

Miquelon Lake Provincial Park
Rare Bryophyte and Lichen Survey
June 29 – July 1, 2007

prepared by

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Miquelon Lake Provincial Park Rare Bryophyte and Lichen Survey

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1 Introduction

Miquelon Lake Provincial Park is a high use park in the Edmonton region and most of the campground and office infrastructure was very old and run down. As a result, Miquelon is undergoing a major capital upgrade with the addition of a new park centre. Most of the work within the strict Facility Zone has already been done or is underway, with little disturbance to natural vegetation. However, there are other areas of the park planned to be disturbed where native vegetation (including bryophytes and lichens) may include species listed on ANHIC Tracking Lists. Rare bryophytes and lichens that are currently found on the ANHIC tracking and watch lists can be viewed at the following web address: <http://tprc.alberta.ca/parks/heritageinfocentre/>.

This focused bryophyte and lichen survey was conducted to determine if such rare species do exist within the proposed footprints so that disturbance can be avoided or at least the impact mitigated.

A list of bryophytes and lichens collected from six survey sites in Miquelon Lake Provincial Park was compiled. Rare bryophytes and lichens that occurred in these sites were assessed following the protocol of ANHIC for rare plants and lichens (see reference above). There was one rare bryophyte, *Campylium radicale*, and one rare lichen species, *Scoliciosporum chlorococcum*, found in the park.

2 Methodology

Areas to be disturbed in the park were surveyed while walking slowly along existing or proposed trails to be cut or brushed and through adjacent bypass areas. The observer noted bryophyte and lichen species on trees and shrubs that were within the limits of the survey, such as white spruce, balsam poplar, birch, aspen poplar, pin cherry, and Canada buffaloberry. Ground-dwelling bryophytes and lichens and those on boulders in the trail were also included in the survey. Species known to be non-rare were neither collected nor recorded; however, collections were made from a variety of representative habitats to confirm identifications, as well as from habitats where rare species might be expected to occur. The survey included the trail width and up to 1m on each side of the trail unless otherwise stated in instructions (see results section for more details on methodology, accompanied by GoogleEarth images of each survey site). Where needed, mitigation of rare species will be carried out before trail building and disturbance commence.

The GoogleEarth image below provides an overview of all six surveyed sites.



3 Results

In Miquelon Lake Provincial Park, 23 bryophyte species and 9 lichen species were collected for identification, the results of which included one rare moss (*Campylium radicale*) species and one rare lichen species (*Scoliciosporum chlorococcum*). Appendix A lists the bryophyte and lichen species found at each collection site; Appendix B is a list of those same species showing the tracking status where relevant. Notes on sites surveyed in Miquelon Lake Provincial Park as well as locations of collection sites follow. Details on rare species occurrences are provided in Appendix D.

3.1 Alumni Trail (AT)

The proposed "Alumni Trail" (approximately 1,200m in length) will extend from the Alumni Group Campsite (the most northerly group campsite in the Park) north to the lake shore and following the lake shore back to the AG campsite. The most easterly part of the trail (running north-south) has been previously disturbed for an existing unsurfaced trail. Remaining part of the proposed trail will go through previously undisturbed forest and lakeshore communities. White spruce, aspen and balsam poplar dominate the forested portion of the proposed trail, with various willow species, red-osier dogwood, Canada buffaloberry, bracted honeysuckle, snowberry and goosberries along with a various forbs comprising the understory (see appendix C for sample photographs of the area). The trail will be about

2.4m wide and surfaced with a hard packed mixture. Most of the area (an existing part of the trail and a lake shore) is very rocky with little to no soil. The width of existing trail and up to 1m on each side of the existing trail were surveyed for rare bryophytes and lichens. About 3m wide bend on each side of the flagged central line were surveyed in previously undisturbed areas of the proposed trail. Collections of suspected rare material were made at five locations, AT AR1 to AT AR5. No rare bryophyte or lichen species were found at this site.



3.2 Back Country Trail (BC)

There are a few proposed backcountry trail linkages with the group camps (about 1,800m in length altogether). Parts of the trail would be newly cut connectors (about 1,000m in length). Another part is an existing old road/trail that will be mowed and brushed to reopen (about 800m in length). This proposed trail will run through the moist aspen (balsam polar) woods with red-osier dogwood, rose, raspberry, choke cherry, Canada buffaloberry, bracted honeysuckle, snowberry, gooseberries, as well as bluejoint and various forb species in the understory. This backcountry trail will be less than 2m wide and will not be surfaced. The width of existing trail and up to 1m on each side of the existing trail were surveyed for rare bryophytes and lichens. About 2m wide bend on each side of the flagged central line were surveyed in previously undisturbed areas of the proposed trail. Collections of suspected rare material were made at five locations (BC AR1 to BC AR4, as well as “*Carex sprengei* location”). The rare moss, *Campyllum radicale* (S2), was found at site BC AR3 on a log with *Brachythecium salebrosum*, *Bryohaplodium microphyllum*, and *Plagiomnium cuspidatum*.



