Appendix 1 – Utilizing our Landscapes and Waterscapes

1.1. Introduction

This appendix describes how we have traditionally used the environment within our homeland ecosystem from the perspective of a people who were sustained by hunting and gathering here for uncounted generations. We provide photos of various landscapes and waterscapes commonly found in our homeland ecosystem and supplement them with brief scientific descriptions and also with comments from CNP Members about how they would use these areas to pursue traditional activities. We also provide comments on mobility and accessibility in various landscapes and waterscapes. This appendix also focuses on the ecosystem components that function to provide habitat for the animals and plants that sustain us.

1.2. Utilizing Our Homeland Ecosystem

All people need food and shelter on a continuing basis. In our homeland ecosystem, food is found in different places at different times of the year, so mobility is critical. Animals move across the landscape. People must also be able to move across the landscape to place themselves in the right places at the right times.

Physical features determine the ease or difficulty of such movement by people and animals, and other features of the environment determine the abundance of food sources. If the land produces enough food and if people are able to move across the landscape in a timely manner, it is possible for people to survive and even thrive. These were the conditions our ancestors experienced for countless generations, until mobility was reduced by the outsiders' use of our waterways.

As previously stated, the overarching purpose of our homeland ecosystem is to sustain our people and our environment physically and culturally. We have historically been physically sustained by the environmental goods and services produced here such as food, medicine, tools, shelter and navigable transportation corridors. Our culture has been sustained through the freedom to continue the customs, practices and traditions developed through survival here, and which are now integral to our distinctive cultural identity.

1.3. Typical Landscapes and Waterscapes in the SLRMA

Photographs 1 through 27 provide both an overview and site specific examples of varying surface forms and vegetative cover critical to hunters and gatherers. Photos 1 through 14 show landscapes dominated by organic material and Photos 15 through 27 show landscapes that are dominated by mineral soils. These photographs and the accompanying commentary are from a report written for TCN by Gordon F. Mills titled *Soil Landscapes of the Split Lake Resource Management Area, Manitoba.* OWL staff members have provided comments about how the various landscapes and terrains are traditionally used by hunters and gatherers, including information about vegetation, various native species and migratory patterns, and other related comments.

Photographs 28 through 37 are examples of the types of waterways draining into the Nelson River in the vicinity of Split Lake along with photos of Keeyask Rapids. Comments are provided by OWL staff members about how these waters contribute to our ability to live here.

PHOTO 1: LANDSCAPE DOMINATED BY POORLY DRAINED ORGANIC SOILS ON LEVEL TO GENTLY SLOPING TERRAIN

This photo shows typical level to gently sloping landscape dominated by poorly drained organic soils, called veneer bogs, containing discontinuous permafrost.

Landscapes dominated by veneer bogs cover approximately 75 to 80 percent of the SLRMA. Within this area, approximately 60 percent is actually veneer bog; 25 percent is mineral soil on hummocky and/or ridged terrain and 15 percent is varying types of surface materials distributed within the dominant and subdominant types. These inclusions are sometimes other types of organic soils such as peat plateau bogs and fens and sometimes are mineral soils on better drained sites.

OWL Members provided the following additional comments:

- some berries present in summer but no hunting in these areas;
- some trapping takes place near shore; and
- some medicinal plants can be collected here.

