

REPORT

William A Switzer Provincial Park Rare Lichen Survey of Proposed Maintenance Construction Areas, May 27-31, 2007

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William A Switzer Provincial Park Rare Lichen Survey, May 27-31, 2007

A list of lichens that occurred in ten surveyed sites of William A Switzer Provincial Park was compiled and rare lichens that occurred in these sites were assessed following the protocol of ANHIC for rare plants. Rare lichens found in the park were: *Baeomyces rufus*, *Collema subflaccidum*, *Leptogium lichenoides*, *Physconia perisidiosa*, *Ramalina dilacerata*, *R. intermedia* and *R. sinensis*.

Methodology

Areas to be disturbed in the park were surveyed while walking slowly along trails to be brushed and through adjacent bypass areas. 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, Willow, Birch, Bog birch and Shepherdia. Ground-dwelling lichens and those on boulders in the trail were also included in the survey. The surveys included the trail width and 1 m on each side of the trail into the forest or grassland, unless otherwise stated in instructions.

Results

In William A Switzer Provincial Park, 72 lichens were recorded including the seven rare lichen species. Appendix 1 lists the lichen species found at each site by substrate; Appendix 2 is a list of the lichens and those that are tracked found at William A Switzer Provincial Park.

Notes on sites surveyed in William A Switzer Provincial Park

1. Kelly's Bathtub Loop Trail

Lichens found on various substrates are listed in Appendix 1. The rare lichens *Ramalina dilacerata* and *R. sinensis* occurred on all tree and shrub species surveyed. The lichen, *R. dilacerata* was commonly found throughout the park and does not require tracking (Table 1). *Ramalina sinensis* was found on Lodgepole pine at this site and at several other sites in this survey.

2. Jarvis Lake Campground

The rare lichen *Physconia perisidiosa* was found on a Spruce tree trunk near the entrance to the new campsite beside campsite 8. The small round lichen thallus was on the tree trunk facing out to the road – only this one specimen was found, so it was left on the tree as it appeared that this tree would not be removed in the construction of the new campsite. Most likely alkaline dust from the road is a factor in the presence of this

species. *Ramalina sinensis* also occurs at this site on large Willow along with *R. dilacerata*. Both of these species are found on other Willows in the campground area.

Table 1. List of tracked/rare lichen species found in surveyed sites in William A. Switzer Provincial Park, Alberta.

Species	Rank	Tracked	No. of Sites/Occurrences
<i>Baeomyces rufus</i>	S2	Y	3
<i>Collema subflaccidum</i>	S2	Y	1
<i>Heterodermia speciosa</i>	S2	Y	1
<i>Leptogium lichenoides</i>	S2S3	Y	1
<i>Physconia perisidiosa</i>	S1	Y	1
<i>Ramalina dilacerata</i>	S2	Y	19
<i>Ramalina intermedia</i>	S1	Y	7
<i>Ramalina sinensis</i>	SU	Y	5

2a. Jarvis Lake Campground entrance parking stalls

Jarvis Lake Campground entrance parking stalls are to be lengthened and Bruce Duffin suggested we survey this area. On a Balsam poplar snag trunk, the rare lichen *Collema subflaccidum* was found. This is a nitrogen-fixing lichen that is found on calcareous substrates such as this area with dust inundation adjacent to the entrance to the campground. *Ramalina sinensis* and *R. dilacerata* also rare lichens, occurred at this site (Appendix 1).

3. Jarvis Lake Day Use Area

The rare lichens *Ramalina dilacerata*, *R. intermedia* and *R. sinensis* were found on Willow at this site; *R. americana* also occurred at this site. Other Willow in the area also support these species and no mitigation is required at this site.

4. Jarvis Lake Trails

The rare lichen *Leptogium lichenoides* was found growing in patches in the middle of the trail. This lichen is a fruticose growth form, but very short and close to the ground so it would not be impacted by brushing equipment. Mountain bicycles may impact this lichen if bicycle use increases.