3.3 Grebe Pond Trail (GPT)

This trail (about 400m in length), which is already in existence, will be surfaced and includes development of a viewpoint at the present bench site and a platform. The trail has been widened a year ago, but some additional disturbances on the trail sides will occur during resurfacing of the trail. More disturbance will occur on the side slopes when developing a viewpoint and a platform. The area is dominated by aspen with the understory of choke cherry, beaked hazelnut, roses, raspberries, dogwood, willow, bluejoint and numerous other grass, sedge and forb species. The trail will be about 2.4m wide and surfaced with a hard packed mixture. The width of existing trail and up to 1m on each side of the existing trail were surveyed for rare bryophytes and lichens. At the proposed platform and viewing sites, the areas between the trail and the pond edge were surveyed (refer to the GoogleEarth image for the locations of proposed platform and viewing sites). Collections of suspected rare material were made at two locations, GPT AR1 and GPT AR2. No rare bryophyte or lichen species were found at this site.



3.4 Visitor Centre (VC)

Development of a new Park Visitor Centre and associated parking lot will occur in a previously disturbed location just northeast of the Grebe Pond (about 6.2ha in size). Some native tree/shrub removal will occur as part of the development, mainly around the perimeter of the existing disturbance. The area is a mixture of disturbed and treed areas. Natural vegetation at the edge of the disturbed area consists of aspen, balsam poplar and white spruce with the understory of various willow species, red-osier dogwood, Canada buffaloberry, snowberry, goosberries and currents, as well as bluejoint and diverse forb species. About 5m wide belt around the perimeter of the area as well as some larger treed areas were surveyed for the presence of rare bryophytes and lichens (see GoogleEarth image below for the approximate survey areas). Collections of suspected rare material were made at two locations, VC AR1 and VC AR2. No rare bryophyte or lichen species were found at this site.



3.5 Connector Trail (CT)

The trail from Park Centre area to the old backcountry trail head and the beach connector that goes west will follow existing linear disturbances. This trail will be surfaced. Map below shows where the access and internal circulation trail will go from the park centre parking lot to the old trail head. For the most part, this follows a previous disturbance that has in part grown back. Only about 200m of the proposed trail will go through the fairly undisturbed natural habitat dominated by aspen (some white spruce also occurs), with the understory of choke cherry, Canada buffaloberry, snowberry, raspberry, bluejoint and diverse forb species. Collection of suspected rare material was made at one location, CT AR1. No rare bryophytes or lichens were found at this site.



3.6 Holdsworth Property (HP)

A new "backcountry trail" (about 3km in length) is proposed within NE17-49-20 W4 (Holdsworth Property) and SW20-49-20 W4 (see red line on the image below). The forested area is dominated by aspen, balsam poplar, and Alaska birch, with the understory of beaked hazelnut, rose, raspberries, Canada buffaloberry, snowberry, pin cherry, as well as bluejoint and numerous forb species. Open slopes are dominated by buckbrush and various grass and forb species. Some areas of the forest were cleared in the past and are now dominated by smooth brome, creeping thistle and wild caraway. This backcountry trail will be less than 2m wide and will not be surfaced. About 2m wide bend on each side of the flagged central line were surveyed. Collections of suspected rare material were made at four locations (HP AR1 to HP AR4). The rare lichen, *Scoliciosporum chlorococcum* (S2) was found here on a dead pin cherry at HP AR2, shown on the image, below.



4 Recommendations

The moss, *Campylium radicale*, while classified as a rare (S2), is likely undercollected, as it resembles several other species with which it even may occur; e.g., *Amblystegium serpens*. It can be found in mixed wood forests on tree bases, soil, and logs. In this study, it occurred near the beginning of the Back Country Trail survey. All downed logs should be moved to the side of the disturbance. They should be kept in approximately the same position as they were found (e.g., same side up).

The lichen, *Scoliciosporum chlorococcum*, common name “City dot lichen”, is common from Manitoba eastward but classified as rare in Alberta. It is an inconspicuous lichen and might easily be overlooked and therefore, undercollected. It is touted as one of the most pollution-tolerant lichens and is often found on trees in or close to towns (Brodo *et al*, 2001). It was found in the survey area on the bark of a dead pin cherry. All dead wood at this location should be moved to the side of the disturbance and not taken out of the site.