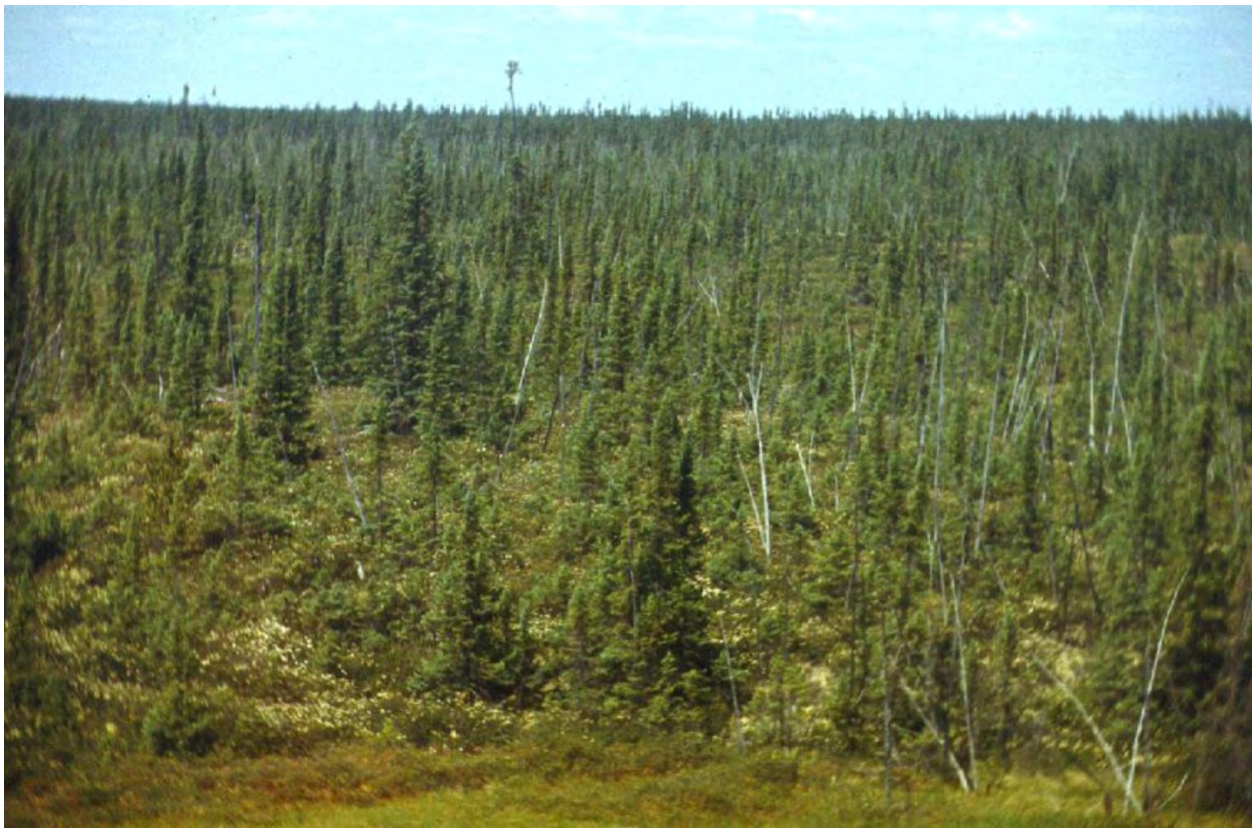

PHOTO 2: BLACK SPRUCE ASSOCIATED WITH VENEER BOGS TYPICAL OF THE NORTHERN PART OF THE SLRMA

Veneer bogs (layers of woody peat usually less than about 5 feet, or 1.5 m deep) characterized by discontinuous permafrost and stunted black spruce forest are widespread components of gently sloping landscapes throughout our homeland ecosystem. The water table is close enough to the surface that overland flows of water occur in periods of peak runoff.

OWL Members provided the following additional comments:

- cannot get into this area if it is wet;
- in a dry season there are no moose;
- in a wet season there are many moose but you must go further inland to hunt because they drink from water sources further inland and don't need to come down to the rivers;
- movement in these areas is on foot after freeze up and first snowfall;
- marten and fisher are trapped;
- slanted trees are due to the permafrost; and
- this area is used as a calving area for moose.

PHOTO 3: GROUNDCOVER ASSOCIATED WITH FROZEN ORGANIC TERRAIN

The groundcover associated with stunted black spruce commonly found on organic terrain extensively affected by permafrost consists of hummocks of sphagnum and feathermoss peat, with lichens on the drier hummocks.

OWL Members provided the following additional comments:

- caribou moss is a food source for caribou in fall and winter;
- this is a good area for caribou because of the moss;
- caribou are hunted here; and
- good trapping area for marten.

PHOTO 4: THICK SPHAGNUM CUSHION ON BOG VENEER SURFACE

The surface peat on a veneer bog consists of mixtures of species of feathermoss and sphagnum moss.

Thick hummocks of sphagnum moss provide insulation to initiate the development of permafrost. Drier sites characterized by feathermoss have evolved from former sphagnum sites and further contribute to the persistence of permafrost.

OWL Members provided the following additional comments:

- this area is good for berries due to peat moss;
- during a wet season this may be inaccessible and avoided as mosquitoes and black flies are plentiful and limit movement; and
- red moss in this area is used as a natural cleanser (like an SOS pad) and is also used for medicinal purposes as it helps stop bleeding.

PHOTO 5: VEGETATION RE-ESTABLISHING ON A VENEER BOG AFTER FIRE

Wildfire moving down-slope from better drained uplands destroys the tree growth on the lower slopes and in dry seasons may consume the surface peat layer. Shrubs and herbs form the initial vegetation cover following fire.