Another rare lichen that occurred on the ground in the middle of the Meadow Run trail was *Baeomyces rufus*, a soil-binding lichen that colonizes roadsides and disturbed areas. This pale, yellow-green lichen with tiny podetia capped with pink-brown apothecia grows close to the ground and will not be affected by brushing the trails.

5. Pine Bay Group Camping Site

The rare lichen *Ramalina dilacerata* was found on Willow and White spruce at this site and was also found on nearby shrubs and trees.

6. Trout Pond – Lower bypass

Ramalina dilacerata occurred at this site on Lodgepole pine. Pendant lichens such as *Usnea scabrata* are prolific at this site on mature large Lodgepole pine and White spruce trees.

Trout Pond – Upper bypass

The rare lichen, *Ramalina intermedia*, occurred at this site on Lodgepole pine and White spruce. The rare lichen, *R. dilacerata* also was found on White spruce.

Joan and I agreed with Bruce that stairs would be a preferred option to diagonal paths across the slopes for both bypasses, so as to not remove the large trees adjacent to the trail.

7. Kettle Lake Trail.

Hypocenomyce scalaris, S3, a lichen of burned, charred substrates on wood, was found off the trail near the beginning of the trail. Another S3 lichen, *Peltigera lepidophora*, occurred on the side of the trail growing amongst *Cladonia squamules*. The rare lichen *Ramalina dilacerata* was growing on a stump at the edge of the trail; this species was present on shrubs and trees throughout the park and should be removed from the tracking list at the next update, hopefully this fall.

Baeomyces rufus S2 grows in the middle of this cobbly trail and should not be affected by the brushing equipment.

8. Beaver Ranch Group Camp

The rare lichens *Ramalina dilacerata* and *R. intermedia* were found on Willow; *R. dilacerata* was also on White spruce at this site. Other similar shrubs and trees in the area supported these species.

The parking area did not have rare lichens.

9. Halfway Campground. – Beaver Ranch Trail.

No rare lichens were found on Willow (*Salix discolor*) or Bog birch of the existing trail at this site. On the new trail to be brushed, no lichens were found.

10. Beaver Ranch – Graveyard Trails

Ramalina dilacerata was found on Willow at this site; other Willows in the area supported this lichen.

Recommendations

In most cases, the rare lichens *Ramalina dilacerata*, *R. intermedia* and *R. sinensis* were found throughout the park in areas that were not surveyed per se, except the Jarvis Lake Day Use area site that was especially rich in Ramalinas.

At Trout Pond, the mature large trees with abundant pendant lichens should be left intact as this is a favourable area for growth of these lichens that was not observed in other areas that we surveyed.

It was assumed that the trees supporting *Physconia perisidiosa* would be left standing at the entrance to the new campstall in the Jarvis Lake Campground.

The dead Balsam poplar that supported *Collema subflaccidum* would remain on site in the Jarvis Lake campground area. (Personal Communication - Bruce Duffin)

Increased bicycle use of the X-C ski trails may damage the rare *Baeomyces rufus* and *Leptogium lichenoides* as both these species grew on the soil in the middle of the trail.

Appendix 1. List of Lichens observed while surveying the 10 targeted sites at William Switzer Provincial Park, May 28-31, 2007

Site	Substrate	Lichen species	Tracked
1. Kelly's Bathtub loop including proposed realignments	Lodgepole pine	1.1.1.1.1 <i>Usnea lapponica</i>	
		<i>Bryoria fuscescens</i>	
		<i>Usnea scabrata</i>	
		<i>Melanelia elegantula</i>	
		<i>Bryoria lanestrus</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Ramalina sinensis</i>	Y
		<i>Leptogium saturninum</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Caloplaca holocarpa</i>	
		<i>Lecanora polytropa</i>	
		<i>Ramalina intermedia</i>	Y
		<i>Usnea filipendula</i>	
		<i>Usnea glabrescens</i>	
	Willow	<i>Hypogymnia physodes</i>	

