
2023/2024 Duck Mountain Provincial Park Operating Plan

August 28, 2023

Prepared for:

*Saskatchewan Environment, Forest Service Branch
201 – 1061 Central Avenue
Prince Albert, SK S6V 4V4*



Prepared by:

*Louisiana-Pacific Canada Ltd.
558 3rd Ave South
Swan River, MB, R0L 1Z0
Paul LeBlanc, Saskatchewan FIT
District Forester*



and

*Forsite Consultants Ltd.
460-A South Industrial Drive
Prince Albert, SK S6V 7L8*



A handwritten signature in blue ink that reads "Darryl Sande".

*Darryl Sande, RPF
Consulting Forester*



*Louisiana-Pacific Canada Ltd.
558 3rd Ave South
Swan River, MB, R0L 1Z0
Phone #: 1(204)-734-4102 ext. 724*

August 28, 2023

Acting Forester
Saskatchewan Environment, Forest Service Branch
319 - 800 Central Avenue,
Prince Albert, SK, S6V 6Z2
Attention: Cody Ager

Re: 2023/2024 Duck Mountain Provincial Park Operating Plan

Dear Cody,

Please find attached the 2023/2024 Operating Plan for Duck Mountain Provincial Park for winter-only activities for the November 1, 2023 to March 31, 2024 operating year. If you have any questions please don't hesitate to contact me.

Yours truly,

A handwritten signature in blue ink that reads 'Darryl Sande'.

Darryl Sande, RPF
Forsite Consultants Ltd.
Consulting Forester

Table of Contents

List of Tables	IV
List of Figures	V
Glossary/Terms	VI
1 Introduction	1
2 Planning	2
2.1 Planning Objectives and Vegetation Management Goals	2
2.2 Emulating Natural Disturbance Events	2
2.2.1 Harvest Event Distribution	3
2.3 Coarse Filter Biodiversity	3
2.4 Wildlife	4
2.4.1 Species at Risk Screening	4
2.4.2 Known Wildlife Features	7
2.4.3 Species of Social Concern.....	7
2.5 Heritage Resources	7
3 Public Engagement and Aboriginal Information Sharing	8
4 Proposed Forest Operations	8
4.1 General	8
4.1.1 Harvesting and Hauling Methods.....	8
4.1.2 Utilization Standards.....	9
4.1.3 Ribbon Colour Scheme / Boundary Tolerances.....	9
4.2 Forest Harvesting.....	10
4.2.1 Harvest Distribution	10
4.2.2 Volume Estimates and Proposed Year 1 Harvest Volumes / Attributes	10
4.2.3 Silviculture Systems and Stand Level Retention	11
4.2.4 Pre-Harvest Site Prescriptions	11
4.2.5 Salvage Harvesting.....	12
4.2.6 Riparian Management	12
4.3 Roads and Crossings	12
4.3.1 Road Construction	12
4.3.2 Watercourse Crossings.....	12
4.3.3 Sediment Filters	13
4.3.4 Road Closures	13
4.3.5 Road/Watercourse Crossing Reclamation.....	13
4.4 Temporary Work Camps.....	13
4.5 Visually Sensitive Areas	13

4.6	Slash Management	14
4.7	Renewal	14
4.7.1	Planned Renewal Activities	14
4.7.2	Natural Regeneration.....	14
4.7.3	White Spruce Seed Trees	14
4.7.4	Understory Protection of Spruce	14
5	<i>Forest Protection and Other Activities</i>	15
5.1	Fire Protection and Suppression.....	15
5.2	Insect and Disease Protection	15
5.3	Actual Harvest Mapping	15
5.4	Pesticide/Herbicides	15
5.5	Proposed Research	15
6	<i>Commitments.....</i>	16
6.1	Activities Reporting.....	16
6.2	Self-Inspection and Self Reporting	16
6.3	Amendments	16
6.4	Harvesting Contractors.....	17
	<i>Appendix A – Proposed Harvest Volumes and Areas</i>	18
	<i>Appendix B – Proposed Roads and Crossings Tables.....</i>	20
	<i>Appendix C – 2023/2024 Planned Silviculture Treatments.....</i>	21
	<i>Appendix D – Harvest Event Planning Tables.....</i>	22
	<i>Appendix E – SAR Project Screening from HABISask</i>	23

List of Tables

Table 1.	Definitions for the S-Rankings used by the Saskatchewan Conservation Data Centre.....	4
Table 2.	Known species at risk identified by HABISask.....	6
Table 3.	Standardized Flagging Ribbon Colours.....	9
Table 4.	Fire emulation event overview – actual and planned.....	10
Table 5.	Proposed Harvest Volumes and Area by Operating Year	18
Table 6.	Year 1 - Planned Harvest Volumes	18
Table 7.	Year 2-5 Planned Harvest Volumes	19
Table 8.	Year 1 - Proposed Road Construction	20
Table 9.	Year 1 - Proposed Crossings	20
Table 10.	Year 1 – Proposed Closures.....	20
Table 11.	2023/2024 Planned Silviculture Treatments.....	21

Table 12. Harvest Event Summary22

List of Figures

Figure 1. West and East Interlake management units of the Duck Mountain Provincial Park.....3
Figure 2. General species at risk screening map in the Duck Mountain Provincial Park.....5
Figure 3. Historical average harvested wood (volume per hectare) by year.....11
Figure 4. Project Screening SAR results from HABISask website.....23

Glossary/Terms

AHPP	Aquatic Habitat Protection Permit	SWD	Softwood
AOC	Area of Concern	TPO	Third Party Operator
DMT	Dwarf Mistletoe	TSA	Timber Supply Area
DTC	Duty to Consult	TSL	Term Supply Licence
EMS	Environmental Management System	TWCP	Temporary Work Camp Permit
FMA	Forest Management Agreement	VSA	Visually Sensitive Area
FOPS	Forest Operating Plan Standard	VQO	Visual Quality Objective
GIS	Geographic Information System	bP	Balsam Poplar
GPS	Global Positioning System	bS	Black Spruce
ha	Hectare (measure of area)	jP	Jack Pine
HCB	Heritage Conservation Branch	tA	Trembling Aspen
HVS	Harvest Volume Schedule	tL	Tamarack Larch
HWD	Hardwood	wS	White Spruce
IBR	Improved Bush Road		
IWR	Improved Winter Road		
LFN	Leave for Natural		
m	Metre (measure of distance)		
m ³	Cubic metre (measure of volume)		
MOE	Ministry of Environment		
OP	Operating Plan		
OSB	Oriented Strand Board		
PHSP	Pre-Harvest Site Prescription		
RMA	Riparian Management Area		
RPF	Registered Professional Forester		
SPSA	Saskatchewan Public Safety Agency		
SFM	Sustainable Forest Management		

1 Introduction

This operating plan is being submitted by Louisiana-Pacific Canada Ltd. (LP), to gain approval for consumptive and non-consumptive activities in Duck Mountain Provincial Park (DMPP) for all “Year 1” 2023/2024 harvest blocks. The purpose of this operating plan for the West Interlake portion of the DMPP is to emulate natural forest patterns in over-mature aspen forest that will result in a mosaic of residual tree patterns of varying age classes.

