

REPORT

William A Switzer Provincial Park Rare Lichen Survey of Proposed Maintenance Construction Areas, Aug 1 - 4, 2007

TO: Ksenija Vujnovic
Heritage Protection Specialist
West Central/East Central Areas
Parks, Conservation, Recreation and Sport Division
Alberta Tourism, Parks, Recreation and Culture
3rd Floor, 9820 – 106 Street
Edmonton, AB T5K 2J6

FROM: Janet Marsh PhD
Lichenology Consultant
JMarsh Environmental
169 Carr Cr
Okotoks, AB T1S 1E3

October 25, 2007

This publication may be cited as: Marsh, J.E. 2007. William A Switzer Provincial Park rare lichen survey of proposed maintenance construction areas, Aug. 1-4, 2007. Report prepared for Alberta Tourism, Parks, Recreation and Culture. Edmonton, Alta.

William A Switzer Provincial Park Rare Lichen Survey, Aug 1 - 4, 2007

Summary

A list of 62 lichens that occurred in surveyed sites in the Gregg Lake area, William A Switzer Provincial Park in August, 2007, was compiled and rare lichens that occurred in these sites were assessed. Five rare lichens found in the park were: *Cladonia bacilliformis*, *Peltigera evansiana*, *Ramalina dilacerata*, *R. intermedia* and *R. sinensis*.

Methodology

Areas to be disturbed in the Gregg Lake area of the park were surveyed for rare lichens, (following the guidelines of the Alberta Native Plant Council (ANPC 2000)), while walking slowly along trails to be brushed or newly developed, as well as by meandering through other previously undisturbed areas as identified in contract No 08-WCA-212. The observer noted lichens on tree and shrub species, that were within the limits of the survey, such as Lodgepole pine, White spruce, Balsam poplar (Poplar), Willow, Aspen, Alder and Shepherdia. Ground-dwelling lichens and those on boulders in the trail were also included in the survey. Descriptions of the habitat and vascular plant flora for each surveyed area are found in Williams (2007). The limits of the survey included entire polygons where indicated, existing unsurfaced trails with up to 1 m buffer on each side of the trail, and up to 2.5 m on each side of the flagged central line for a new trail to be developed. Collections were verified in the lab using a dissection microscope. Occurrences of rare lichens were documented following the protocol of the Alberta Natural Heritage Information Centre (ANHIC 2002). Mitigation of rare lichens was carried out when deemed necessary and when there was not time to return to sites later.

Results

In William A Switzer Provincial Park, 62 lichens were recorded during this survey including the five rare lichens. Appendix 1 lists the lichens found at each site by substrate and whether the lichen was tracked; Appendix 2 lists the lichens.

Notes on sites surveyed in William A Switzer Provincial Park, Gregg Lake area

1. Loop A

The actual survey area differed from the one described in contract No 08-WCA-212. Based on the instructions received from Bruce Duffin at the site (pers.com).

2007), the area west of the existing Loop A (instead of the area east of the Loop A) was surveyed. Also, the width of the survey area was reduced from 100 m to 20 m. The new Water Treatment Plant area east of Loop A was surveyed as originally planned.

South Loop A and North Loop A are small areas (10m X 20 m) around the convenience store that will be cleared for parking stalls; the rare lichen *Ramalina intermedia* occurred on Aspen and Lodgepole pine, *Ramalina dilacerata* on Lodgepole pine and *R. sinensis* was found on White spruce and Lodgepole pine at these sites.

In the new Water Treatment Plant area, *Ramalina dilacerata* occurred on White spruce and in the Pull-thru Trailer area *R. sinensis* was found on Willow and White spruce. The rare small yellow pointed lichen, *Cladonia bacilliformis*, grew on a stump; this lichen is found elsewhere in the park.

All three *Ramalina* species are commonly found throughout the park and do not require tracking (Table 1). Lichens found on various substrates are listed in Appendix 1.