	<i>Parmelia sulcata</i>	
	<i>Usnea lapponica</i>	
	<i>Ramalina dilacerata</i>	Y
	<i>Physcia aipolia</i>	
	<i>Melanelia elegantula</i>	
	<i>Evernia mesomorpha</i>	
	<i>Hypogymnia austerodes</i>	
	<i>Ramalina sinensis</i>	Y
	<i>Caloplaca holocarpa</i>	
	<i>Physcia stellaris</i>	
White spruce	<i>Usnea scabrata</i>	
	<i>Usnea subfloridana</i>	
	<i>Physcia aipolia</i>	
	<i>Bryoria fuscescens</i>	
	<i>Ramalina dilacerata</i>	Y
	<i>Usnea lapponica</i>	
	<i>Melanelia elegantula</i>	
	<i>Lecanora impudens</i>	
	<i>Heterodermia speciosa</i>	Y
	<i>Ramalina intermedia</i>	Y
	<i>Phaeophyscia orbicularis</i>	
ground	<i>Peltigera malacea</i>	
	<i>Peltigera elizabethae</i>	
	<i>Peltigera ponojensis</i>	
	<i>Baeomyces rufus</i>	Y
	<i>Peltigera canina</i>	
	<i>Peltigera membranacea</i>	
	<i>Cladonia coniocraea</i>	
	<i>Peltigera aphthosa</i>	
	<i>Peltigera venosa</i>	
	<i>Peltigera leucophlebia</i>	
Lodgepole pine snag	<i>Hypogymnia austerodes</i>	
	<i>Hypogymnia physodes</i>	
	<i>Ramalina dilacerata</i>	Y
	<i>Usnea scabrata</i>	
	<i>Usnea lapponica</i>	
	<i>Parmelia sulcata</i>	
	<i>Tuckermannopsis chlorophylla</i>	
	<i>Vulpicida pinastri</i>	
	<i>Tuckermannopsis americana</i>	
	<i>Melanelia exasperatula</i>	
	<i>Bryoria fuscescens</i>	
	<i>Evernia mesomorpha</i>	
Shepherdia	<i>Vulpicida pinastri</i>	
	<i>Parmelia sulcata</i>	
	<i>Hypogymnia physodes</i>	

		<i>Usnea lapponica</i>	
		<i>Tuckermannopsis americana</i>	
	granite boulders	<i>Physcia caesia</i>	
		<i>Xanthoria elegans</i>	
	conglomerate	<i>Leptogium saturninum</i>	
		<i>Cladonia chlorophaea</i>	
	log	<i>Cladonia chlorophaea</i>	
		<i>Cladonia deformis</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia physodes</i>	
		<i>Usnea lapponica</i>	
		<i>Cladonia coniocraea</i>	
		<i>Cladonia botrytes</i>	
		<i>Melanelia exasperatula</i>	
		<i>Vulpicida pinastri</i>	
2. Jarvis Lake Campground, beside camp stall #8	Willow	<i>Usnea lapponica</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Parmelia sulcata</i>	
		<i>Leptogium saturninum</i>	
		<i>Ramalina sinensis</i>	Y
		<i>Melanelia exasperatula</i>	
	Balsam poplar	<i>Ochrolechia arborea</i>	
		<i>Caloplaca holocarpa</i>	
		<i>Ramalina intermedia</i>	Y
	White spruce	<i>Leptogium saturninum</i>	
		<i>Phaeophyscia hispidula</i>	
		<i>Usnea lapponica</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Usnea scabrata</i>	
		<i>Physconia perisidiosa</i>	Y
		<i>Usnea hirta</i>	
		<i>Ochrolechia arborea</i>	
2a. Jarvis Lake Campground, behind parking stalls at campground entrance	Willow	<i>Ramalina dilacerata</i>	Y
		<i>Usnea lapponica</i>	
		<i>Leptogium saturninum</i>	
		<i>Ramalina intermedia</i>	Y
		<i>Usnea subfloridana</i>	
	Balsam poplar, snag	<i>Usnea hirta</i>	
		<i>Parmelia sulcata</i>	
		<i>Usnea lapponica</i>	
		<i>Ramalina dilacerata</i>	Y

