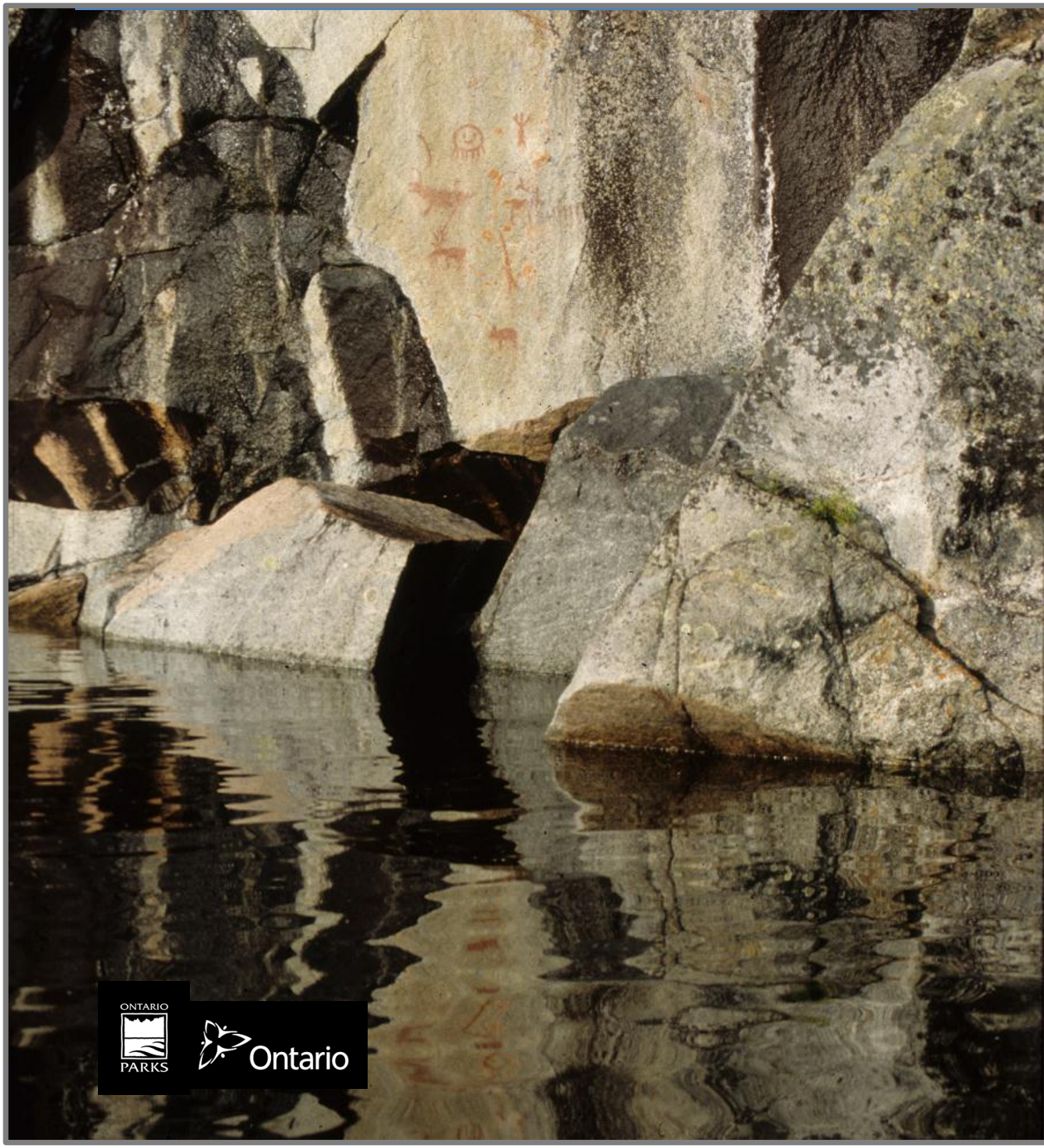
Canadian Heritage Rivers System

Missinaibi - 2004 to 2014

10 Year State of The River Report



January, 2015

Compiled by Alissa Moenting Edwards, Ontario Parks Northeast Zone, Sudbury.

Special thanks to Will Kershaw, Dave Sproule, Ed Morris, Barb Henkenhaf, and Ross Hart for reviewing this report.

Photo 1: (Cover) Pictograph at Fairy Point, Missinaibi Lake. Source: Ontario Parks.

Photo 2: Missinaibi Lake Hudson's Bay Post, circa 1956.

These buildings are no longer standing or visible. Source: Ontario Parks.

APPROVAL PAGE GOES HERE.

Executive Summary

The Missinaibi CHRS Ten-Year State of The River Report fulfills objectives to:

1. document and discuss the cultural, natural, and recreational values of Missinaibi Provincial Park;
2. list and assess the numerous natural, cultural, and recreational values of the Missinaibi as laid out in the Canadian Heritage River System (CHRS) frameworks;
3. report on the current condition of the values of Missinaibi Provincial Park; and,
4. document changes to the Missinaibi over this first ten-year term since becoming part of the CHRS when the Missinaibi Provincial Park Management Plan (2004) was released.

Table 1: Missinaibi - Chronology of Events since CHRS Designation

Year	Significant Events, Actions, Research or Studies Since 2004
2004	Missinaibi Provincial Park Management Plan was approved and the River was designated as a Canadian Heritage River.
2004	After Missinaibi Provincial Park Management Plan was released the Hay River & Missinaibi East Ontario's Living Legacy additions brought old-growth forest & provincially significant landform/vegetation into the park.
2005	June 12, 2005, CHRS designation ceremony in Mattice in conjunction with a local "Rivers Day" celebration within the community. Representatives from Mattice-Val Côté, Aboriginal communities, Parks Canada, and Ontario Parks were in attendance. Canadian Heritage River System Plaques are maintained in the town of Mattice and at the Barclay Bay campground.
2006	Yearly stewardship monitoring was started by Ontario Parks Northeast Zone. Each year a stewardship crew travels river sections to document status of the human footprint on the landscape (Photo 21). Also a GIS database is a repository for information on park use & value's status.
2009	The Glassy Falls access zone management was examined and a refined boundary was proposed to remove all-terrain vehicles use on the traditional portage & campsite.
2009	Ontario Parks worked with the Canadian Broadcasting Corporation and Outpost Magazine to develop media articles from their on-site travel along a portion of the Missinaibi River. An archaeologist in the crew documented evidence of the long history of trade among peoples travelling the river from the pre-contact and fur trade periods.
2013	Ontario Parks built a new gatehouse and woodshed with solar panels, as well as above-ground storage for diesel and unleaded fuels at Barclay Bay. Extensive docking facilities at the campground were also replaced.
2015	An interpretive kiosk constructed several years ago in the Mattice municipal park will be updated in the spring of 2015.

Missinaibi Provincial Park covers the free-flowing Missinaibi River; 500 kilometres long from the source waters in Missinaibi Lake to the confluence with the Moose River and to the community of Moose River Crossing (Map 1). Boundary amendment work is ongoing to regulate some remaining additions, as directed in the management plan. With Ontario's Far North Act (2010), some boundary additions in that lower part of the river have been deferred so that they may become part of the land use planning process associated with that Act.

The Missinaibi River with its north flowing drainage crosses two broad geological occurrences and four ecodistricts. The river's landscape features and habitats support high biodiversity, and, as a provincial park it serves an important role as an ecological benchmark within the adjacent production landscape. Furthermore, the park protects and represents 80% of the pre-contact and historical cultural waterway linking Lake Superior to James Bay. Cultural heritage sites and human history add to the rich and varying waterway landscape within the park. Canoe trips these days follow traditional Aboriginal and fur trade routes. Missinaibi Provincial Park has hosted ceremonial events and gatherings with the Brunswick House First Nation community.

Missinaibi Provincial Park continues to be an important ecological setting for monitoring studies, for example: water flow, songbird response to adjacent forestry operations, broad scale fisheries management, mercury levels in fish over time, etc. Missinaibi Provincial Park is a corridor of protected habitat partially within the Chapleau Crown Game Preserve, where studies on bear, wolf, hare, and moose play an important role in informing wildlife management since the 1930s.