The ground vegetation such as that seen in this photo begins to establish the next year after the fire event in the southern part of our homeland ecosystem, but two, three or more years later in northern parts.

The time required for vegetation to establish also depends on the severity of the fire and factors such as whether there is a peat layer remaining on the surface or whether the colonization must take place mainly in a thick ash layer. The moisture regime at the site following the fire is another important factor affecting the rate at which the vegetation re-establishes. If the water table is at or above the soil surface or if the site is affected by surface ponding, the rate of regeneration following fire will be slower.

OWL Members provided the following additional comments:

- when these areas burn there is no re-growth in the first year;
- in these areas north of 55, it may take 10 years for re-growth to begin;
- once it is regenerating it is a productive area for moose;
- berries are present here; and
- once re-growth occurs, it is a good area to hunt moose because the animals are attracted to areas of fresh growth.

PHOTO 6: RECENTLY BURNED SITE ON A VENEER BOG

Wildfire on veneer bogs often destroys the forest and, in many cases, much of the peaty surface layer on the site. This in turn leads to deepening of the annual thaw layer and melting of the underlying frozen soil. In many instances, the permafrost may completely disappear, taking several generations to build up again. In drier seasons, veneer bogs are susceptible to fires which start on adjacent uplands and burn down-slope to the toe of the veneer bog where the water table is close to the surface.

OWL Members provided the following additional comments:

- burned veneer bog has no opportunities and no one will waste their time here; and
- this is a migrating route for moose in winter because the animals can get through here easily.

PHOTO 7: VEGETATION ON VENEER BOG

Veneer bogs are characterized by thin peaty surface layers on a gently sloping terrain, and by the patchy occurrence of permafrost. The forest cover varies from semi-open to closed stands of black spruce in the southern part of our homeland ecosystem to fairly open forests of black spruce under subarctic conditions in the northern parts.

The shrub layer usually consists of Labrador tea and lesser amounts of other ericaceous shrubs and shrub-size black spruce. The shrub layer is sparse or absent in the more densely treed areas. Ground cover consists of feathermosses interspersed with large hummocks of various sphagnum species. Lichens occur in patches on locally dry feathermoss sites. The lichen cover is more abundant in the subarctic wetland regions where the tree cover is much sparser.

OWL Members provided the following additional comments:

- this is a good area for caribou because of the mosses in November; and
- caribou and moose can both be found here because they take refuge from predators here.

PHOTO 8: VEGETATION ON VENEER BOG

This is a photo of open black spruce vegetation with sparse Labrador tea and mixed moss groundcover typical of veneer bogs on lower slopes of clayey upland areas. Higher moss hummocks have better drainage and support growth of lichens. Tree growth is slow due to nutritional deficiencies, low soil temperatures and poor drainage.

OWL Members provided the following additional comments:

- berries and caribou are harvested and this is a good area because of mosses.