Most of the trembling aspen-dominant stands in DMPP are unnaturally over-mature and are not sufficiently regenerating due to lack of disturbance. The park has experienced a lack of primary stand-replacing forest disturbances such as fire, as well as secondary disturbances such as large-scale wind throw, insects, or disease, all of which trigger aspen regeneration. Wright *et al.* (1995) documented a significant age class imbalance (*i.e.*, far too much over-mature aspen) in the Saskatchewan Duck Mountain Provincial Park. Wright also advocated both wildfire and harvesting to address the significant ecological age class problem. Almost 30 years later, there have been no significant wildfires, and aspen forest dieback has now reached a significant state in the park, which is converting aspen forest to hazel shrub and mountain maple shrub (Ministry of Environment, 2003).

The renewal effort proposed in this operating plan will trigger regeneration of aspen and help restore a more natural disturbance regime. Aspen renewal efforts will change very old aspen forest into young aspen forest. Coarse-filter biodiversity will benefit by restoring the seral stage balance and emulating natural forest patterns in the over mature aspen forest and will help the Duck Mountain Provincial Park forests be more resilient. Managing for resilience will help the forest ecosystems withstand stressors, such as climate change, and maintain a steady flow of ecosystem goods and services by protecting, restoring, and increasing biodiversity. More biologically diverse ecosystems are more resilient, and usually more productive and stable, store more carbon, and use resources more efficiently. Biologically diverse ecosystems can be more resilient to disturbances such as insects or disease outbreaks, fire, or extreme weather events and a more diverse ecosystem is also less likely to be affected by a single disturbance or stressor.

The activities proposed in this plan may include, but are not limited to, harvesting, road construction, road maintenance/reclamation, tree planting, and surveying. The operating plan covers the winter only period November 1, 2023 to March 31, 2024 and is being submitted to the Ministry of Environment, Forest Service for review and approval for Year 1 activities. Future years’ blocks are shown on the maps for engagement purposes. LP is the designated entity responsible for the forest management activities within DMPP.

Louisiana-Pacific Canada Ltd. and the experienced independent logging contractors can create low-impact access and water crossings, as part of the aspen renewal effort. Ecologically appropriate harvesting in the winter season will be combined with variable retention harvesting. This combination will ensure the creation of a biologically diverse, post-harvest mosaic of residual tree patterns like wildfire patterns.

This operating plan has been prepared in accordance with the Forest Operating Plan Chapter and Standard of the Saskatchewan Environmental Code. LP and its contractors will adhere to the Forest Operations Standard (2020) unless otherwise described in this document or directed by the Forest Service.

2 Planning

2.1 Planning Objectives and Vegetation Management Goals

The planning objectives of this operating plan are based on the vegetation management goals and objectives stated in:

1. Duck Mountain Provincial Park Vegetation Management Plan (Wright *et al.* 1995);
2. Duck Mountain Provincial Park Forest Management Strategy (Ministry of Environment 2003); and
3. Natural Forest Patterns - draft (Ministry of Environment 2015).

These vegetation management goals and objectives include:

- To maintain the existing landscape, ecosystem, and species diversity;
- To restore a more natural disturbance regime and age-class distribution;
- To conserve and protect rare ecosystems (*e.g.*, grasslands or calcareous fens);
- To diversify the species composition of park ecosystems;
- To emulate fire as a natural disturbance and approximate the characteristic structure and features following a wildfire;
- To implement a Forest Renewal Plan, which would include emulating natural forest patterns in over-mature aspen forest, resulting in a post-harvest mosaic of residual tree patterns like those left by wildfire.
- To maintain a minimum of 15% (area at the landscape-level) of old (91-110-year-old) seral stage aspen and very old (>110 years old) seral stage aspen;
- To maintain a minimum of 5% (area at the landscape-level) very old seral stage aspen (>110 years old);
- To retain a minimum of 9% 'green merchantable insular residuals', which are trees left unharvested within the fire emulation event boundary (hereafter referred to as retention trees).

2.2 Emulating Natural Disturbance Events

Natural disturbance events, such as fires, are much larger and more variable than harvest blocks have been in the past. Natural disturbance events are also much more spatially complex, with unburned clumps of green trees and peninsulas. Therefore, proposed harvest blocks will emulate a wildfire event, guided by the Natural Forest Pattern (Ministry of Environment 2015) standard. At the block-level, patches of retention trees will provide refuge for organisms associated with old and very old forest structures. Over time, over-mature leave trees will provide a source of future snags and coarse woody debris. At the landscape-level, 65% of the East Interlake Management Unit is undisturbed, providing ample area for meeting different species' needs.

At the landscape-level, a fire emulation event of approximately 3,500 ha is proposed within the East Interlake Management Unit and an adjacent portion of the West Interlake Management Unit. The project area would have 35% of the gross total area renewed to aspen by harvesting. The remaining 65% of the gross total area would remain undisturbed.

