maps, BTSP initially added colour-coded rope markers at the junctions of the Pot Lake and Mi'kmaw Hill Loops. However, these rope markers were repeatedly removed. On 9 August 2017, the SSAs replaced the rope markers with six (6) wooden waymarkers. Reports from a number of hikers indicate the new waymarkers work well; however, damage from dogs that chew and drag the markers indicates that metal markers are needed.



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Wildlife Observations:

Many of the BTSP reports (41) contained observations related to the flora and fauna present on and around the trail. Perhaps the most significant wildlife observations related to a pair of breeding loons on Cranberry Lake. Their nest was first documented on 3 July 2017. The adult loons were not observed on that day, but two eggs were in the nest. Three days later, one of the adult loons was observed on the nest and by 16 July one hatchling was observed climbing on the back of an adult loon. The single hatchling and adult loons were observed many times over the four weeks following the arrival of the hatchling and by 15 August the hatchling was observed diving.

One goal of the BTSP is to observe and document information on the flora and fauna of the area in order to better understand the local ecosystems and improve stewardship strategies. To this end, BTSP has been identifying and documenting wildlife species on and around The Bluff Trail and adding to the existing species compendium. For an itemized list of the flora and fauna observations recorded by BTSP stewards from April to September 2017 see Appendix 5: Wildlife Observations from The Bluff Trail. The list of species documented to date can be seen in Appendix 6: The Flora and Fauna of the Bluff Wilderness Hiking Trail.

Education & Outreach

Education is a core component of the BTSP. SMBSA and WRWEO believe that increasing understanding and awareness of Leave-No-Trace (LNT) principles and sound stewardship practices among trail users is essential to the management and sustainability of both The Bluff Wilderness Hiking Trail and the larger Five Bridge Lakes Wilderness Area. During Phase I, the BTSP has undertaken a number of education and outreach initiatives.

On-Trail User Engagement:

As indicated in the “BTSP by the Numbers” section of this report, BTSP stewards make a practice of engaging visitors on the trail in order to provide information about reducing human harms and also to assist by providing directions and/or offering information about items of interest such as local flora and fauna. BTSP stewards recorded engagement with approximately 38% of all the users they encountered on the trail (689/1792). Among the most common topics of engagement are:

- BTSP
- Safety
- Fires
- Trail Maintenance
- Directions
- Camping / LNT
- Volunteering
- Flora/Fauna
- Dogs

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Timberlea Baptist Church Youth Engagement:

On 28 July 2017, with assistance from Iain Rankin (MLA for Timberlea-Prospect), the BTSP facilitated a volunteer event for youth from the Timberlea Baptist Church and their visitors from Lewisville Baptist Church in Moncton, NB. In total, approximately eleven youth and two chaperons participated.

RCMP, EHS, & SAR Media Event:

On 11 August 2017, the RCMP organized a media outreach event at The Bluff Trail parking lot in an effort to better inform the public about the need for hiking safety and introduce some of the workers and volunteers who come to the rescue when hikers are lost and injured. During the event, representatives of the BTSP were available to answer questions and provide assistance to event organizers.



Guided Hike for EAC Hike Bike Swim HRM:

On 29 July 2017, BTSP Stewards led a guided hike with staff from the Ecology Action Centre (EAC) as part of the EAC Hike, Bike, and Swim HRM program. All participants hiked the corridor to 1A/1C junction. A small group continued on to the iconic tree wrapped around the rock, the rest turned back and walked out with two of the EAC staff. Of the group that continued past the junction, half turned back at the tree wrapped around the rock with two BTSP guides and the other half continued to complete the full loop with two other BTSP guides.



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Guided Hike for HRTA:

On 11 September 2017, BTSP and WRWEO led members of the Halifax Regional Trails Association on a short hike. The hike leaders gave a brief introduction to the BTSP program and the flora found on the corridor of the Pot Lake Loop. The hike was attended by one BTSP volunteer steward and five guests.

LNT Installation at EAC BioBlitz:

On 16 September 2017, BTSP Steward and WRWEO Director, Danielle Marchand, represented WRWEO and BTSP at the EAC BioBlitz in Point Pleasant Park with an information station which featured a "Trash Timeline" which illustrated the time it takes for various materials to decompose. Approximately two-dozen people visited the table and fifteen were meaningfully engaged about LNT principles and practices, The Bluff Trail, etc.



☞ Beyond the Bluff - Initiatives in the Five Bridge Lakes Wilderness Area ☞

Inspection & Inventory of Boat Graveyard

On 4 July 2017, the BTSP Coordinator and Assistant (Mike Lancaster and Fiona Brooks) conducted an inventory of the 'boat graveyard' near Upper Five Bridge Lake. The site included approximately 8 boats (some in a noticeable state of decay), two fire pits, an illegal campsite, and a significant amount of garbage.