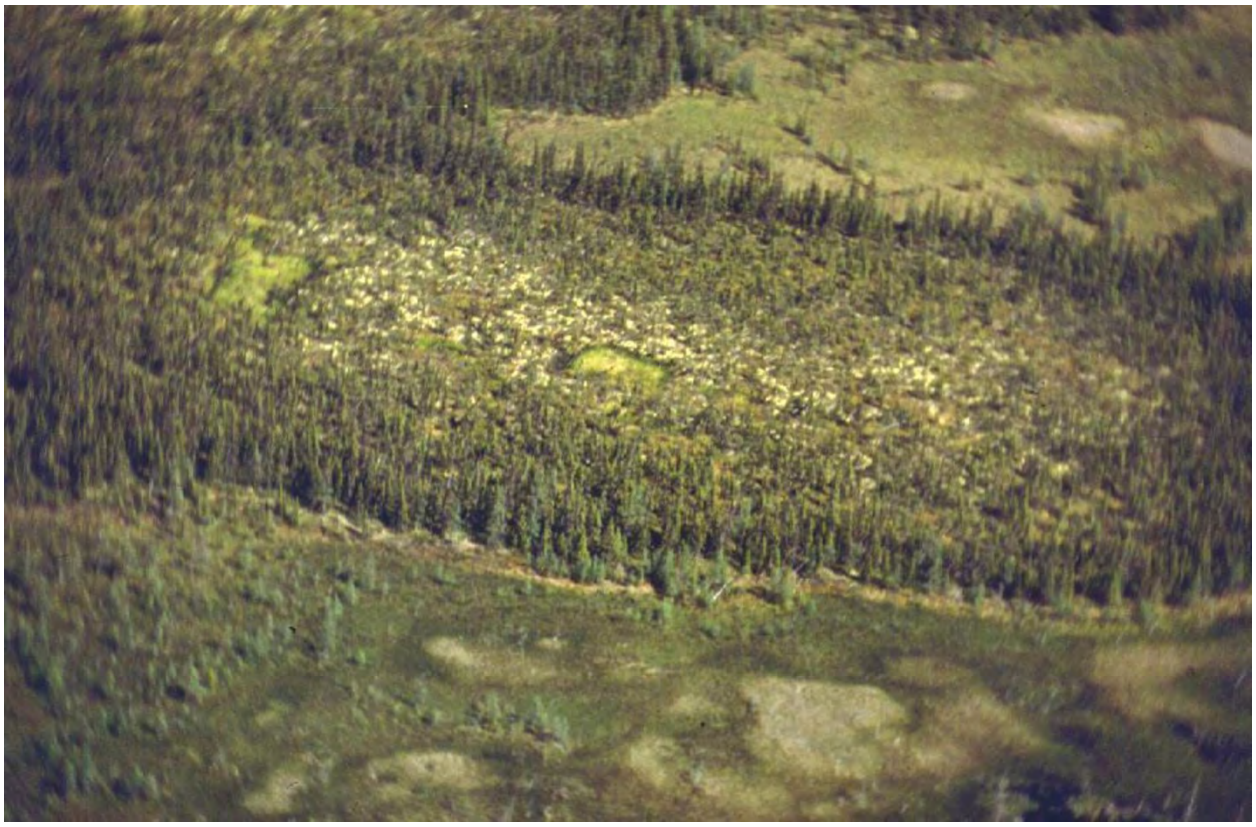

PHOTO 9: PEAT PLATEAU BOG WITH SUBARCTIC VEGETATION

Peat plateau bogs consist of frozen peat rising abruptly above the surrounding unfrozen fen to a height of about three feet (0.9 metres). Less than 3 percent of the SLRMA is dominated by this type of landscape which is associated with very poorly drained horizontal fens. The vegetation on peat plateau bogs in subarctic areas is dominated by semi-open, stunted black spruce with extensive lichen growth in the peat surface. Better tree growth occurs along the sheltered more protected edge of the plateau.

OWL Members provided the following additional comments:

- there is no way to reach these areas until they are frozen
- sometimes these areas don't freeze enough to walk on; and
- must carry a stick to test the ground while walking here.