5 References

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Appendix A. List of Bryophytes and Lichens Collected – by location

Trail Code	Site	Species	Type	Rare Status	Habitat
AT	AR1	<i>Barbula unguiculata</i>	m		start of trail - 1-year disturbed
AT	AR1	<i>Brachythecium salebrosum</i>	m		start of trail - 1-year disturbed
AT	AR1	<i>Ditrichum flexicaule</i>	m		start of trail - 1-year disturbed
AT	AR1	<i>Thuidium recognitum</i>	m		start of trail - 1-year disturbed
AT	AR2	<i>Brachythecium salebrosum</i>	m		trail middle and sides
AT	AR2	<i>Bryum sp.</i>	m		trail edge
AT	AR2	<i>Barbula unguiculata</i>	m		on ant mount, trailside
AT	AR2	<i>Bryum sp.</i>	m		on ant mount, trailside
AT	AR3	<i>Encalypta rhamnifera? (no caps)</i>	m		into forest, past beach
AT	AR4	<i>Cladonia cervicornis ssp. verticillata</i>	l		entering forest with feather mosses, etc.
AT	AR4	<i>Evernia mesomorpha</i>	l		entering forest with feather mosses, etc.
AT	AR4	<i>Peltigera neckeri</i>	l		entering forest with feather mosses, etc.
AT	AR4	<i>Brachythecium salebrosum</i>	m		entering forest with feather mosses, etc.
AT	AR4	<i>Drepanocladus uncinatus</i>	m		entering forest with feather mosses, etc.
AT	AR4	<i>Orthotrichum sp. (no caps)</i>	m		entering forest with feather mosses, etc.
AT	AR4	<i>Plagiomnium cuspidatum</i>	m		entering forest with feather mosses, etc.
AT	AR4	<i>Pleurozium schreberi</i>	m		entering forest with feather mosses, etc.
AT	AR4	<i>Pylaisiella polyantha</i>	m		entering forest with feather mosses, etc.
AT	AR5	<i>Amblystegium serpens</i>	m		lakeshore
AT	AR5	<i>Barbula convoluta</i>	m		lakeshore
AT	AR5	<i>Bryoerhythrophyllum recurvirostre</i>	m		lakeshore
AT	AR5	<i>Bryum sp.</i>	m		lakeshore
AT	AR5	<i>Ditrichum flexicaule</i>	m		lakeshore
AT	AR5	<i>Encalypta sp.</i>	m		lakeshore
AT	AR5	<i>Funaria hygrometrica</i>	m		lakeshore
BC	AR1*	N/A			tree bark
BC	AR2	<i>Peltigera canina</i>	l		on old aspen log
BC	AR2	<i>Abietinella abietina</i>	m		on old aspen log
BC	AR2	<i>Plagiomnium cuspidatum</i>	m		on old aspen log
BC	AR3	<i>Bryohaplocladium microphyllum</i>	m		on old log
BC	AR3	<i>Brachythecium salebrosum</i>	m		on old log
BC	AR3	<i>Campylium radicale</i>	m	S2	on old log
BC	AR3	<i>Plagiomnium cuspidatum</i>	m		on old log
BC	AR4	<i>Isopterygiopsis pulchella</i>	m		from side of moist log
BC	AR4	<i>Orthotrichum obtusifolium</i>	m		from side of moist log
BC	at sedge**	<i>Cladonia subulata</i>	l		base of large aspen
GPT	AR1	<i>Barbula fallax</i>	m		middle of trail - flat, disturbed
GPT	AR1	<i>Bryum argenteum</i>	m		middle of trail - flat, disturbed
GPT	AR2	<i>Brachythecium sp.</i>	m		on old log
GPT	AR2	<i>Plagiomnium cuspidatum</i>	m		on old log
GPT	AR2	<i>Pylaisiella polyantha</i>	m		on old log
GPT	bench	<i>Ceratodon purpureus</i>	m		at bench, interpretive sign
HP	AR1	<i>Peltigera canina</i>	l		on old aspen log
HP	AR1	<i>Amblystegium serpens</i>	m		on old aspen log
HP	AR1	<i>Brachythecium salebrosum</i>	m		on old aspen log
HP	AR1	<i>Orthotrichum obtusifolium</i>	m		on old aspen log
HP	AR1	<i>Orthotrichum speciosum</i>	m		on old aspen log
HP	AR2	<i>Scoliosporum chlorococcum</i>	l	S2	on bark of dead pin cherry
HP	AR3	<i>Cladonia cariosa</i>	l		on old log
HP	AR3	<i>Amblystegium serpens</i>	m		on old log
HP	AR3	<i>Brachythecium sp.</i>	m		on old log
HP	AR3	<i>Bryohaplocladium microphyllum</i>	m		on old log
HP	AR3	<i>Plagiomnium cuspidatum</i>	m		on old log
HP	AR4	<i>Eurhynchium pulchellum</i>	m		moist bank of animal trail upslope from beaver pond
HP	AR4	<i>Plagiomnium cuspidatum</i>	m		moist bank of animal trail upslope from beaver pond
HP	AR4	<i>Brachythecium sp.</i>	m		on boulder in drainage area downslope from cabin with Saskatoon, rose, and grass