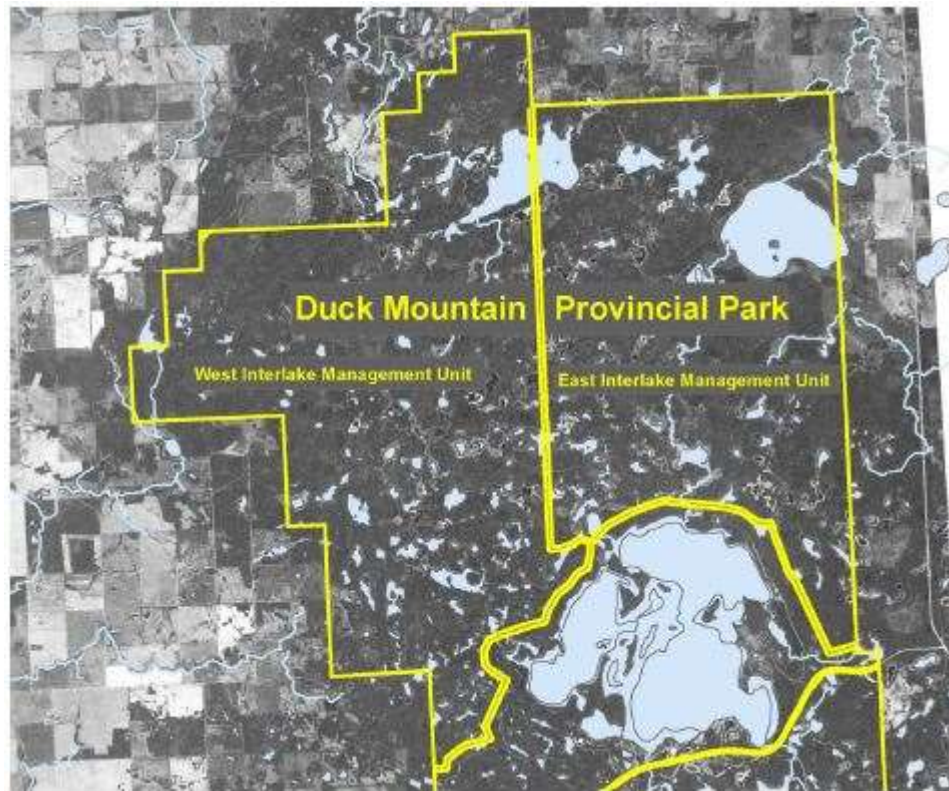


Figure 1. West and East Interlake management units of the Duck Mountain Provincial Park

2.2.1 Harvest Event Distribution

The harvest event proposed within DMPP has been established using the guiding principles of the Natural Forest Pattern (Ministry of Environment 2015) standard. A summary of the harvest event can be found in Appendix D, Table 12.

2.3 Coarse Filter Biodiversity

A significant biodiversity objective is to manage wildlife habitat biodiversity at the coarse-filter level or landscape-level. The coarse-filter biodiversity strategy includes:

- Maintain or enhance cover type diversity. Currently, the forest cover types are almost all pure aspen. Existing white spruce trees will be unharvested as much as possible, except where roads are built. PCS is also planting white spruce to enhance diversity;
- Improve age class diversity by reducing the imbalance of mostly very old seral stage; and
- Maintenance of structural elements of the original forest (*e.g.*, large live or dying trees, standing dead trees or snags, woody debris, and understory vegetation) to facilitate the conservation of both vegetation and animal biodiversity.

Depending on the forest management objectives for each cutblock, some of these structural elements can be maintained individually or as combined elements in forest patches or clumps as part of variable retention. The coarse-filter approach to biodiversity conservation seeks to maintain a balance of structural attributes (*i.e.*, cover type, age-class, and interspersion) to provide required habitat needs.

2.4 Wildlife

2.4.1 Species at Risk Screening

The Saskatchewan Conservation Data Center <http://www.biodiversity.sk.ca/> provides access to the web application HABISask, which is an interactive map for viewing rare and endangered species documented occurrences. Species at risk (SAR) project screening was completed on August 25, 2023, for the proposed harvest blocks in the south-west portion of the park which are west of the Madge Lake waterbody. The provincial ranking system is shown in Table 1.

Table 1. Definitions for the S-Rankings used by the Saskatchewan Conservation Data Centre.

S-rank	Description	Comments
1	Critically Imperiled/ Extremely rare	At very high risk of extinction or extirpation due to extreme rarity, very steep declines, high threat level, or other factors.
2	Imperiled/Very rare	At high risk of extinction or extirpation due to a very restricted range, very few populations, steep declines, threats or other factors.
3	Vulnerable/Rare to uncommon	At moderate risk of extinction or extirpation due to a restricted range, relatively few populations, recent and widespread declines, threats, or other factors.
4	Apparently Secure	Uncommon but not rare; some cause for long-term concern due to declines or other factors.
5	Secure/Common	Demonstrably secure under present conditions; widespread and abundant; low threat level.
U	Unrankable	Unrankable, since status is uncertain in Saskatchewan because of limited or conflicting information

A SAR screening map is displayed in Figure 2. Note that some SAR observations on the map are outside the project area, such as the north shore of Madge Lake, and are not discussed further. Within HABISask, a 'project screening report' was ran on known observations (Appendix E – SAR Project Screening from HABISask).

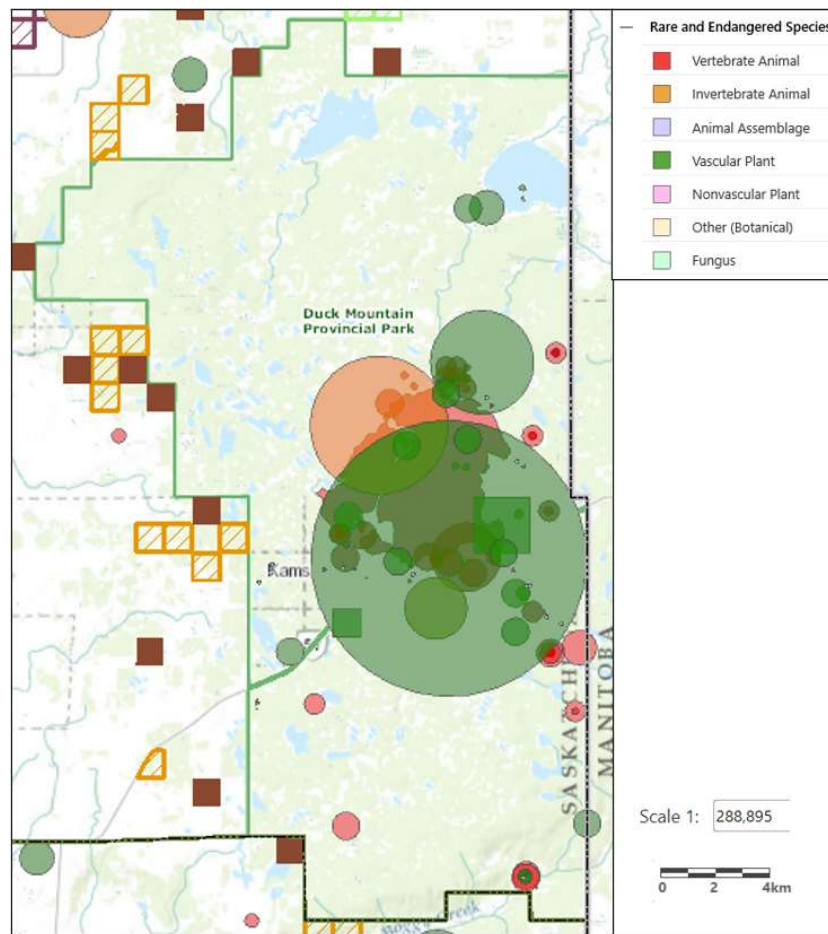













Figure 2. General species at risk screening map in the Duck Mountain Provincial Park.