		<i>Parmelia sulcata</i>	
		<i>Collema subflaccidum</i>	Y
		<i>Melanelia subaurifera</i>	
		<i>Ramalina sinensis</i>	Y
3. Jarvis Lake Day Use area	Willow	<i>Ramalina dilacerata</i>	Y
		<i>Ramalina sinensis</i>	Y
		<i>Ramalina americana</i>	Y
		<i>Usnea lapponica</i>	
		<i>Caloplaca holocarpa</i>	
		<i>Leptogium saturninum</i>	
	Balsam poplar	<i>Lecanora impudens</i>	
		<i>Caloplaca holocarpa</i>	
	ground	<i>Peltigera retifoveata</i>	
4. Jarvis Lake Trails		<i>Peltigera neckeri</i>	
		<i>Peltigera canina</i>	
		<i>Cladonia chlorophaea</i>	
		<i>Cladonia coniocraea</i>	
		<i>Peltigera rufescens</i>	
		<i>Peltigera malacea</i>	
		<i>Peltigera aphthosa</i>	
		<i>Peltigera elizabethae</i>	
		<i>Peltigera malacea</i>	
		<i>Peltigera leucophlebia</i>	
		<i>Cladonia multiformis</i>	
		<i>Peltigera neopolydactyla</i>	
		<i>Cladonia pocillum</i>	
		<i>Stereocaulon tomentosum</i>	
	Rolling Run Trail	<i>Leptogium lichenoides</i>	Y
		<i>Parmelia sulcata</i>	
		<i>Tuckermannopsis americana</i>	
		<i>Usnea lapponica</i>	
		<i>Usnea scabrata</i>	
		<i>Cladonia pyxidata</i>	
		<i>Cladonia cariosa</i>	
		<i>Cladonia pleurota</i>	
		<i>Cladina mitis</i>	
		<i>Cladonia deformis</i>	
		<i>Baeomyces rufus</i>	Y
		<i>Peltigera membranacea</i>	
		<i>Peltigera neckeri</i>	
5a. Pine Bay Group Camp, west side parking lot	Lodgepole pine	<i>Tuckermannopsis americana</i>	
		<i>Hypogymnia physodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Usnea lapponica</i>	

		<i>Vulpicida pinastri</i>	
		<i>Bryoria fuscescens</i>	
		<i>Melanelia elegantula</i>	
		<i>Physcia aipolia</i>	
		<i>Usnea scabrata</i>	
	White spruce	<i>Hypogymnia physodes</i>	
		<i>Usnea lapponica</i>	
		<i>Ramalina dilacerata</i>	Y
	ground	<i>Peltigera membranacea</i>	
5b. Pine Bay Group Camp, east side of parking lot	Willow	<i>Usnea substerilis</i>	
		<i>Usnea scabrata</i>	
		<i>Physcia aipolia</i>	
	ground	<i>Peltigera leucophlebia</i>	
6. Trout Lake Trail, lower bypass	ground	<i>Peltigera membranacea</i>	
		<i>Peltigera malacea</i>	
		<i>Peltigera canina</i>	
		<i>Peltigera aphthosa</i>	
		<i>Peltigera retifoveata</i>	
		<i>Peltigera elizabethae</i>	
	White spruce	<i>Hypogymnia austerodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Melanelia elegantula</i>	
		<i>Usnea lapponica</i>	
		<i>Usnea scabrata</i>	
		<i>Hypogymnia physodes</i>	
		<i>Tuckermannopsis americana</i>	
		<i>Usnea subfloridana</i>	
		<i>Caloplaca holocarpa</i>	
		<i>Ramalina dilacerata</i>	Y
	Willow	<i>Usnea lapponica</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Hypogymnia physodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia austerodes</i>	
6. Trout Lake Trail, upper bypass	ground	<i>Peltigera membranacea</i>	
		<i>Peltigera aphthosa</i>	
		<i>Peltigera leucophlebia</i>	
		<i>Peltigera neopolydactyla</i>	
		<i>Peltigera malacea</i>	
		<i>Peltigera canina</i>	
	Lodgepole pine	<i>Ramalina intermedia</i>	Y
		<i>Ramalina dilacerata</i>	Y
		<i>Usnea lapponica</i>	
		<i>Usnea scabrata</i>	
		<i>Usnea subfloridana</i>	