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Forest Sampling

From 17 July to 19 July 2017, the BTSP Coordinator, Mike Lancaster, and three volunteers (Paul Berry, Jayden Gross, and Zach Feener) visited the area west of Big Five Bridge Lake and conducted forest samples at the following coordinates: 44.58937, -63.8321 and 44.58008, -63.82996. (Report forthcoming.²)

Paradise Cove Clean Up Event

On 9 September 2017, Mike Lancaster and eight volunteers from WRWEO and CKNS paddled Hubley Big Lake to Paradise Cove and remediated a number of locations from Hubley Big Lake to Upper Five Bridge Lake. They removed an estimated 700 lb of garbage, remediated 2 fire pits, and contributed approximately 44.5 volunteer hours to the effort.



Conclusion

To date, the Bluff Trail Stewardship Program has made significant strides toward redressing the harmful human impacts evident on The Bluff Wilderness Hiking Trail. The BTSP team has performed valuable remediation work on the trail, provided useful support and assistance to trail users, and are improving our understanding of all activities (human and non-human) on and around the trail.

Thank you for your generous support of this valuable program. If you require any additional information please contact either Mike Lancaster (BTSP Stewardship Coordinator) or Kimberly Berry (BTSP Liaison and WRWEO volunteer).

Mike Lancaster
902-441-7672
ofthewoodsmike@gmail.com

Kimberly Berry
902-876-7377 or 902-221-0516
kimberlyberryns@gmail.com

² Once received, forthcoming reports will be placed on the WRWEO website and available upon request.

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Appendix 1: SSA Trail Reports

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
48	2017 07 11	10:00 16:00	12	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
11	5	0	0	0
Engagement topics: LNT camping sites, gave them a map. They tried to find out about designated sites before they went camping but weren't able to find anything on your website.				

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
49	2017 07 12	9:10 16:00	13.66	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
33	21	2	2	4
Engagement topics: trail markings on first-second loop				

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
50	2017 07 13	9:10 16:00	13.66	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
27	24	8	1	9
Engagement topics: LNT camping; coyote sightings on first loop, membership, waterproof maps				

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
51	2017 07 14	9:10 16:00	13.66	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
37	28	4	3	7
Engagement topics: LNT sites; brochure topics, wildlife, membership (one sold) / one membership sold				

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
56	2017 07 19	9:00 16:00	14	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
20	15		1	1
Engagement topics: trail widening; BTSP; wildlife				

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
58	2017 07 22	9:00 15:00	12	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
66	41	2	1	3
Engagement topics: designated LNT sites; pack in pack out; pitcher plants; rare mountain sandwort; lady slippers; ticks; wildlife sightings; fire ban // Note: saw Fiona; also engaged wildlife biologists from Dalhousie interested in the common night hawk.				

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
59	2017 07 24	10:00 15:00	10	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
22	18	3	3	6
Engagement topics: LNT sites // Note: one couple not willing to answer any questions.				

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Appendix 1: SSA Trail Reports (continued)

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
60	2017 07 26	11:30 16:00	9	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
18	14	4	2	6
Suggestion from trail user = don't think it was fair to say all dogs have to be on leash, she said there should be signs up in areas that we want to preserve.				

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
61	2017 07 27	8:00 16:00	16	2C; 2B; 3C; 4C; Paradise Cove Portage
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
0	0	0	0	0
Remediation & Repair: Fixed a hole in the trail on 2B; Found a hole right by the canoe portage 2C but no time to repair; 2C LNT Crow/Ka'qaquj: site in good condition, no garbage, took down "area closed for remediation" sign; 2C LNT Coyote/U'lukwej: site in good condition, straightened LNT sign; 3C recommend replacement of LNT sign on maps located on junction of 3C & 4C; LNT Moose/Tia'm: site in good condition; to Paradise Cove Portage: no garbage or damage noted.				

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
63	2017 07 28	8:00 11:00	4	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
22	9	1	0	1
Note: most trail users observed were hiking with Mike and Fiona as part of the BTSP event /one woman was visiting from Scotland and she bought a map/(trail was not very busy = Allyssa and Ryan went to library to do some computer work)				

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
67	2017 07 31	11:00 15:00	8	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
16	10	5	3	8
Engagement topics: Ticks // Note: saw two people from last week, others we didn't engage with were either trail runners or people who didn't want to chat				

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
68	2017 08 01	10:30 13:40	6.34	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
5	2	0	0	0
Remediation & Repair: 2 trail braiding barriers; 2 trail widening barriers; 2 spur barriers //Note: two of the users were already engaged, others not willing to engage				

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
69	2017 08 02	9:30 12:00	5	PLL Corridor
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
14	10	1	1	2
Engagement topics: where does trail funding come from? (A user thought the trail was owned and maintained by government) donations, and wildlife safety: bears, coyotes, moose.				