The natural, cultural, and recreational landscape through which the Missinaibi flows continues to be enjoyed, appreciated and celebrated by local residents and visitors. A provincial phase-out policy on select activities in provincial parks, including private recreation camps, was changed in 2010. The main change was that those persons undertaking activities affected by phase-out would now have a lifetime extension. Overall, the values and integrity for which the Missinaibi was originally designated remain intact. Park additions that were identified in the 2004 management plan have been largely regulated to enhance protection of values. Further, there are provisions through integrated resource management planning on lands adjacent to the park to comment on best practices for forestry operations, resource extraction and municipal use, to mitigate affects to park values that could arise from these adjacent land uses.

The Missinaibi as a provincial park and the CHRS designation work well together.

Implementing the park management plan direction sustains an important river corridor and traditional uses. The CHRS showcases natural and cultural heritage and recreational values of the park to underscore the importance of protecting these values for future generations.

Table of Contents

List of Tables

List of Maps

List of Figures

List of Photographs

Introduction

> *"A canoe trip from Lake Superior to Hudson's Bay is a novel one, to say the least, and one which few have undertaken except those in the employ of the Hudson Bay Company, whose duty it is to reach the utmost recesses of the northern wilderness… It was then, with no knowledge of what lay before them that the party, of which the writer was a member, decided to canoe or walk it, or both, to see for themselves what the territory possessed…there were rapids and portages innumerable, insects of the most voracious kind to make life a burden, and a chance to canoe both ways, with other hardships innumerable and indescribable. But little things like these could not turn a man's mind who had decided to tempt fate and go."*
>
> J.E. Burchard, 1890, Canoeing to Salt Water

A Brief People's History of the Missinaibi River

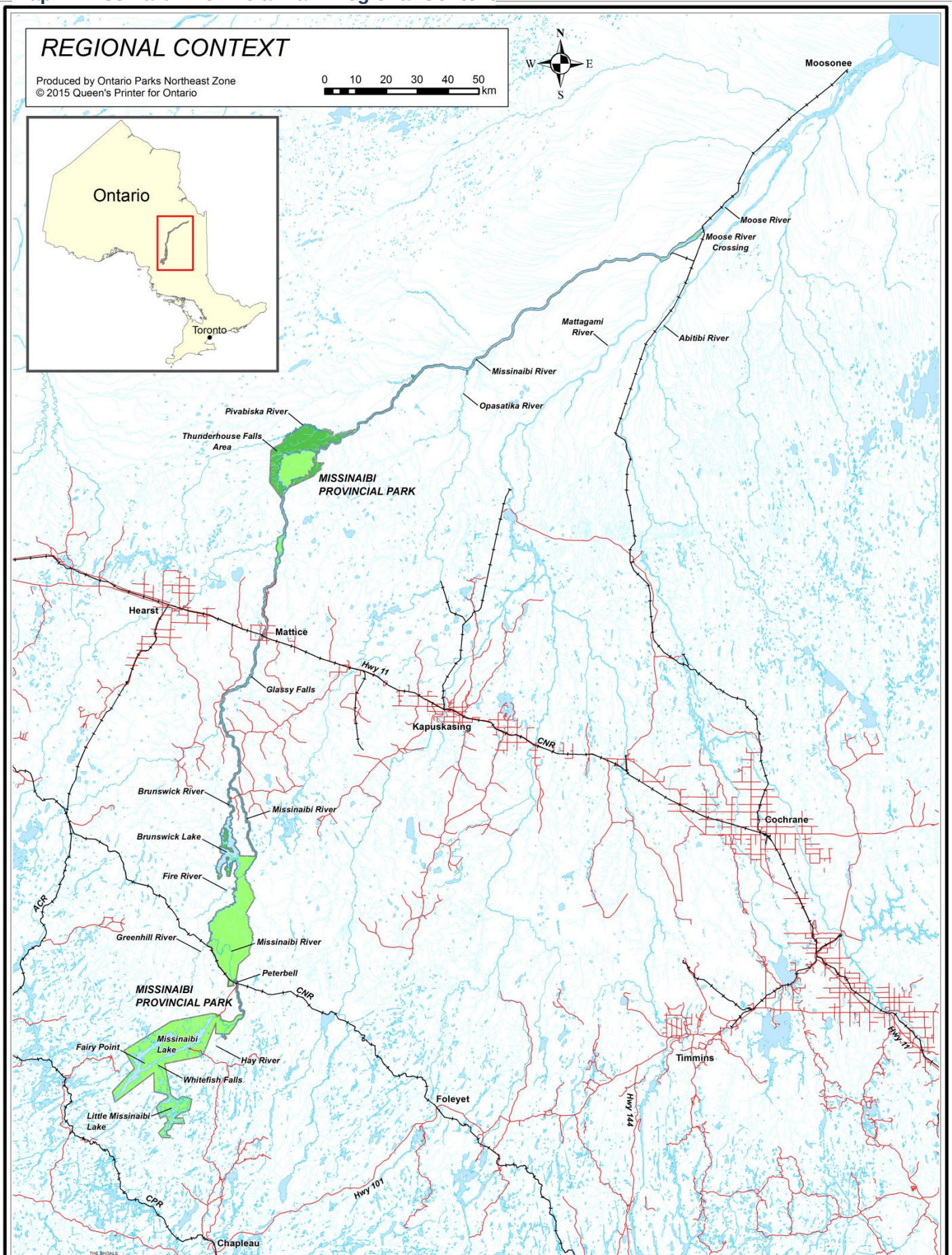
Missinaibi has been translated to mean "Pictured Waters" - the name given to this ancient travel route (Map 1). Cree and Ojibwa hunters, gatherers and traders travelled this waterway spine connecting territories in the Great Lakes and Arctic watersheds for thousands of years before Europeans arrived. From the late 17th to the early 20th Century, the Missinaibi was within the most important northern fur trade travel corridor in what became Ontario, used by French Canadian coureur des bois and later the North West Company (NWC) and the Hudson Bay Company (HBC) fur traders. Exploration for minerals and logging used the river into the 1800s. This was followed into the 1960s by changes to resource extraction as rail access and then roads established different travel networks away from the river. Archaeological finds reveal the river's cultural heritage and traditional uses: marvelous pictographs, prehistoric campsites and portages that continue to be used today and river 'driving' structures of rock cobble cribs or bank forms that were built to channel logs that still direct flow at some rapids.

Progressive management has kept the Missinaibi natural and wild. Ontario established Missinaibi Lake Provincial Park in 1968 and a park reserve north to the Thunder House Falls area in 1969. The name changed to Missinaibi Provincial Park in 1970 to reflect the larger waterway interest. The reserve was extended north to Moose River Crossing by 1979. Detailed resource inventories in the mid-1970s assessed local natural and cultural heritage values. Missinaibi Provincial Park was expanded to encompass Little Missinaibi and Brunswick lakes in 1989. Private lands, like the four townships south of Mattice were acquired in the 1990s to connect the park through these lands. Being over 500 kilometres in length today, the Missinaibi has numerous local and provincial interests that care deeply about the river, its policies and future accessibility and use.

Forestry is the primary land use in the region that the river flows through. On a national scale, forest products exports have fallen, mills have closed in this region and there are fewer jobs in forest operations. The number of people living near the Missinaibi is less than two-thirds of what it was in 1988. People living in the region enjoy a northern life style that includes outdoor traditional pursuits such as hunting, fishing and trapping.

Park visitors come from far and wide to paddle the Missinaibi River and boat on Missinaibi Lake.

Map 1: Missinaibi Provincial Park Regional Context



Missinaibi Provincial Park Planning History and Canadian Heritage River Designation

Planning for Missinaibi Provincial Park began in 1977. Missinaibi was nominated as a Canadian Heritage River in 1985. A condition to become a Canadian Heritage River was to have an approved management plan. After multiple rounds of consultation the Missinaibi Provincial Park Management Plan was approved in 2004 and the Missinaibi became a Canadian Heritage River.

The park superintendent uses the Missinaibi Provincial Park Management Plan for direction on park management. There are four Ontario Ministry of Natural Resources and Forestry (MNRF) administrative districts straddling the park: Chapleau, Wawa, Hearst, and Cochrane, where it enters the Far North of Ontario. MNRF districts manage Crown resource uses, like forestry operations, trapping and hunting adjacent to the park. The park superintendent works with district staff who lead the planning and management of the many Crown resource uses on the Crown landscape.