Effective July 30, 2022, under Federal jurisdiction, The Migratory Bird Convention Act (MBCA) inactive Pileated Woodpecker nesting cavities are now afforded year-round protection unless they have been shown to be abandoned for 3 years. Therefore, any trees identified to have a large nesting cavity will be protected and not harvested.

The known species at risk identified in the HABISask screening included a variety of lifeform categories, including fungus, invertebrate animal, nonvascular plant, vascular plant, and vertebrate animal. The provincial S-rankings for these screened species are shown in Table 2. Many of these lifeforms would not be affected by winter-only renewal activities.

Table 2. Known species at risk identified by HABISask.

Category	Common Name	Comments	Image
S1 - Critically Imperiled/ Extremely rare			
Invertebrate animal	Butterfly - Eastern Comma	This butterfly would not be affected by winter-only activities, since they are not around in winter. Observed in 2013.	
S3 - Vulnerable/Rare to uncommon			
Fungus	Powder-edged speckled greenshield	Observed in 2002.	
Fungus	Powder-rimmed camouflage lichen	Observed in 2002.	
Fungus	Punctured ramalina	Observed in 2002.	
Non-vascular plant	Tree fringewort	Observed in 2002.	
Non-vascular plant	Variable-leaved Crestwort	Observed in 2002.	
Vascular plant	Tall Blue lettuce	Would not be affected by winter-only activities, since below-ground portion undisturbed. Observed in 1941.	
Vascular plant	Western Mountain Ash	Often a shrub, but sometimes large enough to be considered a tree. Observed in 2002.	

Category	Common Name	Comments	Image
SU – Unrankable (due to conflicting information)			
Fungus	Fan ramalina		
Fungus	Pin-cushion sunburst lichen		
Nonvascular plant	False Willow Moss		

2.4.2 Known Wildlife Features

There are no known wildlife features (raptor or migratory bird nests, dens, mineral licks, etc.) in the proposed harvest areas.

2.4.3 Species of Social Concern

Moose are not classified as a species at risk; However, moose are a wildlife species with significant social concern. Moose populations in adjacent west-central Manitoba have declined significantly, prompting a moratorium on moose hunting in west-central Manitoba since 2012. A general trend across western Canada is that moose populations have declined in the forest, yet increased in the parkland, south of the forest boundary.

It is believed that implementing a natural disturbance pattern in the Duck Mountain Provincial Park will benefit moose habitat by filling in a significant landscape-level gap - feeding habitat (*i.e.*, young aspen regeneration). Old and very old seral stage aspen (thermal cover) will be maintained at the block-level as part of the 9% retention trees within the harvest area, spatially mixed with young aspen moose forage habitat. At the landscape-level, 65% of the total area remains undisturbed, and up to 35% of the area would be harvested, triggering vigorous aspen regeneration, and creating moose forage areas.

2.5 Heritage Resources

All proposed roads and harvest blocks were provided to the Heritage Assessment Unit of the Ministry of Parks, Culture and Sport for a heritage resource screening. Heritage Conservation Branch has deemed that the winter-only harvest blocks with no site preparation will not require a Heritage Resource Impact Assessment. Two segments of the main road within 250 m of Clearwater Creek had a post-impact heritage assessment and was assessed in 2021.

3 Public Engagement and Aboriginal Information Sharing

Public consultation for this project is the responsibility of Saskatchewan Parks, Culture, and Sport (PCS). LP will assist PCS by attending consultation forums and providing relevant maps and information that will assist in the consultation process. Plan details can be modified if the public consultation improves management plan outcomes.

A record of these communications and all relevant accompanying information as per the June 15th 2022 Forest Operating Plan Standard will be made available to the ministry as a confidential appendix to this operating plan. LP understands that information obtained during the Province's consultation process may result in amendments to this operating plan, and that any amendments made to this plan by LP after submission may trigger the duty of the Crown to consult with First Nations and Métis communities. Any engagement that occurs after the submission of this operating plan will also be recorded in accordance with the June 15th 2022 Forest Operating Plan Standard and monthly updates will be submitted to the minister.

4 Proposed Forest Operations

4.1 General

The primary harvest methods proposed for this operating plan follow an even-aged silviculture system using a modified clear-cut with variable retention harvesting techniques. The proposed harvest blocks will emulate a wildfire disturbance event, guided by the Natural Forest Pattern (Ministry of Environment 2015) standard, to approximate the characteristic structure and features following a wildfire resulting in a post-harvest mosaic of residual tree patterns. At the landscape level, a minimum of 15% of old seral stage aspen and very old seral stage aspen (91-110-year-old and >110 years old respectively) will be maintained, with a minimum of 5% very old seral stage aspen included in that. At the block-level, patches of retention trees will provide refuge for organisms associated with old and very old forest structures. Over time, over-mature leave trees will provide a source of future snags and coarse woody debris.

The following sections apply broadly to all harvesting proposed under this plan. A complete list of proposed blocks and their attributes, including a breakdown of softwood and hardwood volumes can be found in Appendix A – *Proposed Harvest Volumes and Areas*.

LP will adhere to the Forest Operations Standard (2020) unless otherwise described in this document or directed by the Forest Service.

4.1.1 Harvesting and Hauling Methods

Stump-to-dump contractors using mechanical harvesting systems are used to process all the wood harvested in the blocks. Typically, a mechanical system consists of a tracked feller-buncher used to cut standing trees and lay them in orderly piles called drags. Trees are either delimbed and topped within the block, or the drags are collected by a grapple-skidder and skidded roadside. At the roadside, a processor removes tree branches and tops and processes the trees into cut-to-length logs as required by LPs siding mill. Harvested trembling aspen will be loaded on trucks and then transported to LP's mill near Minitonas, MB. Each individual truck load of wood is tracked with a load ticket. Each truck load of wood is weighed scaled at the mill. Cube sampling is done on 10% of the loads to obtain weight-to-volume conversion factors. Scaling reports are generated in the computer system for monthly dues submission to the

government of Saskatchewan. All equipment will be inspected for invasive plant seeds or pieces of invasive plants. Invasive spores are not visible to the naked eye. Any invasive plants seen during harvest will be reported to Parks Division.

The season of harvest for DMPP will be winter harvest only; frozen soils will assist with minimizing the ecological footprint of harvesting operations.

4.1.2 Utilization Standards

The hardwood harvest utilization standards are 2.54 m bolts with a 10.2 cm top. Trembling aspen and balsam poplar are the only species to be utilized. White birch and white spruce will be left unharvested, unless directed to be cut for firewood by Parks. Note that any white birch and white spruce trees on the in-block road right-of-way will be harvested.

Wood that is designated as firewood will be tree-length that is skidded roadside for Parks to utilize. The tree-lengths may then be slashed into 5.1 m lengths, loaded with a picker truck, hauled, and later processed for firewood at a Parks compound.