Table 1. List of tracked/rare lichens found in surveyed sites in William A. Switzer Provincial Park, Alberta, August 1-4, 2007.

Species	Rank	Tracked	No. of Sites/Occurrences
<i>Cladonia bacilliformis</i>	S2S3	Y	2
<i>Peltigera evansiana</i>	S2S3	Y	2
<i>Ramalina dilacerata</i>	S2	Y	4
<i>Ramalina intermedia</i>	S1	Y	7
<i>Ramalina sinensis</i>	SU	Y	5

2. Amphitheatre

The existing amphitheatre area will be expanded to include about a 50 m by 20 m area. *Ramalina sinensis* and *R. dilacerata* were found on White spruce within parameters of this new footprint.

3. Loop F, Sanitary Treatment Plant area

A small treed area (about 50 m by 50 m) north of Loop F will be disturbed to accommodate a new Sanitary Treatment Plant. *Ramalina dilacerata* was found on Lodgepole pine and Willow at this site (Appendix 1). This lichen is found throughout the park.

4. Loop L, Lakeside Parking Lot

Approximately 60 m x 20 m of White spruce/Aspen/Lodgepole pine forest will be removed to expand an existing parking lot near the waterfront at the Lakeside Gregg Lake Campground. The rare lichens *Ramalina intermedia* and *R. sinensis* were found on Willow and White spruce at this site; *R. sinensis* also occurred at this site on Aspen and Lodgepole pine. Road dust, with calcium and other nutrients, may play a role in the abundance of these lichens at this site. The rare sorediate lichen, *Peltigera evansiana* was found in the ditch here; this lichen appears to favour disturbed sites as it was also found just up the road on the Emergency Exit Road for the New Group site. Positive identification was done in the lab for this lichen and no mitigation was carried out; however, this lichen most likely occurs elsewhere in the area.

5. New Group Campsite and emergency exit road (Hay River Road)

About 150x100 m of White spruce/Aspen/Lodgepole pine/feathermoss stand will be cleared for a new group campground. An unsurfaced emergency exit road (Hay River Road) near the proposed group campground (ca 400 m long and ca 5 m wide) will be brushed and graveled. As mentioned above, *Peltigera evansiana* was found on the Emergency Exit Road, a disturbed right-of-way into the campsite area. This rare lichen was moved to a safe area high up on the adjacent road bank. Location information is on the Element Occurrence sheet that will be submitted to ANHIC. In the proposed campsite area, *Ramalina intermedia* was found on White spruce. This lichen is found throughout the park (Appendix 1).

6. Backcountry Trail west of Cache Lake to Graveyard Lake.

A new backcountry trail (about 3 km long) is being planned for west of Graveyard and Cache lakes. The rare lichens *Ramalina intermedia* and *R. sinensis* were found sporadically on Willow and White spruce along the length of this trail. These lichens occur in adjacent forest on the trail. *Cladonia bacilliformis* occurred on a charred log that was a former tip-up. This lichen is found elsewhere in the park.

7. Hiking trails connecting Loops F and L and other short trails

The hiking trail connecting Loops F and L (ca 2.5km long) that will be brushed was surveyed. *Ramalina intermedia* occurred on White spruce and Poplar twigs on this trail. Other short trails in the Gregg Lake area were surveyed; no rare lichens were found.

Recommendations

In most cases, the rare lichens *Ramalina dilacerata*, *R. intermedia* and *R. sinensis* were found on various tree and shrub substrates throughout the park in areas that were not surveyed. Moisture and light requirements for these lichens, as well as road dust, are met in this geographic area of the province to enhance colonization and growth of these lichens. No mitigation for these lichens was deemed necessary.