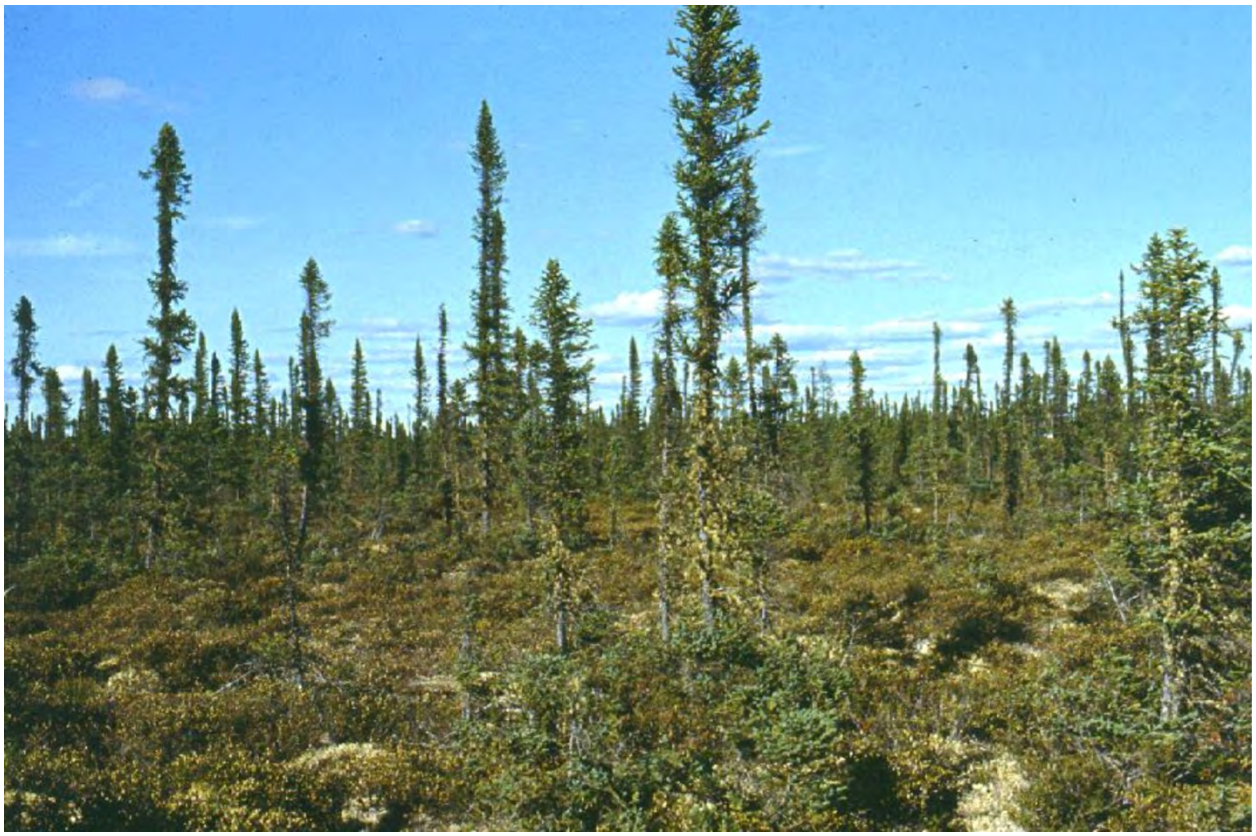

PHOTO 10: SUBARCTIC FOREST ON PEAT PLATEAU BOG

This site is characteristic of peat plateau bogs in the northern part of our homeland ecosystem. Vegetation is stunted, with uneven-aged black spruce on a micro-hummocky surface of frozen peat supporting scattered patches of cotton-grass and with lichens covering the higher and drier hummocks.

OWL Members provided the following additional comments:

- good area to move through;
- many harvesters would go to these types of areas;
- caribou will be present due to mosses;
- berries and Labrador tea around mosses; and
- this area is common in the northern portion of the Split Lake RMA.