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 1: SSA Trail Reports (continued)

ID#	Date	Start / End Time	Hours on Trail	Loops & Sections
71	2017 08 09	10:30 13:30	6	PLL
Total People	People Engaged	Dogs off leash	Dogs on leash	Total Dogs
6	0	0	1	1
Remediation & Repair: handmade wooden way markers were placed at junctions 1A/2A and 1C/2C // Junction Problem: there had been many problems with trail users being confused about where Pot Lake Loop ends and Mi'kmaw Hill Loop begins. BTSP had installed coloured rope way markers, but the rope was repeatedly removed and would not be useful once snow falls. Allyssa and Ryan observed the wooden markers keeping users on track				

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 2: Waste & Litter Collected from The Bluff Trail

Date	Garbage
2017 04 23	Scattered food waste on granite just west of portage to MFBL and wet cardboard = didn't have plastic bag to carry it out.
2017 05 19	Pot Lake Loop: Toilet paper x 30; Orange peel; Beverage container seal x 6; Tim Horton's cup; Tim Horton's lid x 2; Random plastic x 19; Dog poop bags x 3; Cigarette butt; Gum wrapper; Shoe sole; Fruit sticker; MEC receipt; Plastic buckle; Granola bar wrapper; Flagging tape x 8. Garbage Items Mi'kmaq Hill Loop: Toilet paper x 18; Bottle cap; Random plastic x 5; Plastic poppy; Random metal x 2; Cigarette butts x 3; Large garbage bag wedged between rocks by Upper Marsh Lake; Chicken can; Fishing lure ; Chocolate bar wrapper; Torn cloth x 4; Pieces of bread x 2.
2017 05 20	1 TH ice cappuccino cup
2017 05 23	Toilet Paper x4; Snack wrapper; Band aid wrapper x2; Dog poop bags (one with poop) x3; Chopstick wrapper; Small Cuban flag; Bits of tin foil; Burnt aluminum foil; Burnt tin can; Apple core; Sunflower seed shells; Flagging tape x2; Meat packaging; Plastic
2017 05 25	Bluff Loop = Toilet Paper x2; Apple sticker; Oatmeal wrapper; Flagging tape x5; Electrical tape // Hay Marsh Loop = massive pile of toilet paper
2017 06 08	some garbage at former campsite near canoe access to cranberry lake (I had to leave it)
2017 06 11	Two cigarette butts / Two Tom Hortons cups at trailhead /One bag of dog poop (corridor)
2017 06 16	x3 TP clumps on trail sections 1A, C, 2A (found on spur off of rock-blind); Flagging tape (2B); Soft cooler filled with cans and food waste and plastic bag filled with food waste and other garbage found hanging from tree at Mclsaac's Sorrow
2017 06 18	1 TP clump on trail sections 1A / Picked-up garbage found on June 16th (Soft cooler filled with cans and food waste and plastic bag filled with food waste and other garbage found hanging from tree at Mclsaac's Sorrow)/ Dismantled abandoned 1 person tent and cleaned garbage from campsite ~50m from Cranberry-Pot lake portage
2017 06 18	Removal of abandoned camp site/gear on Cranberry-Pot Lake portage route; Removal of garbage bag full of food waste and containers from "Mclsaac's Sorrow" including rotten fruit, several bags of instant oatmeal cereal, tin of tuna, container of peanut butter, container of butter, container of soap, several packages of nuts and trail mix, several granola bars, etc.
2017 06 23	1 dog poop bag (trail entrance); 1 cigarette butt (Corridor); 1 flagging tape (1A)
2017 06 25	1 dog poop bag (Corridor, first boardwalk); 2 cigarette butt (Corridor & 1A); 1 Tim Horton's cup (Corridor); Old Navy tag (Corridor)
2017 06 25	2 TH lids; 1 TH sandwich wrapper; 1 McCafé plastic cup; food wrappers; cigarette butts; 4xlose dog poop 1xbaged dog poop; 3 new empty dog poop bags from dispenser thrown about
2017 06 26	2 TP (1C); 2 cigarette butts (1C)
2017 06 27	1 elastic (Corridor); 1 Tim Horton's cup (Corridor); 3 cigarette butts (Corridor); 1 food wrapper (1C/2C junction); 1 banana peel (1C/2C junction)
2017 06 29	1 TP clump (1A)
2017 07 03	1 dog poop bag (Corridor)
2017 07 03	a few plastic wrappers

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 2: Waste & Litter Collected from The Bluff Trail (continued)