The CHRS nomination documented values before the national CHRS frameworks were finalized. This Missinaibi Ten-Year Status of The River Report refers to the most current CHRS frameworks to highlight values in the park, some of which may not have been mentioned in the original nomination (Table 4).

Natural Heritage Values

Climate and Water

Northern Ontario's continental climate along the Missinaibi is modified by the Great Lakes in the south and Hudson and James bays to the north. The growing season in the Missinaibi corridor is from May to October. In the summer there are continual changes in prevailing air flow with warm, humid southern air alternating to cooler drier air from the north. This cycling pattern drives stormy periods followed by clear weather. Weather with dry clear cool arctic air occurs for longer periods than in southern Ontario. Summer winds average 9.5 to 16 kilometres per hour. Evapotranspiration is greater than precipitation from June through to August; water deficiency lies close to zero. Mean July temperature is 16^{o} Celsius while January's mean temperature is -20^{o} Celsius. In winter, snowfall in the Missinaibi corridor averages around 284 centimetres, and winds average 13 to 19 kilometres an hour. Northern residents are noticing changes in climate with more variable weather and extreme events of precipitation, temperature and evapotranspiration.

Missinaibi Lake has a surface area of 1,171 hectares and an average depth of 19 metres (max 94m). Water chemistry data from May 2011 as reported by the Ministry of the Environment and Climate Change are presented in Table 2. Some older information for general water quality collected for the Missinaibi River (downstream) is presented in Table 4. Overall, water from the Missinaibi is essentially uncontaminated; water chemistry is within acceptable limits. Figures 1a and 1b show monthly flow rates.

Table 2: Missinaibi Lake Water Test Results from May 19, 2011.

Test	Value	Test	Value
Secchi Depth	3.5 metres	**pH**	7.3
Alkalinity	27.4 mg/L $CaCO_3$	**Sodium, unfiltered total**	0.7 mg/L
Conductivity, laboratory 25˚C	67.6 µS/cm	**Ammonium, unfiltered reactive**	28 mg/L
√ Chloride unfiltered reactive	0.3 mg/L	**Nitrates, total unfiltered reactive**	66 µg/L
True Colour	42.4 TCU	**Iron, unfiltered total**	131 µg/L
Calcium unfiltered total	9.4 mg/L	**Magnesium, unfiltered total**	2.1 mg/L
Dissolved inorganic carbon	6.5 mg/L	**Dissolved organic carbon**	9.7 mg/L
√ Phosphorus, unfiltered total	6.9 µg/L	**Silicates, unfiltered reactive**	1.6 mg/L
Nitrogen, total Kjeldahl unfiltered reactive	326 µg/L	**Sulphate, unfiltered reactive**	2.8 mg/L
Potassium, unfiltered total	0.4 mg/L		

Figure 1a: Mattice Average Monthly Flow Rates; and, Figure 1b: Average Monthly Flow Rates Downriver Near the Entry of the Waboose River in Gentles Township

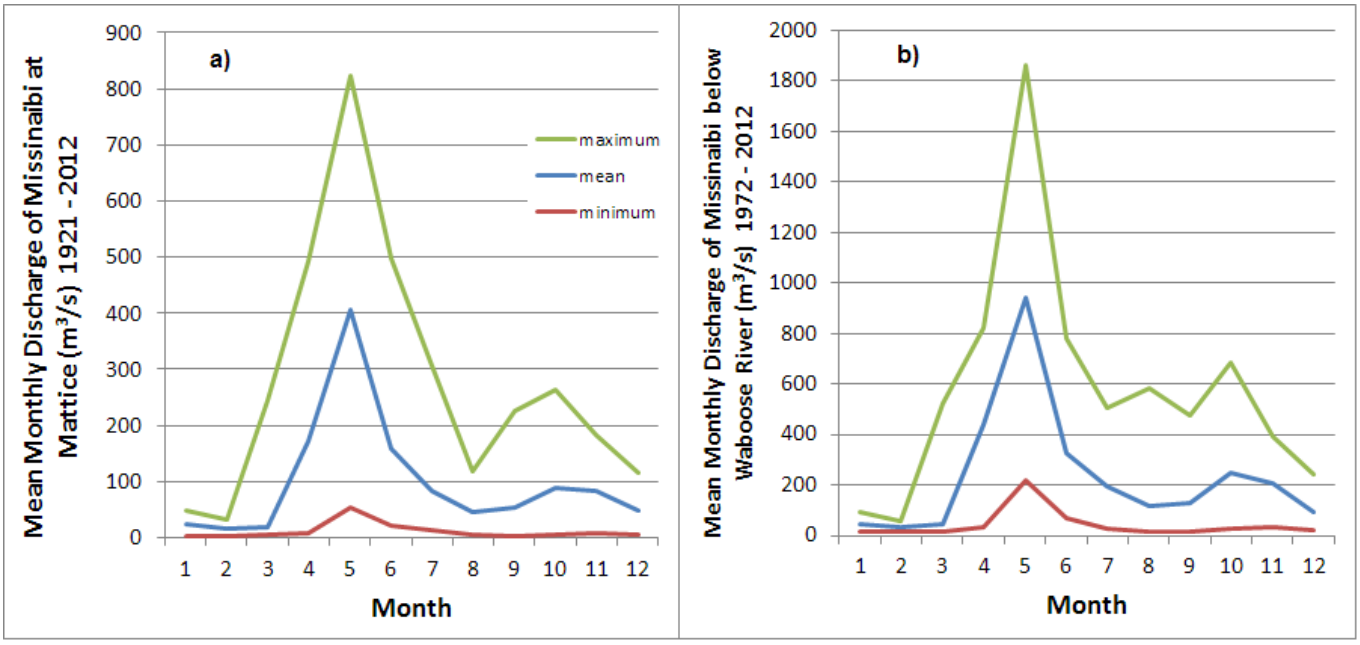


Figure 1: a) Mean monthly discharge of the Missinaibi River at Mattice (1921-2012); and, b) Mean monthly Missinaibi River discharge below Waboose River (1972-2012).

Geology and Earth Science Values

Bedrock and surficial geology along the Missinaibi are similar to other areas of the Canadian Shield. Some Precambrian geological features are good regional examples of formations. Figure 2 provides general information on bedrock and surface materials while Map 3 and Photo 3 provide locations of notable earth science features along the river.

Bedrock geology outcrops extensively in headwater areas and is evident in rapids and falls along the river corridor. Fault-controlled Shield bedrock, like at Fairy Point, and glacial scoured Shield bedrock is very evident along shorelines on Missinaibi Lake and Little Missinaibi Lake. The river has cut into the hard rock of the Shield to form Thunder House Falls that spills into a gorge below as the river drops into the James Bay lowlands.

Below Thunder House Falls the river channel has steep white bluffs in Amery Township as it flows through the sedimentary deposits there that are very different from the rolling hardrock of the Shield. The most complete Quaternary stratigraphic record in the Moose River basin is found here (Photo 3d). The flat-lying marine clays and glacial deposits from the ancient Tyrrell Sea overlay Mesozoic marine deposits in this lower section of the river.

There are glacial sediments above Thunder House Falls as it passes through the Abitibi Uplands on the Precambrian Shield where it is covered first by the lacustrine clay, silt, and sand of the former Lake Barlow-Ojibway, and then by the Cochrane clayey till. Weather-resistant Shield bedrock releases few nutrients but the glacial deposits that overly the Shield were derived from limestone north of Thunder House Falls, and are thus more weatherable and release nutrients and bases that balance out soil pH. Local soils are richer and less acidic than they would be otherwise.