4.1.3 Ribbon Colour Scheme / Boundary Tolerances

Where practical, logical type boundaries, roads, muskegs, etc. (often termed “natural boundaries”) will be used as cutting boundaries. LP’s contractors will utilize GPS equipped bunchers which will not require boundaries and road centerlines to be physically ribboned in accordance with the Forest Operations Standard (2020). Harvest block boundaries will be uploaded into the harvesting equipment’s GPS and equipment’s location will be tracked and reviewed by an LP supervisor. Site specific ribboning will occur where important features are encountered and / or critical features requiring special attention are identified through the ongoing consultation and engagement processes.

Table 3 lists the flagging ribbon colours that will be used by LP during the operating year to mark boundaries or lines for proposed forestry activities where GPS is not used.

Table 3. Standardized Flagging Ribbon Colours

Item/ Description	Ribbon Colour	Printing
Boundary		
Block Boundaries, Riparian Reserve/Stream Crossings	Pink	“BLOCK BOUNDARY”
Roads		
Road Centerline, Riparian Reserve/Stream Crossings	Orange	“ROAD CENTRELINE”
On-Block Features		
Machine Free Zone	Green	“MACHINE FREE ZONE”
Special Management Zone	Yellow	“SPECIAL MANAGEMENT ZONE”
Silviculture		
Planting Boundary	Yellow	“PLANTING BOUNDARY”

4.2 Forest Harvesting

4.2.1 Harvest Distribution

A fire emulation event of approximately 3,500 ha was proposed between the East Interlake Management Unit and the West Interlake Management Unit, which accounts for 35% of the area. This is composed of harvest blocks separated by linear water features, but still comprises a single disturbance event. It will take approximately 10 years to complete the entire natural disturbance emulation area (Table 4).

Table 4. Fire emulation event overview – actual and planned.

Year	Operating Year	Harvested or planned area (ha)	% area of project (single year)	Cumulative Area (ha)	Cumulative % area	comments
1	2016-2017	325	10%	325	10%	actual area harvested
2	2017-2018	397	12%	722	21%	actual area harvested
3	2018-2019	466	14%	1,188	35%	actual area harvested
4	2019-2020	277	8%	1,464	43%	actual area harvested
5	2020-2021	159	5%	1,623	48%	actual area harvested
6	2021-2022	20	1%	1,643	48%	actual area harvested
7	2022-2023	216	6%	1,859	55%	planned area
8	2023-2024	503	15%	2,362	69%	this upcoming winter 2023-24
9	2024-2025	468	14%	2,830	83%	year 2 planned blocks
10	2025-2026	613	18%	3,443	101%	year 3 planned blocks
Grand Totals (ha)		3,443				
Target area (ha)		3,400	101%			

See Appendix A, Table 5 for Year 1 harvest distribution and area. Year 2-5 blocks are shown for engagement purposes only.

4.2.2 Volume Estimates and Proposed Year 1 Harvest Volumes / Attributes

Volumes for most harvest blocks across the proposed disturbance area were estimated based on empirical average volumes. An average volume of 150 m³/ha is assumed, based on actual harvest volumes (1996 to present) from the immediately adjacent Manitoba Duck Mountain – Madge Lake operating area. Actual harvest volumes per hectare from the Saskatchewan Duck Mountain Provincial Park have varied from 180 to 70 (Figure 3). There were some planned blocks that had volumes as low as 30-40 m³/ha, which were unmerchantable and were not harvested.

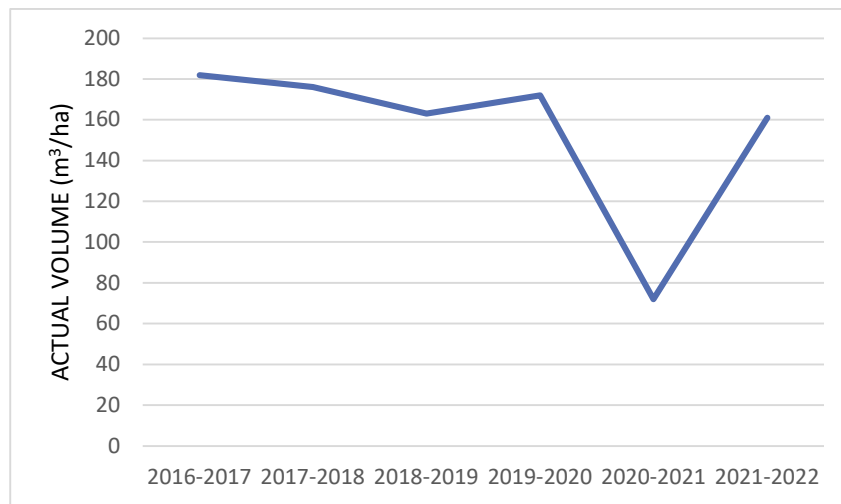


Figure 3. Historical average harvested wood (volume per hectare) by year.

Proposed Year 1 volumes by management unit and block, subdivided into softwood and hardwood are provided in Appendix A, Table 6.

4.2.3 Silviculture Systems and Stand Level Retention

The primary silviculture system used will be clear-cut with variable retention, emulating the natural disturbance pattern of the area. Harvesting will be utilized as the main mechanism of silviculture by removing trembling aspen from the landscape, thereby triggering aspen suckering and encouraging natural regeneration.

Taking guidance from the Natural Forest Patterns guidance document (Ministry of Environment 2015), 9% residual trees or ‘green merchantable insular residuals’ within the harvest boundary will be retained. A 9% average will be maintained across the entire harvest event, with varying amounts within individual harvest blocks to enhance landscape-level biodiversity and diversify the mosaic of age classes left on the landscape. However, as per the Forest Operations Standard (2020), retention (either in clumps or islands) will be at least 6% within each harvest block. This retention, in combination with coniferous understory retention, will result in snag retention and recruitment, both of which have significant small-scale biodiversity value and create wildlife habitat.

4.2.4 Pre-Harvest Site Prescriptions

Pre-harvest site prescriptions for each block within an operating area are documented in the information management system. Pre-harvest site prescriptions (PHSPs) outline a renewal objective for each harvest block and the regeneration method and techniques to be used to reach this objective. Specifically, they identify the proposed harvest system, season of harvest and recommended harvesting equipment, the potential for rutting and compaction if the block is harvested on unfrozen ground, proposed slash abatement and reforestation techniques, predicted forest cover type at rotation, and planting species and density where applicable. A description of special methods used to address recreational, cultural/traditional, and stakeholder concerns, plus any prescriptions to address wildlife concerns within and adjacent to proposed harvest blocks is provided for in stakeholder communications forms.