Date	Garbage
2017 07 04	2ft long scarp of tent fabric found at Coyote LNT; 1 cigarette butt (3C); 3 cigarette butts @ Moose LNT; Small tin foil scraps and a twist tie @ Moose LNT; Carried out one fabric shopping bag full of garbage from boat graveyard & campsite, including: nylon rope, fiberglass fabric, plastic bags, paint roller, cans
2017 07 06	tin foil scraps
2017 07 08	garbage removal
2017 07 15	Packed out a small bag of garbage left randomly on 3rd loop - it was a plastic bag with broken handles. Would guess it was tied to someone's pack and fell off
2017 07 16	Used coffee filter (1A – found in clearing on Pot Lake); Piece of granola bar wrapper (1A); Toilet paper (spur off 1B); Ziploc bag (1C/2C junction)
2017 07 17	Foil balloon - helium in Upper Five Bridge Lake; Beer can, top of 2 liter green pop bottle at take out on Portage between HBL and UFBL; 2 pieces of glass - one dark (4" by 1" and one clear 2" by 1") and a soft metal cap to a wine bottle (the bit that covers a real cork) at the camp site on BFBL. Coordinates 44.58864, -63.82747 (on 18 July)
2017 07 19	water bottle and yogurt container 1 liter at take out from MFBL to portage to BFBL
2017 07 21	2 cigarette butts (1C); Small piece plastic wrap (1C); 4 small pieces of granola bar wrappers (1C); 1 very old and sun-bleached pink shoe found on rocks at Cranberry lake canoe access point
2017 07 22	2 cigarette butts (1C) ; Small plastic straw (1C); Hair elastic (1C); Zip-tie (1C); Pistachio shells (2C); 2 hair elastics (2C)
2017 07 23	Receipt (Corridor); Kashi granola bar wrapper (Corridor); 2 Toilet paper clumps (Corridor); 2 cigarette butts (1C); Small piece of blue cord (1C); 1 empty cigarette pack (trailhead)
2017 07 27	1 cigarette butts (Corridor) ; Broken liquor bottle found in shrubs at 1C/2C junction; Sunglasses, lighter, cigarette butt found on rocks at Cranberry lake canoe access point
2017 07 28	2 empty dog poop bags at trailhead; 2 used dog poop bags (Corridor), one found on trail, the other found hanging from a balsam fir tree about 5m off trail; 3 cigarette butts (Corridor)
2017 07 29	22 Small trash; 3 Toilet paper wads; 1 Large trash; 1 Dog poop not collected; 1 Cans/bottles; 1 Tim Hortons cups; 1 Dog poop bags; 1 Baby wipe
2017 07 29	3 dog poop bags at trailhead; 1 cigarette butt (Corridor); 1 can (1A/1C junction)
2017 08 05	12 Small trash; 4 Toilet paper wads; 3 Baby wipe; 2 Dog poop not collected; 2 Tim Hortons cups; 1 Cans/bottles; 1 Dog poop bags; 1 Large trash
2017 08 05	Drink tab (trailhead); 1 Sailor Jerry's bottle cap (Corridor); 1 Kleenex (1A/1C junction); 1 cigarette butt (1A/1C junction); 1 cigarette butt and pieces of cigarette pack (1A); Fabric piece (1A); 1 Kleenex (1A); 2 wrapper corners (1 @ 1C/2C junction & 1 @ 1C); Plastic scraps and very old sock partially buried into trail to Cranberry Lake portage; 1 cigarette butt (1C)
2017 08 09	Cigarette pack (Coyote); Elastic band (Coyote); 2 food wrappers (Coyote); Metal hook (Crow); Food wrapper (Crow); 2 pieces of shoe tread (3B); Water filtration tab wrapper (3B); Glass shard (3B); Paper scraps (4C)
2017 08 11	1 cigarette butt (trailhead); Tim's coffee cup (Corridor); 2 napkins (Corridor); 1 finger puppet (Corridor)

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 2: Waste & Litter Collected from The Bluff Trail (continued)

Date	Date
2017 08 15	1 cigarette butt (trailhead); 2 dog poop bags (Corridor); 1 homemade bow using a fresh cut Canada Holly branch (likely cut from somewhere on the trail) and a thin strand of yellow rope. Found hanging in a tree next to trail on section 1A
2017 08 16	tarp and wire from illegal structure was removed
2017 08 17	2 dog poop bags (Corridor); 1 spoon (2C @ Cranberry Lk canoe access); Half of a marijuana joint (2C @ Cranberry Lk canoe access); 1 drink tab (2C); 2 pieces of blue flagging tape (2C + 2B); 1 empty cigarette pack & 2 cigarette butts (2A @ Upper Marsh Lake); 1 Ziploc bag & 1 hard candy wrapper (2A @ rock pile)
2017 08 25	2 cigarette butts (Corridor); Elastic (Corridor)
2017 08 26	2 cigarette butts (Corridor); Plastic wrapper (1A); Cigarette butt (1A/2A junction); Small piece of blue foam (1C); Cookie wrapper (1C); Toilet paper (Corridor)
2017 09 03	Candy wrapper (Corridor); Toilet paper (Corridor)
2017 09 04	1 cigarette butt (Corridor); 2 dog poop bags (Corridor); 2 toilet paper at Cranberry Lake canoe access; 2m of nylon cord @ Coyote; 1 twist tie (2B); 1 small Ziploc bag (2A)
2017 09 09	2 cigarette butts (Corridor); 1 dog poop bags (Corridor); 1 MacDonald's drink cup (Corridor); 1 candy wrapper (1B); 1 Black Diamond product hanger (1A)
2017 09 10	Gum wrapper; Plastic bag; Styrofoam drink container (Circle K); Dog poop bag
2017 09 14	3-4ft nylon string found at Crow; 1 small plastic hook (2C); 3 small pieces of blue foam (2C); 1 cigarette butt (Corridor)
2017 09 16	1 Tim Horton's cup (Corridor); 2 coke cans (Corridor); 1 wrapper corner (Corridor); 2 toilet paper (Corridor); 1 toilet paper (1A); 1 dog poop bag (1C); 1 straw (1C); 1 Tim Horton's cup (1C); 2 fruit stickers (1C); 1 Juice box (Corridor); 4 cigarette butts (trailhead)
2017 09 22	Flagging tape removed from white pine near Paradise Cove (not on trail); removed flagging tape (4B); Energy gel (4A)
2017 09 25	Picked up 2 pieced of trash
2017 09 26	1 dog poop bag (Corridor)