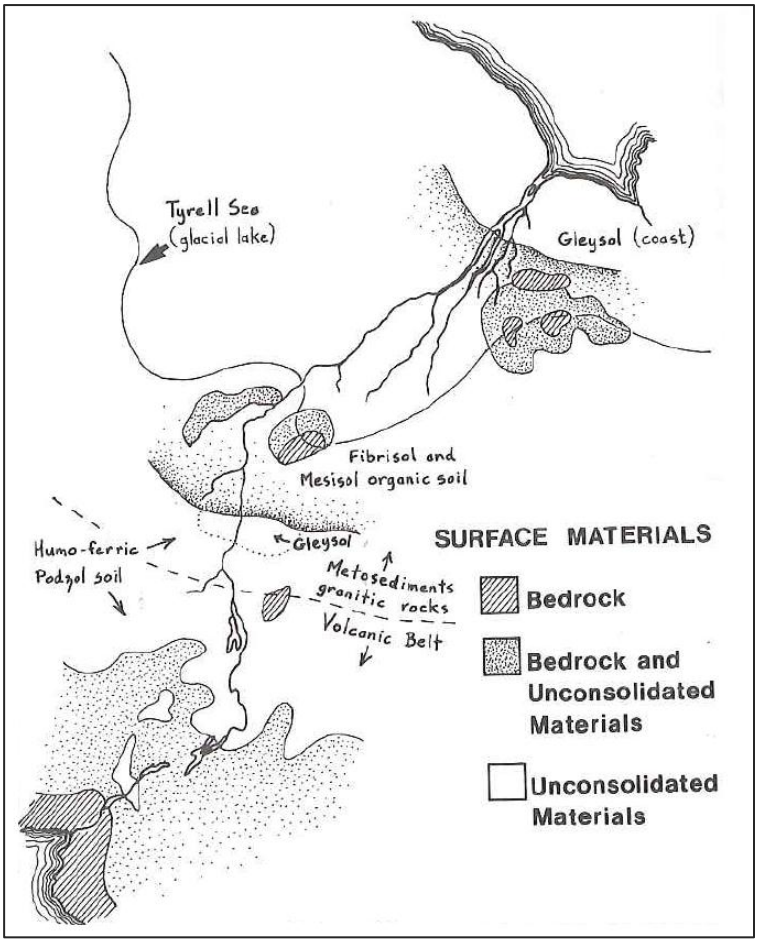


Figure 2: Earth's surface materials along the Missinaibi River. Source: Wilson 2004

Photo 3: Examples of geology along the Missinaibi: a) Sharp Rock Rapids; b) Split Rock Falls; c) waters feeding into Thunder House Falls; d) Bell's Bay bluffs; and, e) Hudson Bay lowlands; and, f) Moose River gypsum caves.

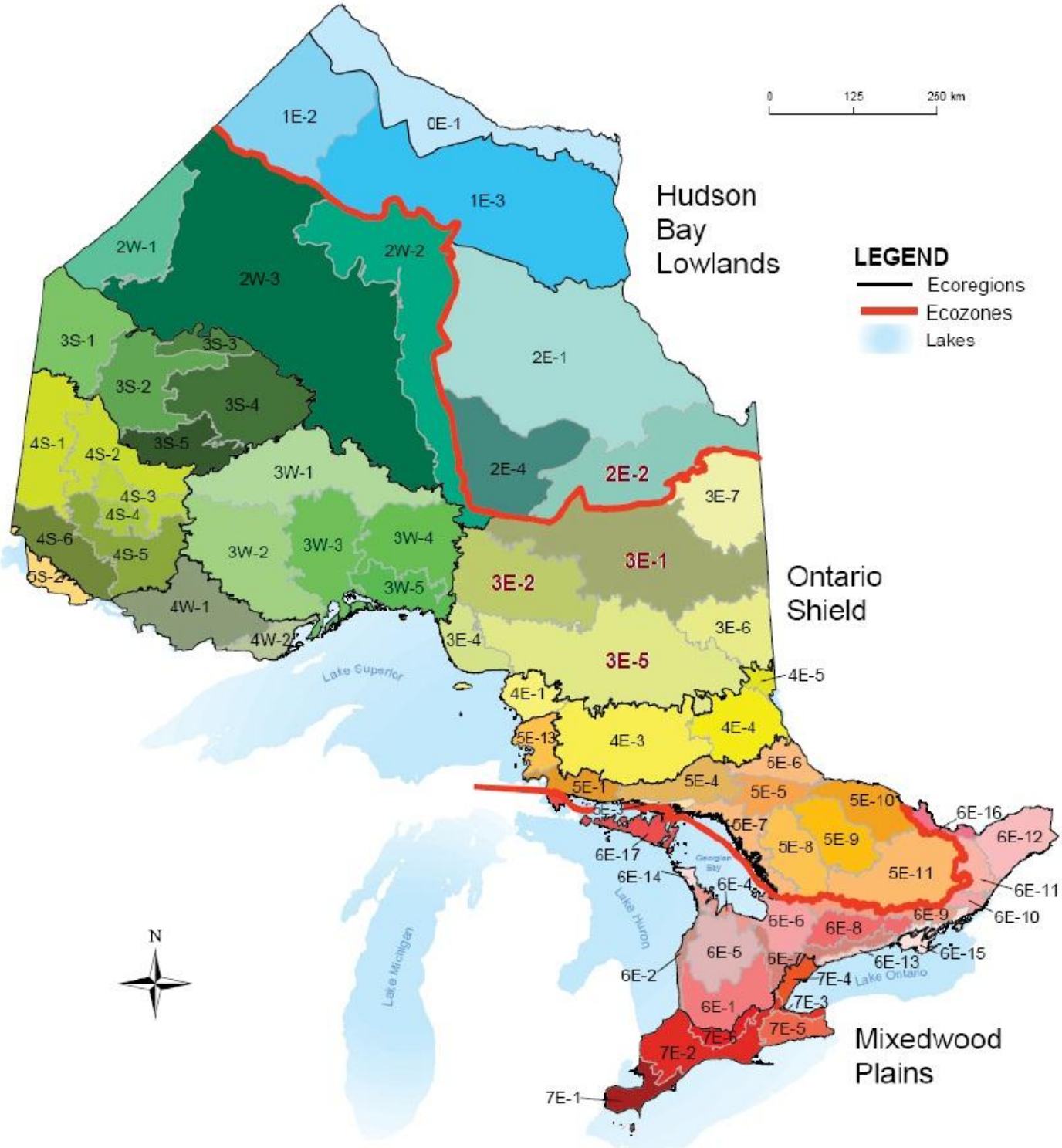
Ecological Values

Missinaibi flows through two ecoregions in two ecozones: Lake Abitibi ecoregion (3E) in Ontario Shield ecozone, and James Bay ecoregion (2E) in the Hudson Bay Lowland ecozone (Map 2).

The upper portion of the river is in Boreal Forest in Foleyet ecodistrict (3E-5), a smooth clay plain with shallow to moderately deep deposits over bedrock. Forest is largely, poplar, White Birch , Jack Pine and spruce. Some rocky sites, like high ground above Fairy Point and Reva Island on Missinaibi Lake have outliers of the Great Lakes St Lawrence Forest, old stands of 350 years old Red and White Pine (Photo 4). A short distance downstream of Missinaibi Lake the Hornepayne ecodistrict (3E-2) is smooth to gently rolling with low ridges; poplar and White Birch alternating in flats of lower ground with Black Spruce and well drained sites with Jack Pine. Below Brunswick Lake the Missinaibi flows through the Clay Belt ecodistrict (3E-1) with extensive clay and silt deposits in gently rolling plains with thinly covered rock knobs, sandy outwash and silty deposits with Black Spruce broken by stands of White Spruce with Balsam Fir, poplar and White Birch on eskers and rock ridges and along deeper stream courses.

The Moose River ecodistrict (2E-2) in the James Bay Ecoregion, below Thunder House falls and Bell's Bay is a smooth low-lying muskeg dissected by many streams. Patches of Black Ash and White Elm extend north of their continuous range in the river valley here on islands and shoreline wetlands. Although the entire river corridor out to James Bay is treed, mostly with spruce and poplar with some large cedar along river levees, there is a marked decrease in size of trees as you travel north. Trees grow close to the river with more open muskeg further away.

Map 2: Ecoregions, Ecozones, and Ecodistricts of Ontario and of Missinaibi Provincial Park. Source: Crins *et al.* 2009.



Flora

Species in the park have associations with Great Lakes, boreal and sub-arctic maritime (east) habitats. Plants along the river corridor occur in 22 different communities; five are deemed significant due to their representation and/or biodiversity within the park: Thunder House Falls rockland to Bell's Bay uplands; Peterbell marsh and string bog (Photo 10 - one of the most southerly in Ontario); Swamp Rapids to Thunder House Falls rugged forest; Hay River wetland and open water communities; and, Black Ash-Elm north of Alice Island (Map 4).