HP	AR4	<i>Plagiomnium cuspidatum</i>	m		on boulder in drainage area downslope from cabin with Saskatoon, rose, and grass
VC	AR1	<i>Aulacomnium palustre</i>	m		on log
VC	AR1	<i>Brachythecium salebrosum</i>	m		boulder on forest floor
VC	AR1	<i>Isopterygiopsis pulchella</i>	m		on log
VC	AR1	<i>Plagiomnium cuspidatum</i>	m		on log
VC	AR2	<i>Abietinella abietina</i>	m		old large log
VC	AR2	<i>Amblystegium serpens</i>	m		old large log
VC	AR2	<i>Brachythecium salebrosum</i>	m		old large log
VC	AR2	<i>Drepanocladus uncinatus</i>	m		old large log
VC	AR2	<i>Plagiomnium cuspidatum</i>	m		old large log

* Tree bark was collected and examined for lichen traces; no lichens were found.

** "Carex sprengelii" point

Appendix B. List of Bryophytes and Lichens Collected – by species

Lichen (L) Moss (M)	Species	Rare Status	Habitat
L	<i>Cladonia cariosa</i>		on old log
L	<i>Cladonia cervicornis ssp. verticillata</i>		entering forest with feather mosses, etc.
L	<i>Cladonia subulata</i>		base of large aspen
L	<i>Evernia mesomorpha</i>		entering forest with feather mosses, etc.
L	<i>Peltigera canina</i>		on old aspen log
L	<i>Peltigera neckeri</i>		entering forest with feather mosses, etc.
L	<i>Scoliosporum chlorococcum</i>	S2	on bark of dead pin cherry
M	<i>Abietinella abietina</i>		on old logs
M	<i>Amblystegium serpens</i>		old large log
M	<i>Aulacomnium palustre</i>		on log
M	<i>Barbula convoluta</i>		lakeshore
M	<i>Barbula fallax</i>		middle of trail - flat, disturbed
M	<i>Barbula unguiculata</i>		at trailside, on disturbed soil
M	<i>Brachythecium salebrosum</i>		start of trail - 1-year disturbed
M	<i>Brachythecium sp.</i>		on boulder in drainage area downslope from cabin with Saskatoon, rose, and grass
M	<i>Bryoerhythrophyllum recurvirostre</i>		lakeshore
M	<i>Bryohaplocladium microphyllum</i>		on old log
M	<i>Bryum argenteum</i>		middle of trail - flat, disturbed
M	<i>Campylium radicale</i>	S2	on old log
M	<i>Ditrichum flexicaule</i>		lakeshore and disturbed soil
M	<i>Drepanocladus uncinatus</i>		old large log
M	<i>Encalypta cf. raptocarpa (no capsules)</i>		in forest, past beach
M	<i>Encalypta sp.</i>		lakeshore disturbed
M	<i>Eurhynchium pulchellum</i>		moist bank of animal trail upslope from beaver pond
M	<i>Funaria hygrometrica</i>		lakeshore
M	<i>Isopterygiopsis pulchella</i>		from side of moist log
M	<i>Ceratodon purpureus</i>		at bench, interpretive sign
M	<i>Orthotrichum obtusifolium</i>		from side of moist log
M	<i>Orthotrichum sp. (no caps)</i>		entering forest with feather mosses, etc.
M	<i>Orthotrichum speciosum</i>		on old aspen log
M	<i>Plagiomnium cuspidatum</i>		forest floor and tree bases with feather mosses, etc.
M	<i>Pleurozium schreberi</i>		entering forest with feather mosses, etc.
M	<i>Pylaisiella polyantha</i>		on old log
M	<i>Thuidium recognitum</i>		start of trail - 1-year disturbed

Appendix C. Sample photographs of survey areas

Alumni Trail



Collecting at AT AR1



Proposed trail area along shoreline

Grebe Pond Trail



Existing trail between bench and future platform area

Back Country Trails



Paintbrush in open aspen forest

Holdsworth Property



Mesic aspen forest on slope



An existing part of the trail invaded by wild caraway



Approach to old cabin site



Overlooking beaver pond

Appendix D. ANHIC Rare Plant Survey forms

Scoliciosporum chlorococcum (Holdsworth Property)

Campylium radicale (Back Country Trail)

Information from these rare plant survey forms is available by request from:

Todd Kemper, ANHIC Senior Botanist

Email: Todd.Kemper@gov.ab.ca