		<i>Hypogymnia physodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Vulpicida pinastri</i>	
	Willow	<i>Leptogium saturninum</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Parmelia sulcata</i>	
		<i>Usnea lapponica</i>	
		<i>Phaeophyscia orbicularis</i>	
		<i>Physcia aipolia</i>	
	White spruce	<i>Ramalina intermedia</i>	Y
		<i>Ramalina dilacerata</i>	Y
		<i>Leptogium saturninum</i>	
		<i>Melanelia elegantula</i>	
		<i>Usnea scabrata</i>	
		<i>Usnea lapponica</i>	
		<i>Ochrolechia arborea</i>	
		<i>Hypogymnia bitteri</i>	
7. Kettle Trail		<i>Hypocenomyce scalaris</i>	
		<i>Imshaugia aleurites</i>	
		<i>Parmeliopsis ambigua</i>	
		<i>Usnea lapponica</i>	
		<i>Peltigera membranacea</i>	
		<i>Peltigera aphthosa</i>	
		<i>Peltigera canina</i>	
		<i>Peltigera ponojensis</i>	
		<i>Peltigera rufescens</i>	
		<i>Cladonia scabriuscula</i>	
		<i>Stereocaulon alpinum</i>	
		<i>Cladonia pyxidata</i>	
		<i>Peltigera lepidophora</i>	N
		<i>Cladonia fimbriata</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Stereocaulon tomentosum</i>	
		<i>Baeomyces rufus</i>	Y
		<i>Trapeliopsis granulosa</i>	
		<i>Peltigera rufescens</i>	
		<i>Peltigera aphthosa</i>	
		<i>Peltigera elizabethae</i>	
		<i>Peltigera canina</i>	
		<i>Cladonia multiformis</i>	
		<i>Cladonia chlorophaea</i>	
		<i>Cladonia cariosa</i>	
		<i>Peltigera venosa</i>	
		<i>Peltigera membranacea</i>	
8. Beaver Ranch Group Camp	ground	<i>Peltigera aphthosa</i>	
		<i>Peltigera canina</i>	

		<i>Peltigera rufescens</i>	
		<i>Cladonia pocillum</i>	
		<i>Peltigera malacea</i>	
		<i>Stereocaulon alpinum</i>	
		<i>Cladonia pyxidata</i>	
	Lodgepole pine	<i>Usnea scabrata</i>	
		<i>Usnea lapponica</i>	
		<i>Usnea subfloridana</i>	
		<i>Parmelia sulcata</i>	
		<i>Vulpicida pinastri</i>	
	White spruce	<i>Usnea lapponica</i>	
		<i>Usnea scabrata</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Caloplaca holocarpa</i>	
		<i>Parmelia sulcata</i>	
		<i>Hypogymnia austerodes</i>	
		<i>Bryoria fuscescens</i>	
		<i>Melanelia elegantula</i>	
		<i>Hypogymnia physodes</i>	
	Birch	<i>Usnea lapponica</i>	
		<i>Bryoria fuscescens</i>	
		<i>Melanelia septentrionalis</i>	
		<i>Parmelia sulcata</i>	
	Willow	<i>Evernia mesomorpha</i>	
		<i>Ramalina dilacerata</i>	Y
		<i>Ramalina intermedia</i>	Y
		<i>Usnea lapponica</i>	
		<i>Parmelia sulcata</i>	
		<i>Caloplaca holocarpa</i>	
9. Halfway Campground Trail	Bog birch	<i>Melanelia septentrionalis</i>	
		<i>Physcia stellaris</i>	
		<i>Parmelia sulcata</i>	
		<i>Usnea lapponica</i>	
10. Beaver Ranch-Graveyard Trails	Bog birch	<i>Melanelia septentrionalis</i>	
		<i>Parmelia sulcata</i>	
		<i>Usnea lapponica</i>	
	Willow	<i>Ramalina dilacerata</i>	Y
		<i>Usnea lapponica</i>	
		<i>Physcia aipolia</i>	
		<i>Caloplaca holocarpa</i>	
		<i>Rinodina turfacea</i>	
		<i>Melanelia elegantula</i>	
		<i>Physcia stellaris</i>	