Biodiversity surveys reflect the changing habitats along the 500 kilometre length of the Missinaibi. An inventory over three seasons of the entire Clay Belt of Ontario, which includes the Missinaibi, found 856 species. The assessment documented that Missinaibi Provincial Park may act as a reservoir or "source" area of plants, which is important for the maintenance of biodiversity on this landscape with adjacent resource extraction uses and natural disturbance events. Assessments during one season identified 677 plant species along the river corridor. This included quite a variety of non-vascular species: 34 liverworts, 123 mosses, 76 lichens, 99 fungi, two algae, and one bacterium.

Beyond Missinaibi and Little Missinaibi lakes, selective forestry in the early 1900s cut large Red and White Pine extensively. Records from the 1940s and 1950s indicate that logging was occurring in "lower grade timber" operations. The immediate Missinaibi valley never experienced mechanized logging as it occurs in today's industry. Two areas within the park were never cut, the rugged headland at Fairy Point and Reva Island on Missinaibi Lake. As noted above these Red Pine stands are in excess of 350 years old. Jack Pine and Black Spruce in the valley are dependent on fire. Few fires have occurred along the Missinaibi since fire suppression became a priority in Ontario in the 1960s.

Photo 4: Tall Red Pine on Reva Island. Source: Ontario Parks.

Fauna

Common and notable fauna occur in the Missinaibi (Table 3). A summer survey in the river corridor, not including headwater lakes, found the following species by group: 47 mammal, 135 bird, 108 invertebrate, 24 fish, two toad, seven frog, three salamander, one snake. In addition to species that live throughout the landscape, changes in wildlife communities also reflect transitions in climate and habitats along the river's length (Figure 3).

Snowshoe Hare are monitored by MNRF to provide insight into Lynx populations in the province. The Lake Abitibi Ecoregion has a consistently higher number of Hare than other ecoregions to the south, providing important habitats for this species and Lynx, the Hare's top predator. Aerial moose surveys reveal that numbers in the Chapleau Game Preserve, bordering a portion of the park, are lower at the moment compared to previous years. MNRF surveys also show that the Black Bear population was at its highest in Ontario in the Chapleau Crown Game Preserve in 2010.

An interesting aside, Elk, which were native to Ontario had been extirpated from the province. There was a project in 1933 to bring Elk back to northern Ontario. Canadian National Railway records show that 50 animals were being transported from the west by rail. Before they arrived at the intended location, a situation in the handling resulted in the release and reintroduction of Elk in the Peterbell area in January. A small Elk population still persists with individuals or signs thereof reported occasionally in the Missinaibi corridor (Photo 5; Map 4).

Photo 5: Bull Elk in Missinaibi Provincial Park near Reva Island, 2011. Source: MNRF, Aerial Moose Survey, Chapleau District

Table 3: Missinaibi Provincial Park Common or Notable Fauna.

Large Mammals	**Small Mammals**	**Amphibians & Reptiles**	**Fish** (larger-size)	**Birds** (not extensive)	**Invertebrates represented**
Moose	Eastern chipmunk	American Toad and subspecies Hudson Bay Toad	Walleye	Bald Eagle	insect species (18 Orders represented, e.g., beetles, springtails)
Black Bear	Muskrat	Wood Frog	Burbot	Golden Eagle	spider species
Timber Wolf	Short-tail shrew	Northern Spring Peeper	Whitefish	Sandhill Crane	crayfish species
Caribou (extirpated ~1900, recent sightings to the north)	Southern bog Lemming	Boreal Chorus Frog	Cisco	Yellow Rail	snail species
Lynx	Yellow-nose Vole	Eastern Garter Snake	White sucker	Spruce Grouse	earthworm species
Beaver	Red Squirrel	Green Frog	Northern pike	Gray Jay	leach species
Marten	Deer Mouse	Northern Leopard Frog	Lake trout	Raven	(>100 identified, many unidentified)
Otter	Northern Flying Squirrel	Pickerel Frog	Yellow Perch	Black Duck	
Fisher	Woodland Jumping Mouse	Mink Frog	Brook Trout	Common Golden-eye	
Mink	Little Brown Bat	Jefferson Salamander	Sauger	Great Blue Heron	
Fox	Least Weasel	Blue-spotted Salamander	Mooneye	Spotted Sandpiper	
Raccoon	Red-backed Vole		Lake Sturgeon	Yellowlegs (greater and lesser)	
Snowshoe hare			Smallmouth Bass (first documented around the 1970s: probably introduced)	Common Loon	
Porcupine			Fallfish	Broad-winged Hawk	
Striped Skunk			Long-nose Sucker (and other suckers)	Boreal Chickadee	
Eastern Cougar(1960s)			Redhorse	Red-winged Blackbird	
Wolverine (extirpated ~1900)			Speckled Trout	Common Nighthawk	
White-tailed Deer (arrived 1920s)			Rainbow Trout	Gull (various)	
Elk (introduced 1933)				Warbler (various)	

During the expansion of the Canadian Pacific Railway (CPR) prior to 1885, along the southwest side of the Chapleau Crown Game Preserve, local Aboriginal people harvested Woodland Caribou for construction crews at a dollar a head. Since that time, with a number of land use pressures in the north, Woodland Caribou is now an Ontario species-at-risk. They are no longer seen in headwater or upper-river areas of the Missinaibi. Analysis indicate that the Thunder House Falls area provides suitable habitat for Woodland Caribou. However, a study involving collared (tracked) individuals in Cochrane district did not find any individuals in the park.

Fishing is a major draw for visitors to Missinaibi and Little Missinaibi lakes (Photo 6). Fish are naturally sustained in the waterways and there are no records of invasive species. Because the park is only semi-accessible, fishing pressure is steady but not high. Nevertheless, fishing pressure is constant, including during the winter. Pressure on fish populations will likely increase as forest access roads are developed adjacent to the park.

Photo 6: Fishing at Brunswick Lake. Source: Brunswick Lake Lodge (online) http://www.brunswicklakelodge.com/index.php/photos/fishing.

A high-profile species at risk, Lake Sturgeon is a species of special concern in Ontario and it has been found in the park in the Thunder House Falls area. This is part of a larger population that resides in the Moose River basin. The Missinaibi is the only free-flowing river of the three major tributaries where this species occurs (Mattagami and the Abitibi rivers are the other two). Commercial Lake Sturgeon harvest in the Missinaibi stopped in 1972 due to low catches - the current harvest from angling or subsistence hunting, all by First Nations, is estimated to be low.

Natural History: Condition and Changes Since 2004

The Missinaibi's lakes and river are still considered pristine. Table 4 indicates information that is available relative to the CHRS categories. Two sustainable forest licences occur adjacent to the park along its length. The park superintendent comments on forestry operations to mitigate impacts to park values. Climate change will impact biodiversity in the park with milder winters and warmer summers overall, higher frequency of severe precipitation and wind events.