Appendix 3: Spur Count

Date: 2017 07 16

Report submitted by: Fiona Brooks

Methodology

I counted every spur on the first loop, including those that had already been blocked. I did not measure the length or width of any of the spurs counted. I did not include any of the spurs off of either the Cranberry Lake portage or the Pot Lake portage. There are a total of 42 trail spurs off of the Pot Lake Loop (including the corridor). Section 1A of the Pot Lake loop has the lowest frequency of trail spurs and the first kilometer of the trail (aka the corridor) supports the highest frequency of trail spurs. See below for a more detailed breakdown of trail spurs per section of trail.

Corridor

- 3 spurs between first and second boardwalk
- 1 spur between second and third boardwalk
- 9 spurs between third boardwalk and whale's back
- 6 spurs between whale's back and 1A/1C junction
- **TOTAL = 19 spurs off of the Corridor**

Pot Lake Loop (1A, B & C)

- 7 spurs on trail section 1A
- 3 spurs on trail section 1B
- 13 spurs on trail section 1C
- **TOTAL = 23 spurs off of Pot Lake Loop**

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 4: Boardwalk Assessment

Date: 2017 07 16

Report submitted by: Fiona Brooks

Methodology:

Walked each boardwalk slowly and counted each board as I went. The numbers listed below represent the board number in chronological order for each boardwalk. Board numbers with a * next to them indicate boards that should be replaced in the next year.

1st Boardwalk

- Overall in good shape
- *Splitting and starting to rot (including fungus growth and/or soft sections of board): 7*
- *Loose board: 35**
- Total boards to be replaced = 3

2nd Boardwalk

- *Splitting and starting to rot (including fungus growth and/or soft sections of board): 48, 106, 124, 189, 273, 295*, 352*, 360, 382, 419, 436*, 439, 527,*
- *Chipping / splintering: 261, 265, 273, 368, 442, 451, 466, 586,*
- *Fungus growing on one end (sign of rot): 329, 334, 335, 398, 408, 469, 472, 484, 566, 572, 590, 598*
- Total boards to be replaced = 3

3rd Boardwalk

- *Splitting and starting to rot (including fungus growth and/or soft sections of board): 21*
- *Chipping / splintering: 14*, 20, 22, 39, 40**
- Total boards to be replaced = 2

4th & 5th Boardwalks are all in good condition, no action necessary.

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 5: Wildlife Observations from The Bluff Trail

Date	Flora & Fauna
2017 04 08	Moose droppings on 4th loop 11.6k from parking lot clockwise; owl sighting near Hubley Big Lake; lots of coyote signs around
2017 04 23	Grouse in tree; glossy batch of new ants; raccoon track; mayflower bloom attended by a bee; a small patch of snow.
2017 04 30	several pairs of Canada Geese on Lakes; lots of songbirds; blue sulphur butterflies; a smooth green snake sunning itself on the trail
2017 05 19	Came across ticks though, lots in the woods northwest of the site.
2017 05 19	Garter snake x3; green frog; toad; turkey vulture
2017 05 19	Moose tracks on both sides of 3rd loop
2017 06 08	Two lady slippers had been picked and discarded on first loop
2017 06 11	1 male chestnut sided warbler spotted along the corridor / vocal id of black & white warbler, black throated green warbler, raven and northern parula
2017 06 16	Fresh coyote scat on trail section 1A!; Visual ID of red-eyed vireo, chestnut-sided warbler; auditory id of black & white warbler, n. parula, alder fly-catcher, common yellow throat, mourning dove; found active nest of hairy woodpecker in snag on trail section 1a <500m from junction with corridor ; white admiral and yellow swallowtail butterflies
2017 06 18	Fresh coyote scat on trail section 1A! / Visual ID of common yellow throat and chestnut sided warbler / Auditory ID of gold crowned kinglet, red-eyed vireo, raven / yellow swallowtail butterflies
2017 06 23	Hairy woodpecker nest on section 1A still active
2017 06 25	Hairy woodpecker nest on section 1A still active
2017 06 27	Ovenbird; hairy woodpecker nest still active (1A)
2017 06 29	Yellow-rumped warbler seen feeding on the ground at 1A/1C junction; Chestnut sided warbler in shrubs along Corridor; Hairy woodpecker nest still active (1A); Fresh coyote scat (1A)
2017 07 03	Blueberries were evident. No major damages to trees or shrubs
2017 07 03	none
2017 07 03	Pitcher plants and a ground nest with 2 eggs (Loon?)
2017 07 04	2 loons on Fredrick Lk.; Bear paw print (3C); Entrails from small mammal, dried, found next to trail on section 3C. No other evidence to suggest what kind of animal it was or how it got there; Downy Rattlesnake plantain found at boat graveyard campsite
2017 07 05	Eleven clusters of mountain sandwort on the granite peninsula on the east side of Frederick Lake approximately 700m from the canoe access to The Bluff Trail.
2017 07 06	There is an active loon nest on the edge of Cranberry Lake. Observed one of the parent loons sitting on nest. Location – on the edge of the lakeshore, to the left / West of the granite outcrop at the Cranberry Lake canoe access point. Need binoculars to see the nest from the rocks.
2017 07 16	<i>Monotropa uniflora</i> (aka Indian pipe) found just off trail 1A & McIsaac's Sorrow; <i>Melampyrum lineare</i> (aka American Cow Wheat) on trail in section 1A; Hairy woodpecker nest on section 1A no longer active; Loon nest update: Eggs have hatched! Only one small hatchling was observed with one adult loon. Hatchling was climbing up on the adult's back and under-wing, but was also seen swimming independently. / Found a large clump of upturned lichen and crowberry just off the trail on section 1B. Possible bear activity (looking for ants maybe?)?