Although documented only two times during this survey, *Peltigera evansiana* appears to enjoy disturbed areas of high light intensity and is likely more widespread within W.A. Switzer Provincial Park than it appears. This inconspicuous lichen may be generally under-collected and hence on the tracking list. The specimen found on the Emergency Exit Road for the New Group site was moved to a safe area high up on the adjacent road bank. The new location should be protected from further disturbance during surfacing and brushing of the road (UTM locations of the new site has been deposited with ANHIC). *Peltigera evansiana* was also found in the ditch within the proposed Lakeside Parking Lot area. Positive identification was done in the lab, so no mitigation was carried out. Because this lichen is likely more widespread within W.A. Switzer Provincial Park than it appears, no mitigation is deemed necessary for this occurrence of *Peltigera evansiana*.

Cladonia bacilliformis was documented two times during this survey. It grows on logs and stumps, is inconspicuous and small and may be under-collected. On the backcountry trail this lichen was moved to a log approximately 20 m off trail. The Loop A occurrence of this lichen was not mitigated but will likely be found elsewhere in the park.

References

Alberta Native Plant Council. 2000. ANPC Guidelines for Rare Plant Surveys in Alberta. Information Bulletin: March 2000.

Duffin, Bruce (pers. comm.) Duffin Consulting Ltd., Spruce Grove, Alta.

Alberta Natural Heritage Information Centre (ANHIC). 2002. Alberta Natural Heritage Information Centre tracking list of all lichen elements (compiled November 2002). Alberta Community Development, Parks and Protected Areas Division. Edmonton, Alta.

[URL: http://tprc.alberta.ca/parks/heritageinfocentre/docs/lichen_list.pdf]

Williams, J. 2007. Summer 2007 vegetation and rare plant surveys of proposed maintenance / construction projects in W.A. Switzer Provincial Park. Report. Alberta Parks Agreement No. 08-WCA-212.

Appendix 1: List of Lichens observed while surveying targeted sites at William A. Switzer Provincial Park, Aug 1-4, 2007, Y = yes.

Site	Substrate	Lichen	Tracked	
South Loop A, Store area	Lodgepole pine	<i>Evernia mesomorpha</i>		
		<i>Vulpicida pinastri</i>		
		<i>Lecanora impudens</i>		
		<i>Usnea scabrata</i>		
		<i>Tuckermannopsis americana</i>		
		<i>Hypogymnia physodes</i>		
		<i>Usnea lapponica</i>		
		White spruce	<i>Hypogymnia physodes</i>	
			<i>Parmelia sulcata</i>	
			<i>Ramalina americana</i>	
			<i>Usnea lapponica</i>	
			<i>Ramalina sinensis</i>	Y
		ground	<i>Peltigera canina</i>	
			<i>Peltigera aphthosa</i>	
	<i>Peltigera leucophlebia</i>			
	<i>Cladonia mitis</i>	syn <i>Cladonia mitis</i>		
Shepherdia	<i>Usnea sp.</i>	small		
rock	<i>Leptogium saturninum</i>			
	<i>Stereocaulon alpinum</i>			
log/stump	<i>Parmelia sulcata</i>			
	<i>Cladonia fimbriata</i>			
	<i>Phaeophyscia orbicularis</i>			
Aspen	<i>Ramalina intermedia</i>	Y		
	<i>Caloplaca holocarpa</i>			
	<i>Physcia adscendens</i>			
North Loop A, from store	Lodgepole pine	<i>Usnea lapponica</i>		
		<i>Ramalina intermedia</i>	Y	
		<i>Ramalina sinensis</i>	Y	
		<i>Ramalina dilacerata</i>	Y	
		<i>Tuckermannopsis americana</i>		
		<i>Hypogymnia austerodes</i>		
		<i>Usnea scabrata</i>		
		<i>Usnea filipendula</i>		
		ground	<i>Peltigera aphthosa</i>	
			<i>Peltigera canina</i>	
			<i>Peltigera rufescens</i>	
			<i>Peltigera retifoveata</i>	
		charred stump	<i>Hypocenomyce scalaris</i>	
			<i>Cladonia chlorophaea</i>	
	<i>Cladonia fimbriata</i>			