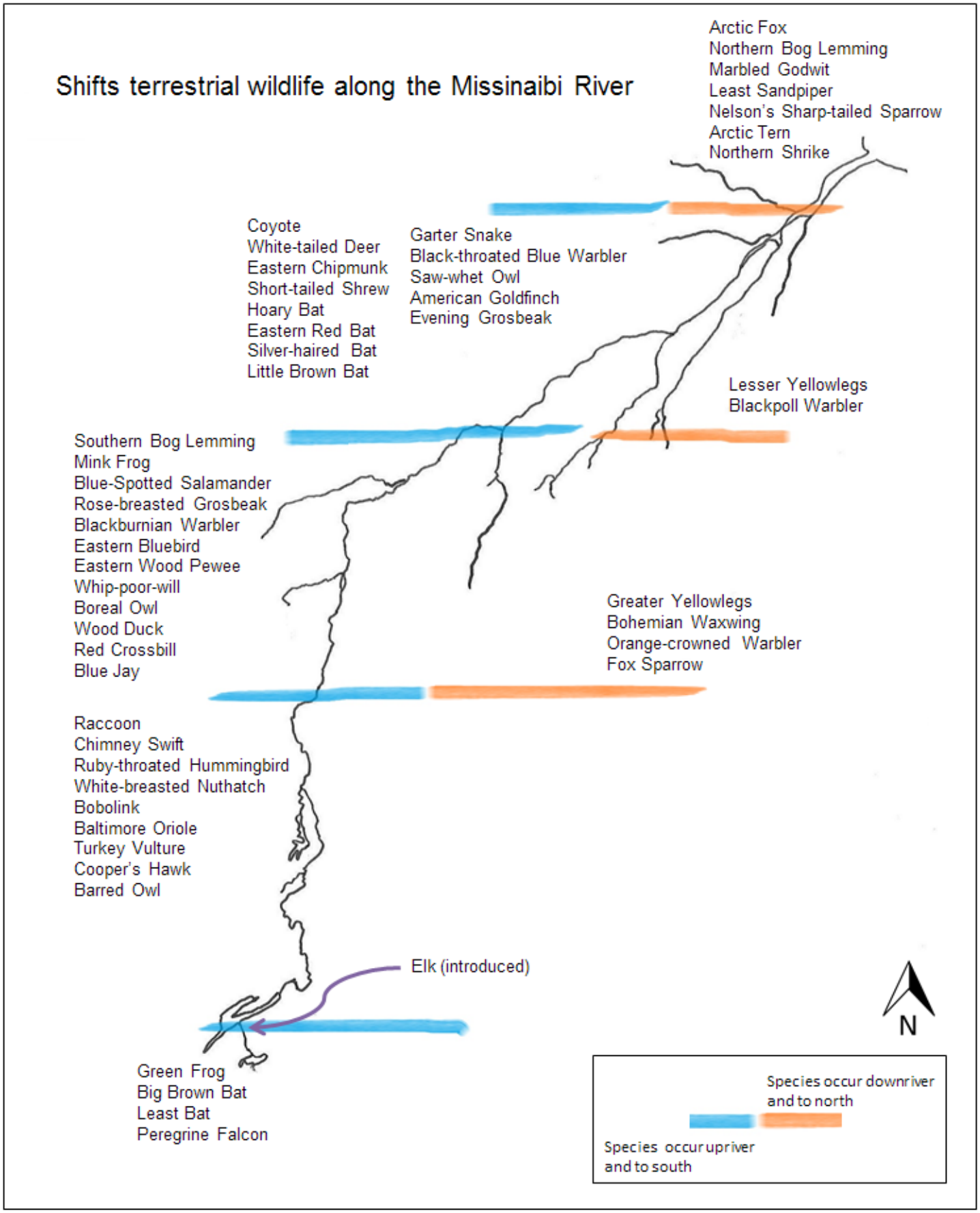


Figure 3: Select Species' Regional Range Limits along the Missinaibi River. Sources: Ontario Nature 2013, Naughton 2012, and Cadman *et al.* 2007.

Table 4: Natural Heritage Values of Missinaibi Provincial Park Since Designation

Please also refer to Maps 3 and 4, below.

CHRS Natural Framework (2001) Themes and Sub-Themes	Natural Heritage Elements Description	Significant Actions, Research or Studies since 2004	Changes or Threats to Value(s)
1. HYDROLOGY			
1.1 Drainage Basins	Missinaibi: stream number two (as per the CHRS Natural Heritage Framework) Area of drainage: 23 watershed units covering 22,530 km^2 - this represents 27% of the Moose River basin (total 109,000 km^2), and 3% of Ontario (total 1,076,395 km^2), respectively. The Moose River Basin is 10% of Ontario. Thus, the Missinaibi is an important contributor to the Hudson Bay watershed. The highest point, just north of the watershed divide is at Missinaibi Lake inside the park.	None	Forestry continues inside the Area of Undertaking (Figure 4). Pressures of mineral exploration and mining alter natural habitats outside and adjacent to protected areas.
1.2 Seasonal Variation	The Missinaibi River is completely free-flowing. Water levels vary seasonally and annually – in late summer, water levels are naturally at their lowest levels in the coastal lowland. Peak flows occur as a result of springtime melt: months of high flows peaking in May and low flows as of August. If there is a secondary peak, it is comparatively low and peaks in October (Figure 1).	Environment Canada has three water-level gauge stations along the Missinaibi/Moose rivers. Mattice and downstream of the Waboose River are relevant to Missinaibi (Figure 1).	None
1.3 Water Content	The river has minor sediment loads (depending on the season, one reading from August 1986 was 120 mg/L and had an associated dissolved oxygen level of 8mg/L). The river has medium to high total dissolved solids between 500 to 2,500 ppm. On average, alkalinity is at relatively high levels 54-96 mg/L of CaCO3. pH range of 7.1-7.7. Conductivity is low at 126-179 µS/cm (Benke and Cushing, eds. 2005) Seasonal fluctuations included lower values of alkalinity, dissolved inorganic carbon, and nitrogen in spring (as shown in water values from Missinaibi Lake in Table 2), but higher values of suspended solids, particulate organic carbon, and nitrogen in spring (Farwell 1999, in Benke and Cushing, eds. 2005).	Some water qualities testing occurred simultaneously to a broad scale fisheries monitoring assessment at Missinaibi Lake in May, 2011 (results presented in Table 2). Another such sampling will occur again in 2015.	Mattice discharges fully treated domestic water & has a sewage lagoon. This is the only source of contaminants in into the park. Peterbell and Moose River Crossing railway are a potential source from accidents - spills. Forestry operations are a limited risk.

1.4 River Size	The Missinaibi River's flow volume average is 101m^3/s at Mattice (approximately mid-way downriver). The minimum is 3m^3/s and maximum 824m^3/s over 1920 to 2012. These values put it into the small to medium size category for Canadian Heritage Rivers. The River, from the source at Missinaibi Lake through to Moose River Crossing exceeds 500 kilometres of free-flowing natural river.	None	None
2. PHYSIOGRAPHY			
2.1 Physiographic Regions	The Missinaibi is part of both the Canadian Shield ecoregion and the Hudson Bay Lowlands ecoregion (Map 2).	None	Ecoregion may be affected by climate change.
2.2 Geological Processes (examples Photo 3)	The falls and rapids at Thunder House - Conjuring House area reveal one of the thickest continuous exposures of stratigraphic sections of Early Precambrian gneisses and migmatites (metamorphosis). Thunder House Falls to Coal Creek is the most geologically and aesthetically significant portion of the river, dramatically marking the dividing line between the Clay Belt/Shield environment and James Bay Lowlands.	None	None
	Vulcanism in the form of dykes in metamorphic rock is found all around Missinaibi and Little Missinaibi lakes, representative of the region.	None	None
	Metamorphosis can be observed at the early Precambrian metasedimentary rock found at Beaver Rapids, and are reference to the Precambrian geology of the Great Clay Belt.	None	None
	Glassy Falls to Crow Rapids highlight folding, vulcanism and metamorphosis along the river.	None	None
	Two kilometres downstream from Bell's Bay is a Precambrian/ Cretaceous unconformity, a rare fault occurrence in Ontario. Areas along the shoreline of Missinaibi Lake also demonstrate notable examples of faulting.	None	None
	Glacial melting: Laurentide ice sheet covered Moose River Basin about 10,000 years ago. As the ice receded, Lake Barlow-Ojibway in the upper river accumulated lacustrine deposits. Cochrane ice re-advance covered the area 8,000 years ago, as it receded the Tyrrell Sea inundated James Bay Lowlands and lower Missinaibi and drained after 6,000 years ago when reduced melt and isostatic rebound	None	None

	raised the lowland above sea level (Figure 2). A unique half-pothole showcases pictographs on Little Missinaibi Lake. Other potholes exist near the northeast end of the Missinaibi Lake.		
	Sedimentation and glacial transport: White, naturally eroding cliffs in Amery Township are considered the most complete Quaternary stratigraphic record in the Moose River Basin. Missinaibi Formation, 350,000 years old, records biological fossils, wood, leaves and soil; till layers underlying Missinaibi Formation are the oldest glacial deposits in Ontario. Marine fossils from the Tyrrell Sea occur in the pre-Missinaibi formation till in Habel Township, near the confluence of the Missinaibi with the Mattagami River.	Matthew Vavrek, Head Palaeontologist and Curator at the Philip J. Currie Dinosaur Museum, undertook paleoecological field research on Cretaceous fossils along the river in 2006.	None
	Glacial transport: eskers and esker complexes along Little Missinaibi and Missinaibi lakes. Little Missinaibi Lake esker complex, Bourassa camp esker, postglacial Lake Barlow-Ojibway. Thunder House Falls area of the park has extensive Cochrane re-advance clay-till.	None	None
	Inundation: Peterbell Marsh levees are the most extensive in Ontario's north; sandy silt and clay are a valuable relict of the drainage of proglacial lake Barlow-Ojibway. The McBrien Township Mesozoic fireclay deposits are provincially significant.	None	None
2.3 Hydrogeology	Missinaibi's bedrock hydrogeology is notable where the water leaves the metamorphic, meta-sedimentary and igneous rocks and clays of the Canadian Shield (low porosity) and falls into flatter, more pervious fractured shale, clay and till Hudson Bay lowland (medium porosity).	None	None
2.4 Topography	Canadian Shield and Clay Belt are relatively flat, but the Missinaibi still has whitewater as it falls 360m asl in it's 500 kilometre length a <1m/km; from Thunder House Falls (190m) to Bells Bay (100m), the Missinaibi falls at about 7m/km, before the water hits very low relief for the rest of the way to sea level at James Bay.	None	None
3. RIVER MORPHOLOGY			
3.2 Channel Types	Channels are in bedrock and bouldered deposits along its course until Thunder House Falls, a complex of falls, two gorges. Below this the river in James Bay Lowlands, has an	None	None