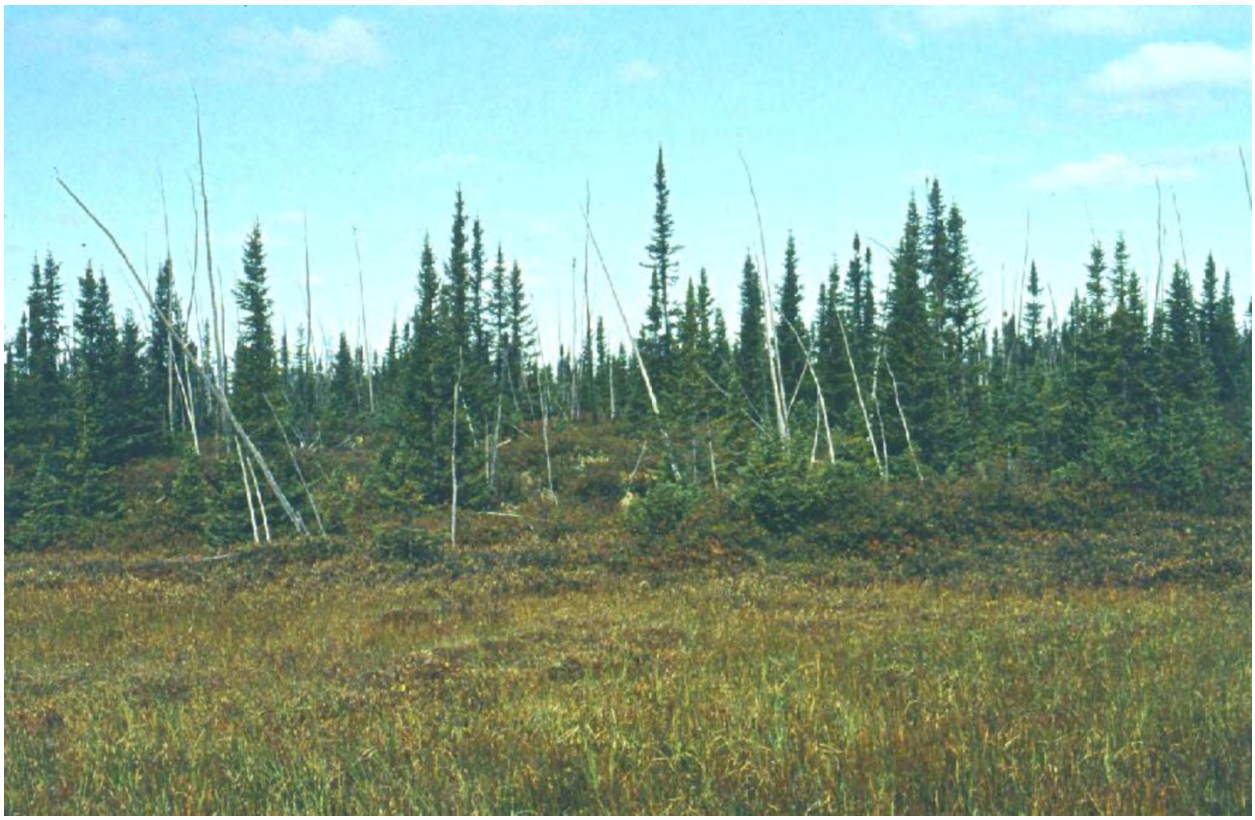

PHOTO 11: TYPICAL PEAT PLATEAU BOG IN SOUTHERN PART OF OUR HOMELAND ECOSYSTEM

Permafrost along the edge of this peat plateau is gradually melting, causing the peat to subside and the trees to tilt. As the melting continues, the trees will eventually sink into the unfrozen area in the foreground called a collapse scar.

OWL Members provided the following additional comments:

- good area to move through;
- many harvesters would go to these types of areas;
- caribou will be present due to mosses;
- berries and Labrador tea around mosses; and
- this area is common in the southern portion of the Split Lake RMA.

PHOTO 12: NORTHERN RIBBED FEN

The low peaty ridges in this northern ribbed fen support stunted tamarack and low shrubs such as swamp birch. Wet peaty depressions occur between the slightly better drained ridges. The drainage in the wetland in this photo is away from the viewer. The peat depth in northern ribbed fens mostly derived from sedges commonly exceeds three feet (0.9 metres). The surface peat in the inter-ridge depressions is quite fibrous and occasionally is "floating" on semi-fluid peat that has very high water content.

OWL Members provided the following additional comments:

- this is a swampy area;
- it is very difficult to move through so it is usually avoided;
- islands may be good location to find moose;
- this area is likely between Recluse Lake and Churchill River;
- amphibians, frogs, turtles, reptiles are present here;
- areas like this can be very dangerous because they are very soft; and
- beavers may be present in some ponds.