		<i>Hypogymnia physodes</i>	
		<i>Vulpicida pinastri</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia austerodes</i>	
Loop A, Water Treatment	ground	<i>Peltigera aphthosa</i>	
		<i>Peltigera retifoveata</i>	
	Lodgepole pine	<i>Evernia mesomorpha</i>	
		<i>Tuckermannopsis americana</i>	
		<i>Usnea scabrata</i>	
		<i>Bryoria lanestris</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia physodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Parmeliopsis ambigua</i>	
		<i>Vulpicida pinastri</i>	
		<i>Letharia vulpina</i>	
	Willow	<i>Usnea lapponica</i>	
		<i>Hypogymnia physodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Usnea substerilis</i>	
	log	<i>Parmeliopsis ambigua</i>	
		<i>Parmeliopsis hyperopta</i>	
		<i>Cladonia deformis</i>	
		<i>Vulpicida pinastri</i>	
		<i>Hypocenomyce scalaris</i>	
		<i>Cladonia gracilis</i>	
		<i>Lecanora impudens</i>	
		<i>Imshaugia aleurites</i>	
		<i>Cladonia sulphurina</i>	
		<i>Stereocaulon alpinum</i>	
		<i>Cladonia mitis</i>	
	White spruce	<i>Usnea lapponica</i>	
		<i>Hypogymnia physodes</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Hypogymnia austerodes</i>	
		<i>Melanelia elegantua</i>	
		<i>Leptogium saturninum</i>	
	<i>Alnus crispa</i>	<i>Usnea lapponica</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia physodes</i>	
	Shepherdia	<i>Usnea lapponica</i>	
		<i>Parmelia sulcata</i>	
		<i>Ramalina americana</i>	

		<i>Melanelia elegantua</i>	
Loop A, Pull-thru trailer site	Lodgepole pine	<i>Parmelia sulcata</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Usnea lapponica</i>	
		<i>Tuckermannopsis americana</i>	
		<i>Bryoria lanestris</i>	
		<i>Usnea scabrata</i>	
		<i>Hypogymnia physodes</i>	
		<i>Vulpicida pinastri</i>	
		<i>Evernia mesomorpha</i>	
		<i>Bryoria fuscescens</i>	
		<i>Evernia mesomorpha</i>	
	Willow	<i>Usnea lapponica</i>	
		<i>Bryoria lanestris</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia physodes</i>	
		<i>Ramalina sinensis</i>	Y
		<i>Leptogium saturninum</i>	
	ground	<i>Peltigera aphthosa</i>	
		<i>Peltigera canina</i>	
		<i>Peltigera leucophlebia</i>	
	Alnus crispa	<i>Usnea sp.</i>	small
		<i>Parmelia sulcata</i>	
	Stump	<i>Cladonia gracilis</i>	
		<i>Cladonia sulphurina</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia physodes</i>	
		<i>Vulpicida pinastri</i>	
		<i>Leproloma membranaceum</i>	
		<i>Usnea lapponica</i>	
		<i>Tuckermannopsis americana</i>	
		<i>Parmeliopsis ambigua</i>	
		<i>Cladonia bacilliformis</i>	Y
		<i>Hypocenomyce scalaris</i>	
		<i>Cladonia coniocraea</i>	
		<i>Cladonia cornuta</i>	
		<i>Parmeliopsis hyperopta</i>	
		<i>Cladonia chlorophaea</i>	
		<i>Cladonia cervicornis spp. verticillata</i>	
		<i>Imshaugia aleurites</i>	
		<i>Letharia vulpina</i>	
	White spruce	<i>Hypogymnia physodes</i>	
		<i>Usnea lapponica</i>	
		<i>Ramalina sinensis</i>	Y