Appendix 2. List of Lichens that Occur in Surveyed Sites in William A. Switzer Provincial Park

Species	Rank	Tracked	Notes
<i>Baeomyces rufus</i>	S2	Y	
<i>Bryoria fuscescens</i>			
<i>Bryoria lanestris</i>			
<i>Caloplaca holocarpa</i>			
<i>Cladina mitis</i>			
<i>Cladonia botrytes</i>			
<i>Cladonia cariosa</i>			
<i>Cladonia chlorophaea</i>			
<i>Cladonia coniocraea</i>			
<i>Cladonia deformis</i>			
<i>Cladonia fimbriata</i>			
<i>Cladonia multiformis</i>			
<i>Cladonia pleurota</i>			
<i>Cladonia pocillum</i>			
<i>Cladonia pyxidata</i>			
<i>Cladonia scabriuscula</i>			
<i>Collema subflaccidum</i>	S2	Y	
<i>Evernia mesomorpha</i>			
<i>Heterodermia speciosa</i>	S2	Y	
<i>Hypocenomyce scalaris</i>			
<i>Hypogymnia austerodes</i>			
<i>Hypogymnia bitteri</i>			
<i>Hypogymnia physodes</i>			
<i>Imshaugia aleurites</i>			
<i>Lecanora impudens</i>			
<i>Lecanora polytropa</i>			
<i>Leptogium lichenoides</i>	S2S3	Y	
<i>Leptogium saturninum</i>			
<i>Melanelia elegantula</i>			
<i>Melanelia exasperatula</i>			
<i>Melanelia septentrionalis</i>			
<i>Melanelia subaurifera</i>			
<i>Ochrolechia arborea</i>			
<i>Parmelia sulcata</i>			
<i>Parmeliopsis ambigua</i>			
<i>Peltigera aphthosa</i>			
<i>Peltigera canina</i>			
<i>Peltigera elizabethae</i>			
<i>Peltigera lepidophora</i>			
<i>Peltigera leucophlebia</i>			
<i>Peltigera malacea</i>			
<i>Peltigera membranacea</i>			
<i>Peltigera neckeri</i>			

Peltigera neopolydactyla
Peltigera ponojensis
Peltigera retifoveata
Peltigera rufescens
Peltigera venosa
Phaeophyscia hispidula
Phaeophyscia orbicularis
Physcia aipolia
Physcia caesia
Physcia stellaris
Physconia perisidiosa

S1 Y

Species verified by Pak
Yau Wong at Cdn Mus of
Nature (CANL), Ottawa,
June 26, 2007

Ramalina americana
Ramalina dilacerata
Ramalina intermedia

SU N
S2 Y
S1 Y

Species verified by Dr. I.
Brodo at CANL, June 26,
2007

Ramalina sinensis
Rinodina turfacea
Stereocaulon alpinum
Stereocaulon tomentosum
Trapeliopsis granulosa
Tuckermannopsis americana
Tuckermannopsis chlorophylla
Usnea filipendula
Usnea glabrescens
Usnea hirta
Usnea lapponica
Usnea scabrata
Usnea subfloridana
Usnea substerilis
Vulpicida pinastri

SU Y