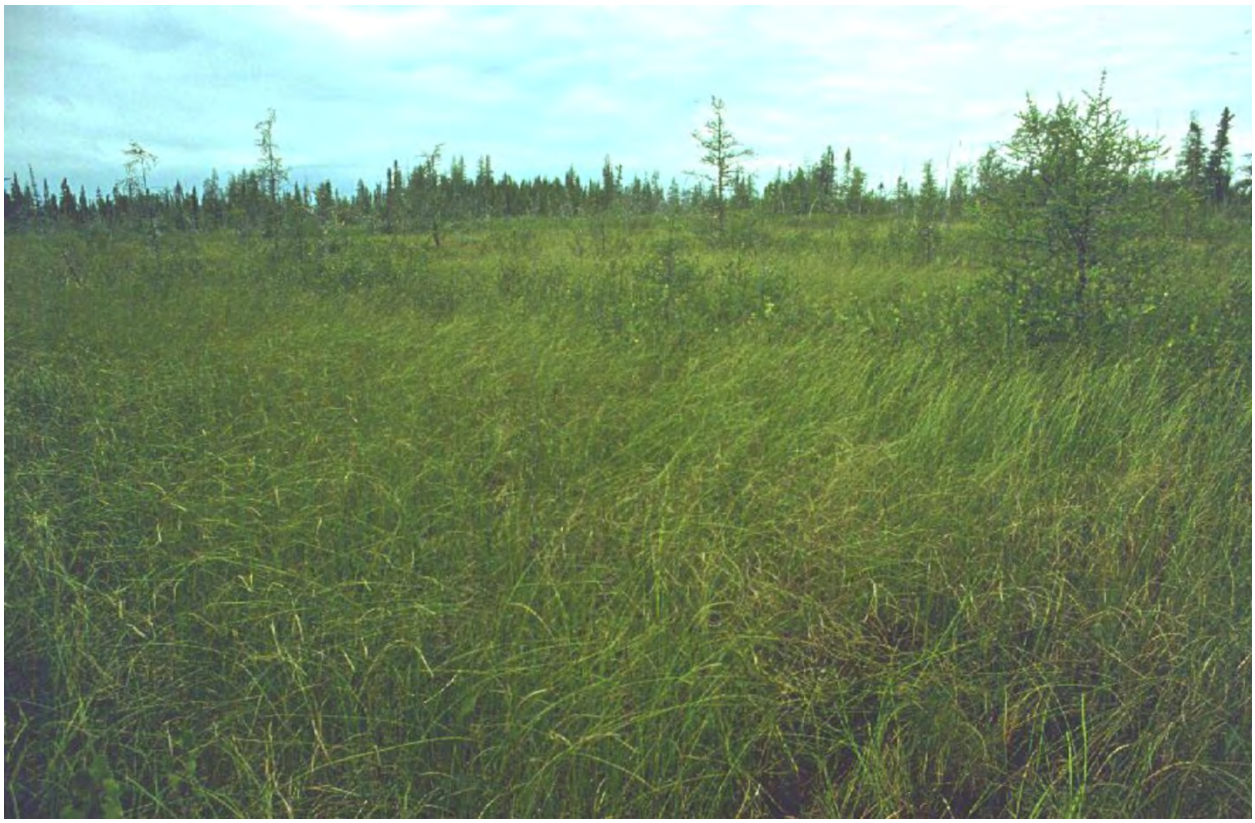

PHOTO 13: STUNTED TAMARACK VEGETATION ON NORTHERN RIBBED FEN

Stunted growth of tamarack and swamp birch is restricted to slightly better drained peaty ridges trending diagonally across the peatland. The intervening area is very poorly drained and is characterized by sedge vegetation.

OWL Members provided the following additional comment:

- small mammals (voles, marten, foxes) migrate through here.