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 5: Wildlife Observations from The Bluff Trail (continued)

Date	Flora & Fauna
2017 07 17	Pileated woodpecker by call, HBL put in spot; loon by visual on HBL; bald eagle by visual in tree, HBL; (on July 18th) hermit thrush by song, swainson's thrush by song, parula warbler by song, visual of savannah sparrow, loon by song and visual - on Big Five Bridge Lake, ghost pipe flower, many red oaks, 2 yellow birch, 1 to be identified flora pictures taken by Jayden G. - west side of Big Five Bridge Lake (on 18 July 2017)
2017 07 19	Shrew swimming in Middle Five Bridge Lake; Paul discovered and removed a tick after returning home – see notes below.
2017 07 21	Loon and hatchling not seen; <i>Monotropa hypopitys</i> (aka Pinesap, Dutchman's pipe, false beech sap), two plants just off main trail section 1C, between Pot lake portage and iconic tree wrapped around rock.
2017 07 22	Loon and hatchling observed near Cranberry lake canoe access point. Hatchling looked bigger than the last sighting on July 16. Swimming close to but independently of adult loon / Upturned patch of soil and crowberry on granite flats on 2C, looks like the same kind of activity as the upturned soil observed July 16 on section 1B possible bear activity?
2017 07 23	Loon and hatchling not seen; white admiral butterfly, <i>limenitis arthemis</i> (1c); male magnolia warbler (1A)
2017 07 27	Loon and hatchling not seen ; 2 ragged-fringed orchids, <i>plantanthera lacera</i> , on side of BLT trail; rosy maple moth, <i>dryocampa rubicunda</i> (corridor) found dead on trail
2017 07 28	2 adult loons and one hatchling observed from 1A/1C junction. Hatchling appears to have grown almost double its size from two weeks ago
2017 08 05	Adult loon and juvenile observed on Cranberry lake near the portage/Tall rattlesnake root, <i>Prenanthes trifolata</i> observed in bloom on side trail (1C – have subsequently seen it on all trail sections on Mi'kmaw Hill and Pot Lake loops)
2017 08 09	Fresh coyote scat (3B); Vulture (3B)
2017 08 11	Adult and juvenile loon observed on Cranberry Lake near 1A/1C junction. Juvenile was diving!
2017 08 15	Adult and juvenile loon observed on Cranberry Lake near 1A/1C junction. Juvenile was diving!
2017 08 17	Adult and juvenile loon observed on Cranberry Lake near 1A/1C junction/Coyote scat (2C)/River otter (2A) – observed running down the trail towards me on granite plateau along section 2A
2017 08 25	Bog aster, <i>Oclemena nemoralis</i> , observed in bloom along second boardwalk (Corridor)
2017 08 26	Tall white aster, <i>Symphotrichum lanceolatum</i> , observed in bloom throughout Pot Lake Loop/Light blue eggshell fragments found in middle on trail along corridor. Spoke with a camper returning from an overnight at Moose LNT. He reported seeing what he thought might have been a moose swimming at Upper Five Bridge Lake. He didn't see any antlers, but thought that the head looked too big to be a deer
2017 09 04	Adult loon and juvenile observed in Cranberry lake, from boardwalk on 1C
2017 09 14	Observed a merlin or kestrel flying (2a); x3 fresh coyote scat (3a)
2017 09 22	6 Black bear scat piles along 4A-C & 3B
2017 09 22	6 eastern black bear scat piles

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 6: The Flora and Fauna of The Bluff Wilderness Hiking Trail