4.2.5 Salvage Harvesting

LP is not proposing any salvage harvesting in this plan.

4.2.6 Riparian Management

Harvesting and silviculture activities in riparian areas will comply with the Forest Operations Standard (2020) for riparian buffers. Riparian buffers will be 15 m, 30 m or 90 m depending on the riparian buffer category (see Table 2, Forest Operations Standard (2020)).

4.3 Roads and Crossings

Roads and crossings do not exist with a wildfire event but are a necessary part of a fire emulation harvest event. The number of roads and crossings can be minimized, and their ecological footprint can be small. Road construction will have a small ecological footprint by:

- Minimizing the amount of roads
- Minimizing the road's right-of-way width
- Implementing erosion control measures (*e.g.*, cross-drains, sediment filters, and stabilizing exposed mineral soil surfaces)

Note that an Aquatic Habitat Protection Permit was issued by the Forest Service and has been renewed annually. Adherence to these permit conditions ensures aquatic habitat is conserved and maintained.

4.3.1 Road Construction

Road construction may occur in the fall to avoid the challenge of road building with frozen mineral soil. Otherwise, roads will be built during the winter season. Roads will be constructed and maintained as per the Forest Operations Standard (2020). A list of all planned Class 1-3 roads can be found in Appendix B, Table 8.

Highway approach permits will be requested from the Ministry of Highways and Infrastructure for all new roads that access Provincial numbered highways.

4.3.2 Watercourse Crossings

Snow and ice crossings are typically used to cross wet meadows, sheltered marshes or swales in winter. Clean snow is used as fill, and water is pumped onto the snow to form ice. Often, a run-off culvert is used within the snow and ice crossing to ensure water flow all winter. In spring, the ice melts away. Culverts are also commonly installed on undefined channels that act as temporary catchments during heavy precipitation events such as the spring flush or rain events.

Stream crossings will be constructed in compliance with the Forest Operations Standard (2020) and the requirements of applicable provincial and federal legislation. Crossings proposed in this operating plan are listed by geographic area in Appendix B, Table 9 and are indicated on the maps.

4.3.3 Sediment Filters

Woody debris from blading off a new temporary access road can be used as a sediment filter to proactively control possible erosion at crossing sites. Woody debris provides additional run-off protection as a sediment filter. The woody debris can be located between potential uphill sources of run-off water that could cause erosion and possibly allow sediment to enter the stream channel or the stream.

Water crossing installation, erosion, and sediment control techniques are applied to prevent any soil material from entering the watercourse. Low-impact techniques include silt fence establishment and operation of a water pump to divert the water around the construction site to a downstream location. Rip rap and vegetative techniques are also commonly applied to crossing locations to help stabilize soil material over the lifespan of the water crossing.

4.3.4 Road Closures

Temporary and permanent road closures align with provincial resource protection methods. They are used to restrict vehicle access to help minimize adverse impacts to park resources, protect road infrastructure, and reduce liability. Proposed road closures are shown on the maps.

There is one planned road closure which will utilize a gate to close the road Table 10, Appendix B.

4.3.5 Road/Watercourse Crossing Reclamation

Spur roads and in-block roads will be closed or reclaimed after haul trucks no longer need use of each road segment. Spur roads will normally be closed within one year unless they are needed for the haul in the next operating year. In-block roads are often closed the same year as harvesting by rolling back slash, debris, and organic matter, and sub-soil ripping if compaction has occurred. LP staff are working with parks staff regarding incremental road reclamation.

Reclamation of water crossings removes the crossing structure (i.e., culvert or bridge) and slopes the road fill material away from the watercourse to near natural conditions prior to construction. The exposed soil is seeded and covered with either erosion matting or straw mulch. Snow and ice crossings are reclaimed by digging a shallow trench in the ice to prevent runoff from backing up and scouring the banks on flowing streams. Once the ice melts, these crossings reclaim themselves. In swales, the snow and ice crossings are left to melt without a trench.

Road reclamation will be in compliance with the Forest Operations Standard (2020).

4.4 Temporary Work Camps

Wherever a temporary camp is required, a Temporary Work Camp Permit will be applied for prior to setting up any camps. Camp standards will be adhered to in accordance with the Temporary Work Camp Standard (2022).

4.5 Visually Sensitive Areas

Visually Sensitive Areas (VSAs) are view sheds that are visible from communities, public recreation areas, and major travel corridors, including roadways and waterways, or any other significant viewpoint identified through the planning process. The primary VSA area is the northwest shore of Madge Lake. The north

shore's visual quality is well-protected with the existing variable-width no-harvest buffer. No proposed Year 1 blocks are occurring along the lake.

The Parks compound road will be visually protected by buffers on numerous small wetlands combined with in-block wildlife tree patches maintain visual quality from the road. The line-of-sight from the road will be quite short, which also maintains visual quality.

4.6 Slash Management

Delimiting at the stump, with either manual or mechanical topping, will help distribute tops and limbs across the harvested area. Delimiting at the stump avoids large roadside piles of tops and limbs that would require burning. Piling and burning at roadside is not being considered.

A second viable alternative is delimiting at roadside. The grapple skidder would back haul and distribute tops and limbs over the cutover. Even distribution of slash would ensure the aspen regeneration is not impeded.

4.7 Renewal

4.7.1 Planned Renewal Activities

Blocks planned for initial treatment (leave for natural, scarify or plant), are included in Table 11, Appendix D. Any plans for regeneration surveys will be submitted as a separate silviculture plan.

4.7.2 Natural Regeneration

Natural regeneration of aspen utilizes the existing adult aspen root system to sucker vigorously. Like a wildfire, removal or death of the above-ground aspen stem combined with higher soil temperatures triggers aspens' suckering response. Natural regeneration of aspen is a very reliable method of renewing aspen forests.

4.7.3 White Spruce Seed Trees

Wildfire would likely consume all white spruce, both cone-bearing older spruce and younger spruce. Harvesting can avoid the negative consequence of removing all white spruce by purposefully leaving most of white spruce unharvested, wherever possible. White spruce will contribute to the biodiversity of the sites, enhance wildlife habitat, and provide a continuous source of white spruce seed which will successfully germinate and become white spruce trees, increasing the spruce composition of the regenerating forest.

4.7.4 Understory Protection of Spruce

It is standard procedure to protect young white spruce trees during the harvest. White spruce will be left in clumps or as single trees. Understory protection will also increase biodiversity and increase the spruce composition of the regenerating forest. Young white spruce will also contribute to other retention goals.