Amphitheatre	White spruce	<i>Usnea lapponica</i>	
		<i>Usnea filipendula</i>	
		<i>Melanelia elegantua</i>	
		<i>Hypogymnia physodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Leptogium saturninum</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Ramalina sinensis</i>	Y
		<i>Usnea scabrata</i>	
		<i>Bryoria fuscescens</i>	
		<i>Caloplaca holocarpa</i>	
		<i>Vulpicida pinastri</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Ramalina americana</i>	
	Lodgepole pine	<i>Usnea lapponica</i>	
		<i>Tuckermannopsis americana</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia physodes</i>	
		<i>Usnea scabrata</i>	
		<i>Bryoria fuscescens</i>	
		<i>Usnea filipendula</i>	
		<i>Bryoria lanestrus</i>	
		<i>Evernia mesomorpha</i>	
	ground	<i>Peltigera aphthosa</i>	
		<i>Peltigera canina</i>	
		<i>Peltigera leucophlebia</i>	
		<i>Peltigera membranacea</i>	
	Aspen	<i>Leptogium saturninum</i>	
		<i>Usnea lapponica</i>	
		<i>Usnea scabrata</i>	
		<i>Lecanora impudens</i>	
		<i>Ramalina americana</i>	
	Aspen snag	<i>Ramalina americana</i>	
	log/stump	<i>Parmeliopsis ambigua</i>	
		<i>Parmeliopsis hyperopta</i>	
		<i>Cladonia coniocraea</i>	
		<i>Cladonia chlorophaea</i>	
		<i>Hypogymnia physodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Usnea lapponica</i>	
		<i>Vulpicida pinastri</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Imshaugia aleurites</i>	

		<i>Cladonia crispata</i>	
		<i>Platismatia glauca</i>	
		<i>Lecanora impudens</i>	
		<i>Evernia mesomorpha</i>	
		<i>Hypocenomyce scalaris</i>	
		<i>Tuckermannopsis americana</i>	
		<i>Cladonia deformis</i>	
		<i>Cladonia macilenta</i>	
	Willow	<i>Parmelia sulcata</i>	
		<i>Usnea lapponica</i>	
		<i>Usnea subfloridana</i>	
		<i>Ramalina americana</i>	
Loop F, Sanitary Treatment	Willow	<i>Usnea lapponica</i>	
		<i>Vulpicida pinastri</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Leptogium saturninum</i>	
		<i>Melanelia elegantua</i>	
		<i>Hypogymnia physodes</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Lecanora impudens</i>	
	log/stump	<i>Cladonia fimbriata</i>	
		<i>Parmeliopsis ambigua</i>	
		<i>Parmelia sulcata</i>	
	Lodgepole pine	<i>Tuckermannopsis americana</i>	
		<i>Parmelia sulcata</i>	
		<i>Bryoria fuscescens</i>	
		<i>Usnea scabrata</i>	
		<i>Parmeliopsis hyperopta</i>	
		<i>Usnea lapponica</i>	
		<i>Evernia mesomorpha</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Hypogymnia physodes</i>	
		<i>Bryoria lanestrus</i>	
		<i>Usnea scabrata</i>	
	ground	<i>Peltigera aphthosa</i>	
		<i>Cladonia mitis</i>	
		<i>Peltigera canina</i>	
		<i>Peltigera neckeri</i>	
	Stump	<i>Hypocenomyce scalaris</i>	
		<i>Vulpicida pinastri</i>	
		<i>Parmelia sulcata</i>	
		<i>Usnea lapponica</i>	
		<i>Parmeliopsis ambigua</i>	
		<i>Imshaugia aleurites</i>	