	arching to sinuous channel in glacial and marine deposits.		
3.3 Channel Profile	The Missinaibi channel profiles are a canoe tripper's adventure showcasing: flatwater, swift water, pool, riffle, cataract, prolonged rapids, cascades and waterfalls.	Wilson, 2004	None
3.4 Fluvial Landforms	Levees formed by the former glacial Lake Barlow-Ojibway surround provincially significant Peterbell wetlands (Photo 10). The lower Missinaibi River and the upper Moose River occur in surficial geology sediments where saturated clay/sand deposits can be undercut and slide into the river. Accretion sediments occur at various locations along the shoreline of Missinaibi and Little Missinaibi lakes, and in the Moose River. Missinaibi Lake in the Fairy Point area are almost 100m deep.	None	None
4. BIOTIC ENVIRONMENTS			
4.1 Aquatic Ecosystems	Open water vegetation in Missinaibi and Little Missinaibi lakes includes Water-lily, bur-rush and pondweeds. Notable species include Robbin's Pondweed, Spiral Pondweed, Swaying Rush, Narrow-leaved Pondweed, and Leafy Pondweed, most of which are rare in the Clay Belt. Snake Arm Bay on Missinaibi Lake is a significant site for some rare aquatic plants. Open water along the river are dominated by quillworts, Water Crowfoot, and water-lilies. Wetlands: upper Missinaibi's wetlands support high biodiversity - breeding waterfowl & Moose. Peterbell String Bog (one of the most southerly in Ontario) and Marsh – biodiversity / wetland habitats straddle two ecodistricts. Emergent/marsh lakeshores - horsetail, sedge, Bullrush, Spikerush, Bluejoint, Mud-rush, Large St. John's Wort, and Creeping St. John's Wort. Marsh along the river includes 122 species. Some of the most common species include sedges, grasses, loosestrifes, Water Horsetail, Cattail, Cinquefoil, Skullcap, Bullrush, Marsh Bellflower, Spikerush, Arrowhead & Buckbean. Sedge & grass-dominated fens occur adjacent to the river. Hay River mouth - marsh, fen, swamp wetlands.	2013: Tim Arciszewski, University of New Brunswick, studied Missinaibi white sucker recovery after Smooth Rock Falls pulp mill closure. 2012: Missinaibi was part of broad-scale monitoring for the Ecological Framework for Fisheries in Ontario. 2010: Dr. A. Litvinov research review of fish Habitat and Biodiversity of Missinaibi Lake in research toward Environmental Stewardship Strategy by the Mushkegowuk Environmental Research Centre for the Northeast Superior Regional	

	 Photo 7: Hay River Wetlands. Source: Ontario Parks Lake systems: we are not aware of any eutrophication in the source lakes; they are predominantly mesotrophic with some oligotrophy. There are documented eutrophic areas in the wetlands of the Hay River area.	Chiefs Forum. 2009: Cooperative Freshwater Ecology Unit sampled Burbot in the winter to study its ecology. As well, all large bodied fishes were sampled in Missinaibi Lake for mercury, to compare values to 1970s records. Mercury analysis revealed that levels in large-bodied fish are not declining along with declines in atmospheric mercury.	
4.2 Terrestrial Ecosystems	Boreal/Ontario Shield ecozone > Lake Abitibi ecoregion (3E) > Foleyet (3E-5), Hornepayne (3E-2) and Clay Belt (3E-1) ecodistricts. Hudson Bay Lowlands ecozone > James Bay ecoregion (2E) > Moose River ecodistrict (2) – descriptions in Crins et al (2009) (Maps 2 & 4). In addition to the plant communities highlighted in 5.1 (Significant Plant Communities), thickets, sand-gravel communities, open silted shore communities, slip-slope communities, Balsam Poplar communities, Trembling Aspen communities, mixed-forest communities, Spruce-Fir communities, Black Spruce forest, conifer swamps, open bogs, heath meadows and disturbed habitats are common along the river. White Birch, Jack Pine forest, rock outcrops, and small shallow lake communities (often formed by Beaver) are regularly scattered along the river. The Hay River area showcases the only Jack Pine mixed forest on glaciofluvial outwash in the Hornepayne ecodistrict, so it is provincially significant. Another Jack Pine forest on coarse till is regionally significant. It also has the best example of Cedar-lowland-mixed forest on fine lacustrine plains in the Foleyet ecodistrict, which is provincially significant. Within the park between Canadian National	2014: researchers visited Missinaibi Provincial Park as part of their Emerald Ash Borer Detection Survey. 2013: Dr. R. Rempel Centre for Northern Forest Ecosystem Research placed songmeters in the park as part of a provincial study on songbird community response to forestry. 2005: Two forest monitoring plots in the park (Canadian Forestry Service and the Canadian Council of Forest Ministers). It is one of 200 National Forest Inventory (NFI) sites in Ontario and several-thousand nationally. It was re-measured in 2014. 2012: second plot is	Forestry continues adjacent to the park (Figure 4). This may reduce habitat for larger animals or certain plants that currently live in and around the park, or may bring in people or non-native species. Mineral exploration and mining are also threats to natural habitats outside and adjacent to protected areas.