5 Forest Protection and Other Activities

5.1 Fire Protection and Suppression

Saskatchewan Public Safety Agency (SPSA) is responsible for the prevention, detection and suppression of forest fires where identified values, including tracts of valuable timber, are at risk. *The Wildfire Act* and Regulations provide legislative requirements for industrial and commercial operators related to wildfire preparedness and response. LP's harvest operations will not occur within the typical fire season. If harvesting operations commence prior to October 31, 2023 or roadside operations (load and haul) are expected to extend past April 1, 2024, LP will submit a Wildfire Prevention and Preparedness Plan prior to operations commencing to the Vice President, Operations, of the SPSA.

5.2 Insect and Disease Protection

Monitoring, assessment and protection of catastrophic insect and disease outbreaks is the responsibility of the Province.

5.3 Actual Harvest Mapping

LP annually maps the actual harvest areas in the Manitoba Duck Mountains. This program was expanded to include actual harvest in the Saskatchewan Duck Mountain Provincial Park. Last years' harvest imagery would be expected in September 2023, followed by interpretation and GIS processing.

LP acquires 1 m ground resolution colour and near infrared colour digital imagery. This imagery is rectified, then the harvest boundaries are delineated. A digital copy of all imagery and the harvest shape files will be sent to Parks each year.

5.4 Pesticide/Herbicides

PCS is responsible for insect pest management in DMPP. LP is unaware of any insecticide applications planned by the ministry within DMPP in the 2023/2024 operating year.

5.5 Proposed Research

No proposed research is scheduled to occur in DMPP this operating year.

6 Commitments

6.1 Activities Reporting

LP commits to providing the following reporting during the implementation of this plan:

- A weekly Operations Report detailing the locations and status of active operations will be submitted to the Ministry of Environment, Inspecting Officer.
- A monthly Crossings Report outlining where active work (construction or maintenance) is occurring on crossings - will follow the AHPP.
- A Cutover Summary Report including volumes and areas harvested will be submitted annually by May 15th.

6.2 Self-Inspection and Self Reporting

LP will conduct self-inspections of land base activities in accordance with the Forest Operations Standard (2020). LP's operations staff perform and document block inspections during the different phases of harvesting. Harvest operations are monitored for harvesting compliance, plan requirements, roads, crossings, fuel, camp (if any) and safety. Harvest blocks receive an inspection each time LP staff are on site to supervise and monitor harvest operations.

In support of this, the following procedures will be followed by LP:

- Prior to operations beginning, a start-up checklist (pre-work) is completed with the contractor that details requirements of how each harvesting block is to be developed and identifies block specific unique requirements such as stakeholder commitments, Dwarf Mistletoe control, or visual quality objectives.
- Site inspections during every site visit.
- A post-work inspection will be completed following completion of each harvest area.
- Non-compliances will be reported by email or letter to the Ministry of Environment, Inspecting Officer or designate, as well as Saskatchewan PCS as soon as practicable after they are discovered and verified. The notice will contain the location and the specifics around the non-compliance as well as the Action Plan to be taken to correct the issue if applicable.
- Measures to correct non-compliances will be as per LP's non-compliance, preventative and corrective action process.
- Pre- and post-work reports will be made available to an Inspecting Officer on request.

6.3 Amendments

Amendments to this Operating Plan will be submitted in writing either by email or letter to the Ministry of Environment - Forest Service - Inspecting Officer. These amendments will include a description of the specific changes proposed to the approved operating plan; and where applicable, support documentation to assist with the approval of the proposed amendments. This support documentation may include revised maps, updated tables and additional First Nation, Métis and stakeholder engagements and commitments. Engagement with those stakeholders potentially affected will normally be done prior to the request being submitted; if this is not the case, the submission will indicate this. Stakeholders affected will be given adequate notification so that they can make appropriate arrangements regarding their interests. This notification may be given through trapper's block meetings or individually by telephone, by mail, or in person. Any correspondence with stakeholders that occur after the submission of this OP plan will be kept in a record that will include all required information as stated in the 2022 Forest Operating Plan Standard.

This record will be kept current throughout the operating year and monthly updates will be submitted to the minister.

6.4 Harvesting Contractors

All harvesting is carried out by LP's contractors. Contractors must meet all operational and safety and environmental standards within the forest harvesting operation they are responsible for. All contractors must:

- Provide direct supervision of their employees.
- Meet the requirements of any applicable Saskatchewan Acts and Regulations.
- Ensure safe working conditions for employees.
- Work with the public, stakeholders and other users of the forest who may have leases, legal cabins, trails or other interests that need protecting within the operating area.
- Ensure that their employees comply with all Forest Regulations and contract provisions.
- Ensure that their employees conform to the applicable Wildfire Prevention and Preparedness Plan.

Appendix A – Proposed Harvest Volumes and Areas

Table 5. Proposed Harvest Volumes and Area by Operating Year

Operating Plan Year	Volume (m ³)			Area (ha)
	Softwood	Hardwood	Total	
2023/2024	1,472	75,510	76,982	503.4
Grand Total	1,472	75,510	76,982	503.4

Table 6. Year 1 - Planned Harvest Volumes

Management Unit	Block Number	Volume Source	Harvest System	Area (ha)	Volume (m ³)			Species
					Total Hardwood	Total Softwood	Total	
West Interlake	DMP-027	Planner Estimate	MC ¹	68.9	10,335	176	10,511	tA dominant; incidental bP, wB, wS
West Interlake	DMP-028	Planner Estimate	MC	10.4	1,560	27	1,578	tA dominant; incidental bP, wB, wS
West Interlake	DMP-033	Planner Estimate	MC	14.9	2,235	38	2,273	Multi-year harvest. tA dominant; incidental bP, wB, wS
West Interlake	DMP-034	Planner Estimate	MC	109.0	16,350	278	16,628	tA dominant; incidental bP, wB, wS
West Interlake	DMP-035	Planner Estimate	MC	30.0	4,500	173	4,673	Multi-year harvest. tA dominant; incidental bP, wB, wS
West Interlake	DMP-039	Planner Estimate	MC	165.5	24,825	422	25,247	tA dominant; incidental bP, wB, wS
West Interlake	DMP-040	Planner Estimate	MC	63.6	9,540	253	9,793	Multi-year harvest. tA dominant; incidental bP, wB, wS
West Interlake	DMP-044	Planner Estimate	MC	41.1	6,165	105	6,270	tA dominant; incidental bP, wB, wS
Management Unit Total				503.4	75,510	1,472	76,982	
Project Area Total				503.4	75,510	1,472	76,982	