Assembled by Mike Lancaster and Fiona Brooks

Last updated: October 2017

Flora

Coniferous Trees

1. Balsam fir – *Abies balsamea*
2. White spruce – *Picea glauca*
3. Red spruce – *Picea rubens*
4. Black spruce – *Picea mariana*
5. White pine – *Pinus strobus*
6. Red pine – *Pinus resinosa*
7. Jack pine – *Pinus banksiana*
8. Eastern larch – *Larix laricina*

Deciduous Trees

9. Red maple – *Acer rubrum*
10. Striped maple – *Acer pensylvanicum*
11. Yellow birch – *Betula alleghaniensis*
12. White birch – *Betula papyrifera*
13. Grey birch – *Betula populifolia*
14. Red oak
15. Mountain ash (Rowan)
16. Largetooth aspen – *Populus grandidentata*
17. Trembling aspen – *Populus tremuloides*
18. White willow
19. Serviceberry
20. Black cherry – *Prunus serotina*
21. Pin cherry – *Prunus pensylvanica*

Woody Shrubs

22. Canada holly (false holly) – *Ilex mucronata*
23. Labrador tea – *Rhododendron groenlandicum*
24. Sheep laurel [lambkill] – *Kalmia angustifolia*
25. Black huckleberry – *Gaylussacia baccata*
26. Rhodora – *Rhododendron canadense*
27. Northern Bayberry – *Morella pensylvanica*
28. Wild raisin – *Viburnum nudum var. cassinoides*
29. Speckled alder
30. Witch hazel
31. Hobblebush – *Viburnum lantanoides*
32. Common juniper – *Juniperus communis*
33. Mayflower
34. Broom crowberry – *Corema conradii*
35. Black crowberry
36. Lowbush blueberry
37. Velvet-leaved blueberry – *Vaccinium myrtilloides*
38. Inkberry – *Ilex glabra*
39. Leatherleaf – *Chamaedaphne calyculata*
40. Purple chokeberry – *Aronia prunifolia*
41. Black chokeberry – *Aronia melanocarpa*
42. Common winterberry – *Ilex verticillata*
43. Sweet gale – *Myrica gale*

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 6: The Flora and Fauna of The Bluff Wilderness Hiking Trail (continued)

Ferns

- | | |
|------------------------|-----------------|
| 44. Bracken | 47. Ostrich |
| 45. Christmas | 48. Wood |
| 46. Granite polipodium | 49. Hay-scented |

Other Vascular Plants

- | | |
|---|---|
| 50. Wild lily-of-the-valley | 65. Leather-leaf (Cassandra) - <i>Chamaedaphne calyculata</i> |
| 51. Blue flag iris | 66. Painted trillium |
| 52. Star flower | 67. Shinleaf |
| 53. Creeping snowberry | 68. Teaberry (Wintergreen) – <i>Gaultheria procumbens</i> |
| 54. Partridge berry | 69. Gold-thread (canker-root) – <i>Coptis trifolia</i> |
| 55. Wild sarsaparilla | 70. Wood sorrel – <i>Coptis</i> |
| 56. Bunchberry – <i>Cornus canadensis</i> | 71. Pink lady slipper – <i>Cypripedium acuale</i> |
| 57. Indian cucumber | 72. Three-toothed cinquefoil – <i>Potentilla tridenata</i> |
| 58. Wild cranberry | 73. Downy rattlesnake plantain – <i>Goodyera pubescens</i> |
| 59. Ground pine | 74. American Cow Wheat – <i>Melampyrum lineare</i> |
| 60. Bluebead lily (Corn or Clintonia lilly) – <i>Clintonia borealis</i> | 75. Pinesap – <i>Monotropa hypopitys</i> |
| 61. Ghost pipe (Indian pipe) – <i>Monotropa uniflora</i> | 76. Tall rattlesnake root – <i>Prenanthes trifolata</i> |
| 62. Mountain sandwort – <i>Arenaria groelandica</i> | 77. Bog aster – <i>Oclemena nemoralis</i> |
| 63. Pitcher plant – <i>Sarracenia purpurea</i> | 78. Tall white aster – <i>Symphotrichum lanceolatum</i> |
| 64. Round-leaved sundew – <i>Drosera rotundifolia</i> | 79. Golden heather – <i>Hudsonia ericoides</i> |

Mosses, lichens and Liverworts

- | | |
|--|--|
| 80. Sphagnum moss | 92. Bottlebrush shield lichen - <i>Parmelia squarrosa</i> |
| 81. Broom moss | 93. Gray reindeer lichen - <i>Cladonia rangiferina</i> |
| 82. Hair cap moss | 94. Lungwort - <i>Lobaria pulmonaria</i> |
| 83. Stair-step moss | 95. Hooded tube lichen - <i>Hypogymnia physodes</i> |
| 84. Shag moss | 96. Fishnet cladonia - <i>Cladonia boryi</i> |
| 85. Three-lobbed bazzania | 97. Thorn cladonia - <i>Cladonia uncialis</i> |
| 86. Schreiber's moss | 98. Rock foam lichen - <i>Sterocaulon saxatilis</i> |
| 87. Old man's beard - <i>Usnea sp.</i> | 99. Concentric ring lichen - <i>Arctoparmelia centrifuga</i> |
| 88. British solider | 100. Salted shield lichen - <i>Parmelia saxatilis</i> |
| 89. Horsehair lichen - <i>Bryoria trichodes</i> | 101. Common toadskin - <i>Lasallia papulosa</i> |
| 90. Powder-headed tube lichen - <i>Hypogymnia tubulosa</i> | 102. Plated rock tripe - <i>Umbilicaria muehlenbergii</i> |
| 91. Crumpled rag lichen - <i>Platismatia tuckermanii</i> | 103. Map lichens - <i>Rhizocarpon sp.</i> |