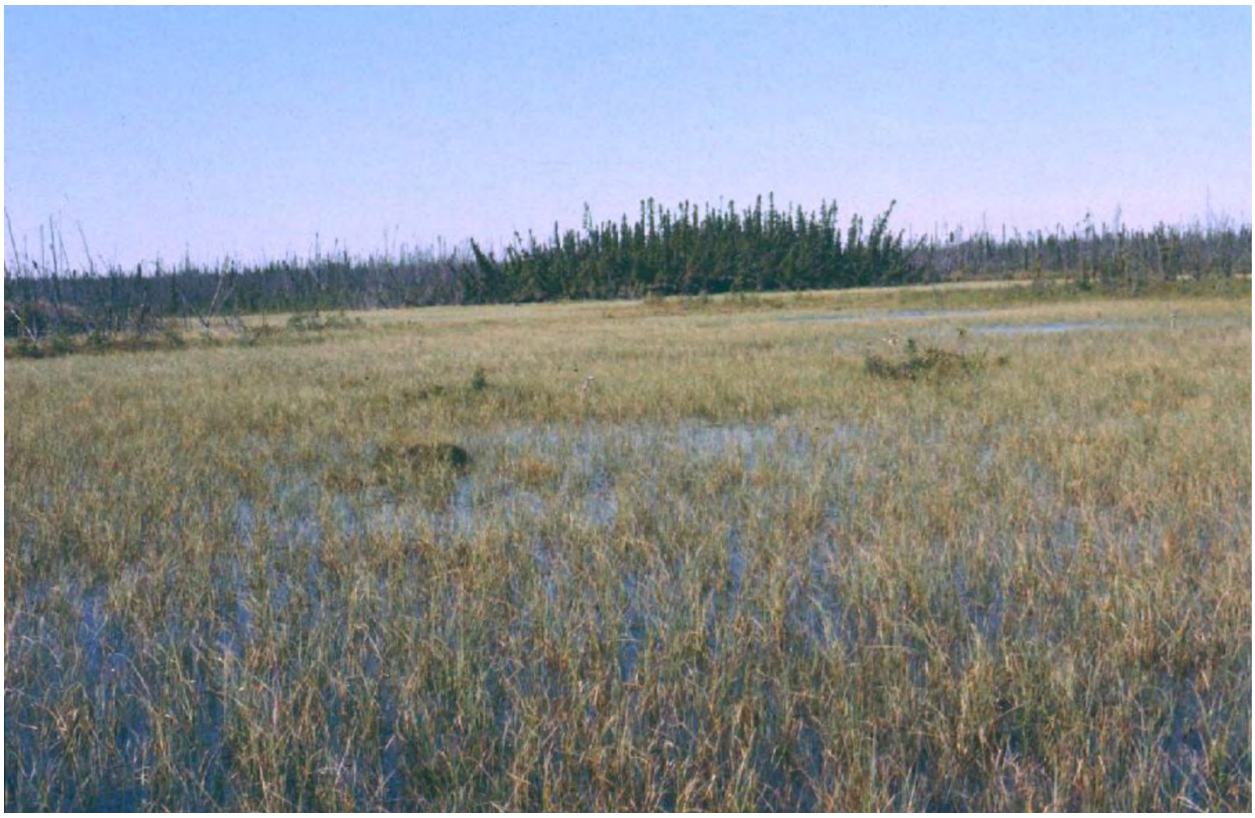

PHOTO 14: HORIZONTAL FEN

This wetland appears as a flat featureless surface that slopes gently in the direction of drainage. The water table varies from at or just above the surface during wet seasons and following spring melt to a metre or more below the surface during prolonged drought. Wetter fens such as the one in this photo are dominated by sedges and aquatic mosses. Permafrost is absent in horizontal fens but is present in the raised mound of treed frozen peat palsa in the background.

OWL Members provided the following additional comments:

- movement through here is only possible once it freezes;
- ducks, migrating birds, beavers are here; and
- medicinal plant – (‘wehez’ in Cree) – root found underwater in wetlands.

PHOTO 15: LANDSCAPE DOMINATED BY HUMMOCKY AND RIDGED TERRAIN

The landscape in this photo is dominated by mineral uplands; organic terrain is less prevalent. This is typical of a little more than 15 to 20 percent of our homeland ecosystem. The vegetation on the crests and upper slopes consists of mixed black spruce and jack pine forest. Where affected by recent fires, jack pine predominates.

Vegetation succession, if undisturbed, results in a stable black spruce forest and understory of ericaceous shrubs such as bog laurel, leather-leaf and bog rosemary, and groundcover of feathermoss. Gently sloping lower portions of the landscape are characterized by veneer bogs, while level to depressional areas generally support less vigorous stands of black spruce growing on thicker accumulations of peat.

OWL Members provided the following additional comments:

- this photo shows a normal season, neither wet nor dry;
- moose are hunted in these areas in fall and are usually near the water;
- in a particularly dry season the moose will be found more often near the water/rivers as it is their only water supply;
- good trapping here; and
- marten, lynx and wolverine here.

PHOTO 16: LANDSCAPE DOMINATED BY HUMMOCKY AND IRREGULAR TERRAIN

The landscape in the foreground of this photo is an association of short discontinuous ridges surrounded by organic terrain. The extensive level and poorly drained area of organic terrain toward the horizon is a ribbed fen with parallel ridges of peat which enclose elongated wet hollows or shallow pools. The ridges support stunted trees while the intervening hollows are characterized by sedges and aquatic mosses.

OWL Members provided the following additional comments:

- movement is very difficult in these areas;
- this is an uncommon area in the SLRMA; and
- this area provides shelter to both animals and people.

PHOTO 17: HUMMOCKY LANDSCAPE FEATURING A DRUMLIN WITH VENEER BOG ON LOWER SLOPE

Drumlins are streamlined, elongate to oval hills of mineral material carried by glaciers. Their long axis is oriented parallel to the direction of flow of the glacier which deposited them.

The lower slopes of this drumlin are characterized by gently sloping veneer bogs underlain by discontinuous permafrost. The closed black spruce forest on the crest and upper slopes of the drumlin shift to semi-open stands of black spruce with an understory of feathermoss and lichens on the lower slopes.

OWL Members provided the following additional comments:

- this is a good area for moose hunting;
- this area is far from large water bodies;
- this area would be avoided in summer because you would have to walk in;
- in winter it can be accessed by snowmobile;
- there are very few moose predators as they have decreased movement; this makes moose more plentiful here;
- moose hide here from predators and take refuge;
- ridges are used as lookouts by both hunters and animals; and
- caribou migrate over ridges.

PHOTO 18: MIXED CONIFEROUS FOREST STAND

This photo shows a semi-open stand of jack pine and regenerating black spruce on the upper slope of a drumlin. Extensive patches of reindeer moss are associated with openings in the tree canopy. Areas of densely stocked young black spruce occur with a shrub layer underlain with a groundcover of mixed feathermoss.

In addition to comments similar to photo 17, OWL Members contributed the following:

- nice area to hike in;
- easy to move through;
- often has an abundance of caribou and berries; and
- similar to previous photo.