¹MC = Modified Clearcut

Table 7. Year 2-5 Planned Harvest Volumes

Management Unit	Block Number	Volume Source	Harvest System	Area (ha)	Volume (m ³)			Species
					Total Hardwood	Total Softwood	Total	
East Interlake	DMP-011	Planner Estimate	MC ¹	23.7	3,555	60	3615	tA dominant; incidental bP, wB, wS
West Interlake	DMP-042	Planner Estimate	MC	150.1	22,515	383	22,898	tA dominant; incidental bP, wB, wS
West Interlake	DMP-043	Planner Estimate	MC	101.5	15,225	259	15,484	tA dominant; incidental bP, wB, wS
West Interlake	DMP-045	Planner Estimate	MC	45.6	6,840	116	6,956	tA dominant; incidental bP, wB, wS
West Interlake	DMP-046	Planner Estimate	MC	31.7	4,755	79	4,834	tA dominant; incidental bP, wB, wS
West Interlake	DMP-047	Planner Estimate	MC	36.2	5,430	91	5,521	tA dominant; incidental bP, wB, wS
West Interlake	DMP-048	Planner Estimate	MC	41.3	6,195	103	6,298	tA dominant; incidental bP, wB, wS
West Interlake	DMP-049	Planner Estimate	MC	61.4	9,210	154	9,364	tA dominant; incidental bP, wB, wS
West Interlake	DMP-050	Planner Estimate	MC	78.9	11,835	197	12,032	tA dominant; incidental bP, wB, wS
West Interlake	DMP-051	Planner Estimate	MC	53.2	7,980	133	8,113	tA dominant; incidental bP, wB, wS
West Interlake	DMP-052	Planner Estimate	MC	55.8	8,370	140	8,510	tA dominant; incidental bP, wB, wS
West Interlake	DMP-053	Planner Estimate	MC	17.2	2,580	43	2,623	tA dominant; incidental bP, wB, wS
West Interlake	DMP-054	Planner Estimate	MC	100.6	15,090	252	15,342	tA dominant; incidental bP, wB, wS
West Interlake	DMP-055	Planner Estimate	MC	48.2	7,230	121	7,351	tA dominant; incidental bP, wB, wS
West Interlake	DMP-056	Planner Estimate	MC	40.3	6,045	101	6,146	tA dominant; incidental bP, wB, wS
West Interlake	DMP-057	Planner Estimate	MC	42.1	6,315	105	6,420	tA dominant; incidental bP, wB, wS
West Interlake	DMP-058	Planner Estimate	MC	73.3	10,995	183	11,178	tA dominant; incidental bP, wB, wS
West Interlake	DMP-059	Planner Estimate	MC	79.5	11,925	199	12,124	tA dominant; incidental bP, wB, wS
Management Unit Total				1,080.6	162,090	2,719	164,809	
Project Area Total				1,080.6	162,090	2,719	164,809	

Appendix B – Proposed Roads and Crossings Tables

Table 8. Year 1 - Proposed Road Construction

Management Unit	Road Length (km)			
	Class 1 Major IBR	Class 2 Minor IBR	Class 3 Bush Road	Total
West Interlake	-	13.98	9.43	23.41
Management Unit Total	-	13.98	9.43	23.41
Project Area Total	-	13.98	9.43	23.41

Table 9. Year 1 - Proposed Crossings

Operating Plan Year	Management Unit	Crossing Type	UTM Zone	Easting	Northing
2023	West Interlake	Culvert	14	313407.52	5728538.07

Table 10. Year 1 – Proposed Closures

Management Unit	Closure Type	UTM Zone	Easting	Northing
East Interlake	Gate	14	320516.20	5738016.27

Appendix C – 2023/2024 Planned Silviculture Treatments

Table 11. 2023/2024 Planned Silviculture Treatments

Operating Plan Year	Management Unit	Block Number	Area (ha)	Planned Silviculture Treatment
2022/2023	West Interlake	DMP-035	39.0	Site Preparation - LFN
2022/2023	West Interlake	DMP-036	32.1	Site Preparation - LFN
2022/2023	West Interlake	DMP-040	37.0	Site Preparation - LFN
2022/2023	West Interlake	DMP-041	75.1	Site Preparation - LFN
Site Preparation - LFN Total			183.2	

LFN - Leave for Natural

Appendix D – Harvest Event Planning Tables

Table 12. Harvest Event Summary

Operating Plan	Management Unit	Event ID	Road Construction Year	Event Duration (yrs)	Event Area (ha)
2023	West Interlake East Interlake	2	2016	15	6,499.48
Area Total					6,499.48

Appendix E – SAR Project Screening from HABISask



Project Screening Report



Species Likely to be Present

Known Species

"Known" species are species that have known occurrences in the area from the Saskatchewan Conservation Data Centre's Rare and Endangered Species map layer. However, absence of species observation records does not preclude the existence of species in the area of interest. Observations may simply not have been recorded for the given area or may not have yet been entered into the ministry data holdings – new observation records are continuously being discovered. Information accessible through HABISask is not intended to be a definitive statement on the presence, absence or status of a species within a given area, nor as a substitute for onsite surveys.

Rare and Endangered Species

Category: Fungus

Common Name	Scientific Name:	G Rank	N Rank	S Rank	COSEWIC	SARA Status	Wild Species at Risk Regulations
Fan ramalina	<i>Ramalina sinensis</i>	G4G5	NU	SU			
Pin-cushion sunburst lichen	<i>Polycauliona polycarpa</i>	G5	N5	SU			
Powder-edged speckled greenshield	<i>Flavopunctelia soredica</i>	G4G5	N4N5	S3			
Powder-rimmed camouflage lichen	<i>Melanelixia albertana</i>	G3G5	NU	S3			
Punctured ramalina	<i>Ramalina dilacerata</i>	G5	N5	S3			

Category: Invertebrate Animal

Common Name	Scientific Name:	G Rank	N Rank	S Rank	COSEWIC	SARA Status	Wild Species at Risk Regulations
Eastern Comma	<i>Polygonia comma</i>	G5	N5	S1			

Category: Nonvascular Plant

Common Name	Scientific Name:	G Rank	N Rank	S Rank	COSEWIC	SARA Status	Wild Species at Risk Regulations
False Willow Moss	<i>Campylophyllum hispidulum</i>	G5	N5	SU			
Tree Fringewort	<i>Ptilidium pulcherrimum</i>	G5	N5	S3			
Variable-leaved Crestwort	<i>Lophocolea heterophylla ssp. heterophylla</i>	G5T5	N5	S3			

Category: Vascular Plant

Common Name	Scientific Name:	G Rank	N Rank	S Rank	COSEWIC	SARA Status	Wild Species at Risk Regulations
Tall Blue Lettuce	<i>Lactuca biennis</i>	G5	N5	S3			
Western Mountain-ash	<i>Sorbus scopulina</i>	G5	N5	S3			

Figure 4. Project Screening SAR results from HABISask website.