		<i>Cladonia cornuta</i>	
		<i>Cetraria ericetorum</i>	
	Aspen	<i>Lecanora impudens</i>	
Loop L, Lakeside Parking Lot	Aspen	<i>Ramalina americana</i>	
		<i>Ramalina sinensis</i>	Y
		<i>Usnea lapponica</i>	
		<i>Physcia adscendens</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Lecanora impudens</i>	
		<i>Leptogium saturninum</i>	
	Lodgepole pine	<i>Ramalina sinensis</i>	Y
		<i>Usnea lapponica</i>	
		<i>Ramalina americana</i>	
		<i>Caloplaca holocarpa</i>	
		<i>Hypogymnia physodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Tuckermannopsis americana</i>	
		<i>Usnea scabrata</i>	
		<i>Usnea filipendula</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Bryoria lanestris</i>	
	ground	<i>Peltigera canina</i>	
		<i>Peltigera leucophlebia</i>	
		<i>Peltigera aphthosa</i>	
		<i>Peltigera ponojensis</i>	
		<i>Peltigera rufescens</i>	
		<i>Cladonia cariosa</i>	
		<i>Stereocaulon tomentosum</i>	
		<i>Peltigera evansiana</i>	Y
	White spruce	<i>Usnea lapponica</i>	
		<i>Usnea scabrata</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Evernia mesomorpha</i>	
		<i>Usnea hirta</i>	
		<i>Usnea subfloridana</i>	
		<i>Leptogium saturninum</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia physodes</i>	
		<i>Ramalina intermedia</i>	Y
		<i>Ramalina sinensis</i>	Y
		<i>Ramalina americana</i>	
		<i>Caloplaca holocarpa</i>	
		<i>Melanelia elegantula</i>	
	Willow	<i>Ramalina intermedia</i>	Y

		<i>Ramalina sinensis</i>	Y
		<i>Leptogium saturninum</i>	
		<i>Parmelia sulcata</i>	
	charred stump	<i>Parmelia sulcata</i>	
		<i>Usnea lapponica</i>	
		<i>Imshaugia aleurites</i>	
		<i>Usnea scabrata</i>	
		<i>Evernia mesomorpha</i>	
New group campsite; Emergency Exit road		<i>Peltigera rufescens</i>	
		<i>Peltigera evansiana</i>	Y
		<i>Cladonia cariosa</i>	
		<i>Cladonia pyxidata</i>	
		<i>Cladonia phyllophora</i>	
		<i>Stereocaulon alpinum</i>	
		<i>Cladonia pocillum</i>	
New Group Campsite		Lodgepole pine	<i>Tuckermannopsis americana</i>
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia physodes</i>	
		<i>Usnea lapponica</i>	
		<i>Bryoria fuscescens</i>	
		<i>Bryoria lanestrus</i>	
		<i>Caloplaca holocarpa</i>	
		<i>Usnea substerilis</i>	
		<i>Vulpicida pinastri</i>	
		<i>Ramalina americana</i>	
		<i>Leptogium saturninum</i>	
	White spruce	<i>Hypogymnia austerodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Usnea lapponica</i>	
		<i>Leptogium saturninum</i>	
		<i>Usnea scabrata</i>	
		<i>Melanelia elegantula</i>	
		<i>Caloplaca holocarpa</i>	
		<i>Usnea filipendula</i>	
		<i>Bryoria lanestrus</i>	
		<i>Ramalina americana</i>	
		<i>Ramalina intermedia</i>	Y
	ground	<i>Peltigera aphthosa</i>	
		<i>Peltigera canina</i>	
		<i>Peltigera leucophlebia</i>	
		<i>Cladonia mitis</i>	
		<i>Cladonia crispata</i>	
		<i>Peltigera rufescens</i>	
		<i>Peltigera retifoveata</i>	