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 6: The Flora and Fauna of The Bluff Wilderness Hiking Trail (continued)

Fauna

Mammals

Rodents

1. Red squirrel
2. Chipmunk
3. Deer mouse
4. Long-tailed shrew
5. Meadow vole
6. North American beaver
7. Porcupine
8. Snowshoe hare
9. River otter

Canines, Bear, Raccoons

10. Eastern Coyote
11. Red fox
12. Eastern black bear
13. Raccoon

Deer Family

14. White-tailed deer
15. Mainland Moose

Feline

16. Bobcat

Birds

Song Birds – Nuthatches, thrushes, kinglets

17. Black-capped Chickadee
18. Red-breasted nuthatch
19. White-breasted nuthatch
20. Golden-crowned kinglet
21. American robin
22. Hermit thrush
23. Swainsons thrush
24. Savannah sparrow
25. Song sparrow
26. American goldfinch
27. Common redpoll
28. Ovenbird
29. White-throated sparrow
30. Red-eyed vireo
31. Cedar waxwing
32. Least flycatcher
33. Eastern wood-pewee - *Contopus virens*
34. Dark-eyed junco

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 6: The Flora and Fauna of The Bluff Wilderness Hiking Trail (continued)

Woodpeckers

- 35. Hairy woodpecker - *Picoides villosus*
- 36. Downy wood pecker - *Picoides pubescens*
- 37. Black-backed woodpecker - *Picoides arcticus*
- 38. Pileated wood pecker - *Dryocopus pileatus*
- 39. Northern flicker - *Colaptes auratus*

Grouse and Pheasants

- 40. Ruffed grouse - *Bonasa umbellus*
- 41. Ring-necked pheasant - *Phasianus colchicus*

Corvids

- 42. Gray jay
- 43. Blue jay
- 44. Northern raven
- 45. American crow

Hawks, Vultures, Osprey and other birds of prey

- 46. Red-tailed hawk - *Bufo jamaicensis*
- 47. Broad-winged hawk - *Bufo platypterus*
- 48. Northern Shrike
- 49. Osprey - *Pandion haliaetus*
- 50. Turkey vulture - *Cathartes aura*

Swallows

- 51. Bar swallow - *Hirundo rustica*
- 52. Tree swallow - *Tachycineta bicolor*

Ducks, geese and loons

- 53. Northern loon – *Gavia immer*
- 54. Bufflehead - *Bucephala albeola*
- 55. Common merganser - *Mergus merganser*
- 56. Hooded Merganser - *Lophodytes cucullatus*
- 57. Mallard duck - *Anas platyrhynchos*
- 58. American black duck - *Anas rubripes*
- 59. Canadian goose - *Branta canadensis*

Gulls and Terns

- 60. Herring gull - *Larus argentatus*
- 61. Ring-billed gull - *Larus delawarensis*
- 62. Common tern - *Sterna hirundo*

Owls

- 63. Barred owl - *Strix varia*

Phase I: Bluff Trail Stewardship Program (April-Sept 2017)

Appendix 6: The Flora and Fauna of The Bluff Wilderness Hiking Trail (continued)

Doves and Pigeons

64. Mourning dove - *Zenaida macroura*

65. Rock dove/Pigeon - *Columba livia*

Warblers

66. Magnolia warbler

67. Northern Parula

68. Yellow-rumped warbler

69. Black-throated blue

70. Black and white warbler – *Mniotilta varia*

71. Chestnut sided warbler – *Setophaga pensylvanica*

72. Black throated green warbler – *Setophaga virens*

73. Common yellowthroat warbler – *Geothlypis trichas*

Others

74. Common grackle

75. Belted-kingfisher - *Ceryle alcyon*

76. Ruby-throated hummingbird - *Archilochus colubris*

77. Great blue heron - *Ardea Herodias*

Reptiles and Amphibians

78. Common snapping turtle

79. Eastern painted turtle

80. Maritime garter snake

81. Eastern smooth green snake

82. Eastern redback salamander

83. Northern spring peeper

84. Green frog

85. Northern leopard frog

86. Eastern American toad

Butterflies and Moths

87. Rosy maple moth – *Dryocampa rubicunda*

88. Gypsy moth – *Lymantria dispar*

89. White admiral – *Limenitis arthemis*

90. Red admiral – *Vanessa atalanta*

91. Canadian tiger swallowtail – *Papilio canadensis*

92. Northern crescent – *Phyciodes cocyta*