	Aspen	<i>Usnea lapponica</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Bryoria lanestrus</i>	
		<i>Physcia adscendens</i>	
		<i>Lecanora impudens</i>	
		<i>Ramalina americana</i>	
		<i>Leptogium saturninum</i>	
	Shepherdia	<i>Parmelia sulcata</i>	
		<i>Usnea lapponica</i>	
	Willow	<i>Usnea lapponica</i>	
		<i>Parmelia sulcata</i>	
		<i>Caloplaca holocarpa</i>	
		<i>Hypogymnia physodes</i>	
		<i>Vulpicida pinastri</i>	
		<i>Usnea scabrata</i>	
	Stump/log	<i>Vulpicida pinastri</i>	
		<i>Cladonia gracilis</i>	
		<i>Cladonia sulphurina</i>	
		<i>Cladonia bacillaris</i>	
		<i>Hypogymnia physodes</i>	
		<i>Parmeliopsis ambigua</i>	
	rock	<i>Parmelia sulcata</i>	
		<i>Hypogymnia austerodes</i>	
Connector trail, Cache Lake to Graveyard	White spruce	<i>Ramalina intermedia</i>	Y
		<i>Ramalina sinensis</i>	Y
	Willow	<i>Ramalina intermedia</i>	Y
	log/stump	<i>Cladonia bacilliformis</i>	Y
2.5 km trail, Loop F to Loop L	White spruce	<i>Ramalina intermedia</i>	Y
	Poplar	<i>Ramalina intermedia</i>	Y

Appendix 2: List of Lichens that Occur in Surveyed Sites in the Gregg Lake area of William A. Switzer Provincial Park	
Lichen	Tracked
<i>Bryoria fuscescens</i>	
<i>Bryoria lanestrus</i>	
<i>Caloplaca holocarpa</i>	
<i>Cetraria ericetorum</i>	
<i>Cladonia bacillaris</i>	
<i>Cladonia bacilliformis</i>	Y
<i>Cladonia cariosa</i>	
<i>Cladonia cervicornis</i> spp. <i>verticillata</i>	

<i>Cladonia chlorophaea</i>	
<i>Cladonia chlorophaea</i>	
<i>Cladonia coniocraea</i>	
<i>Cladonia cornuta</i>	
<i>Cladonia crispata</i>	
<i>Cladonia deformis</i>	
<i>Cladonia fimbriata</i>	
<i>Cladonia gracilis</i>	
<i>Cladonia macilenta</i>	
<i>Cladonia mitis</i>	
<i>Cladonia phyllophora</i>	
<i>Cladonia pocillum</i>	
<i>Cladonia pyxidata</i>	
<i>Cladonia sulphurina</i>	
<i>Evernia mesomorpha</i>	
<i>Hypocenomyce scalaris</i>	
<i>Hypogymnia austerodes</i>	
<i>Hypogymnia physodes</i>	
<i>Imshaugia aleurites</i>	
<i>Lecanora impudens</i>	
<i>Leproloma membranaceum</i>	
<i>Leptogium saturninum</i>	
<i>Letharia vulpina</i>	
<i>Melanelia elegantula</i>	
<i>Parmelia sulcata</i>	
<i>Parmeliopsis ambigua</i>	
<i>Parmeliopsis hyperopta</i>	
<i>Peltigera aphthosa</i>	
<i>Peltigera canina</i>	
<i>Peltigera evansiana</i>	Y
<i>Peltigera leucophlebia</i>	
<i>Peltigera membranacea</i>	
<i>Peltigera neckeri</i>	
<i>Peltigera ponojensis</i>	
<i>Peltigera retifoveata</i>	
<i>Peltigera rufescens</i>	
<i>Phaeophyscia orbicularis</i>	
<i>Physcia adscendens</i>	
<i>Platismatia glauca</i>	
<i>Ramalina americana</i>	
<i>Ramalina dilacerata</i>	Y
<i>Ramalina intermedia</i>	Y
<i>Ramalina sinensis</i>	Y
<i>Stereocaulon alpinum</i>	

<i>Stereocaulon tomentosum</i>	
<i>Tuckermannopsis americana</i>	
<i>Usnea filipendula</i>	
<i>Usnea hirta</i>	
<i>Usnea lapponica</i>	
<i>Usnea scabrata</i>	
<i>Usnea sp.</i>	small
<i>Usnea subfloridana</i>	
<i>Usnea substerilis</i>	
<i>Vulpicida pinastri</i>	