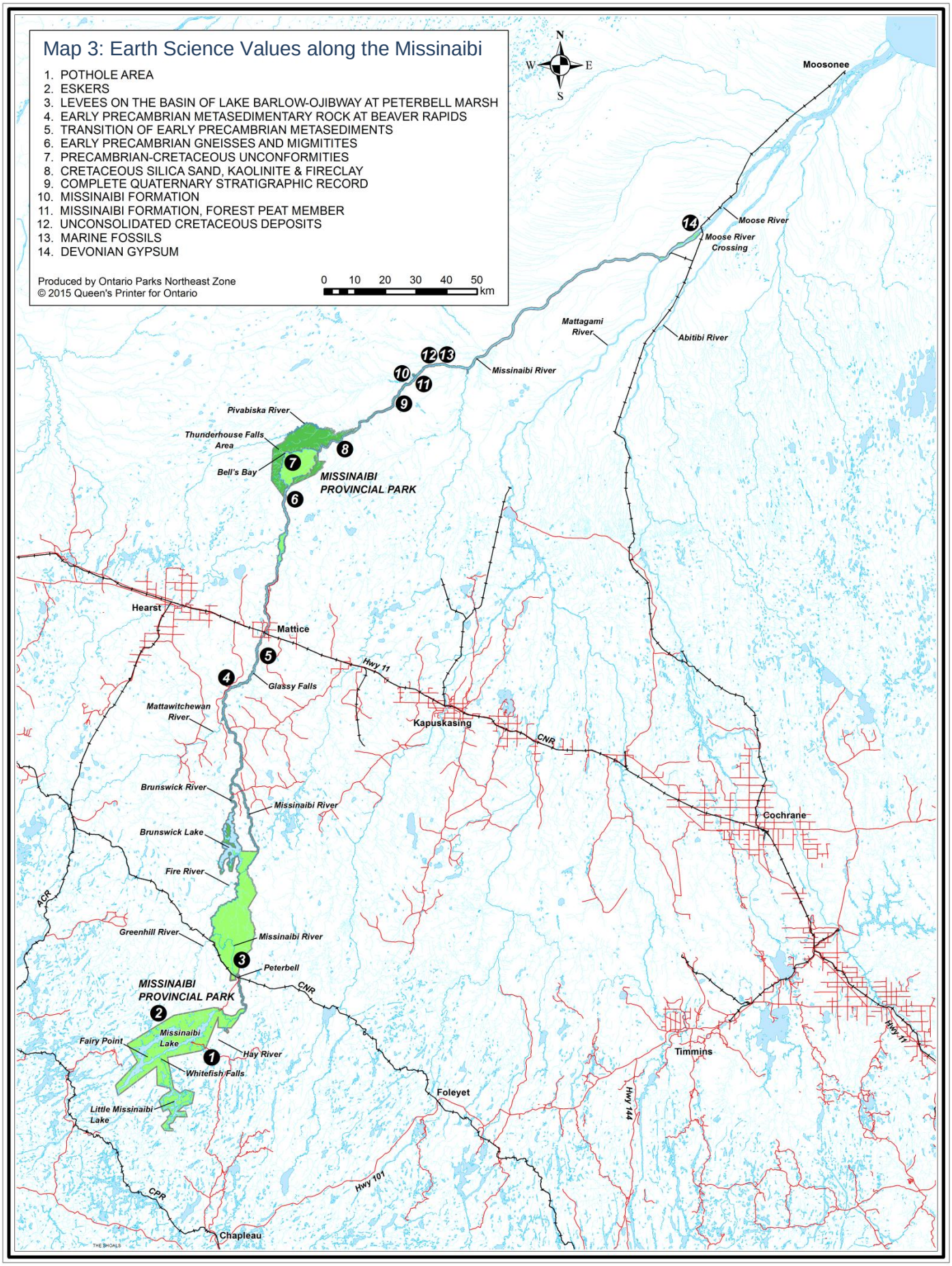
	Railway and Brunswick Lake there are six landform-vegetation types not represented elsewhere in Hornepayne ecodistrict; best-known examples of 16 landform-vegetation types within protected areas in the ecodistrict, & three landform-vegetation types rare in Clay Belt ecodistrict. Thunder House Falls area: numerous regionally rare plant species and the best examples of four landform-vegetation types within the protected area system in the Clay Belt, which are provincially significant. The north area of the park is unique because trees line the river well into the Hudson's Bay Lowlands. Common trees are Black Spruce and White Cedar. Beyond the river lies a great expanse of muskeg flats and string bogs, with poor drainage.	run by the Government of Ontario, one of over one thousand Provincial Forest Resources Inventory Ground Plots.	
5. VEGETATION			
5.1 Significant Plant Communities	Four ecodistricts, diverse river corridor. Aquatic/Riparian: Hay River, Peterbell Marsh & Stringbog provincially significant (Photo 10) Herbaceous Terrestrial: Lowland meadows & grassy shores on Missinaibi Lake are regionally significant with rare floristic complexes at South Bay on Missinaibi Lake. Woody Terrestrial: Elm-Ash communities in Gentles Township most northerly & northernmost White Elm at this longitude. Notable stands of old-growth White Spruce occur along the lower reaches of the river with fir and spruce stands at Big Beaver Rapids. Cultivated plants still persist at Missinaibi Lake HBC post site: *Knautia arvensis*, and *Galium vernum*, and *Lipstid loeselii*. For the latter, this record is a range extension of several hundred kilometres. Other notable plant communities include: Hay River area has the best examples of Cedar communities along the Missinaibi. The size of the marshes at the mouth of the Hay River is rare in the Clay belt, and the whole wetland area is remarkably diverse for its size. Many of the forests here meet old-growth criteria. Reva Island and the headland at Fairy Point are the finest Red and White Pine old growth, 350 years old (Photo 4). A small population of Slender Sedge was found here and is rare in the clay belt west of New Liskeard.	None	Ecoregion characteristics may change with a warming climate. No recent inventories – we do not know whether there have been any changes to these plant communities.

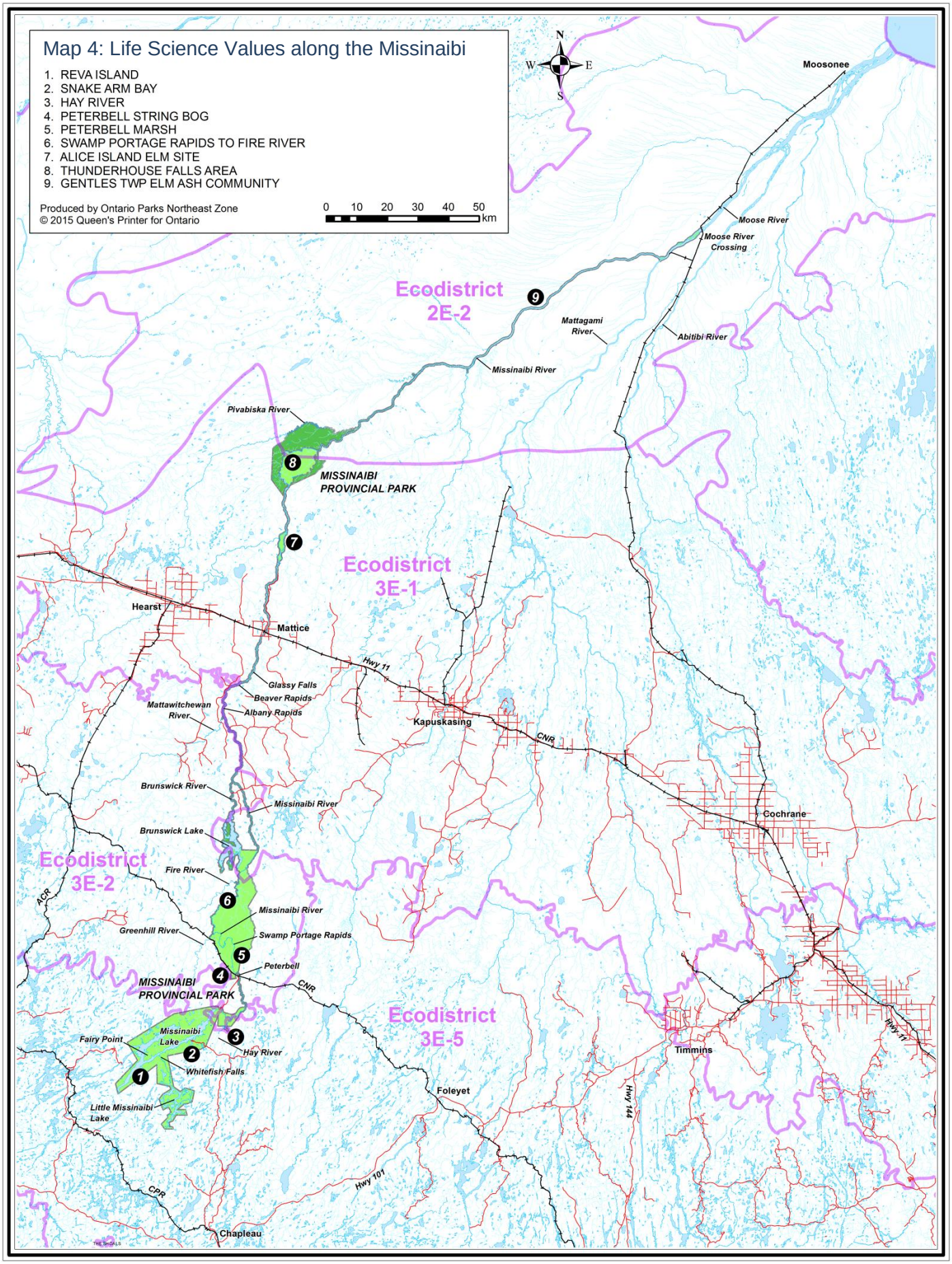
	More old-growth from Swamp Portage Rapids to Fire River, and downriver of Albany Rapids (Photo 8) in Orkney Township. Black Ash and Cedar-dominated levee communities along the river are adjacent to marsh and fen communities near Hay River wetlands and Peterbell Marsh. The most common understory plants in these communities are Redtop, asters, sedges, ferns, black currant, Water Horehound, and Mint. In the Cedar-dominated levee communities, Wood Horsetail is especially abundant. Cliffs, Fairy Point, Missinaibi Lake support rare & relict vascular plants: Fragrant Fern, Spreading-pod Rock Cress, Hornemann's Willow Herb, & Fragile Rockbrake. Snake Arm Bay, Missinaibi Lake, rare boreal aquatics: Swaying Bulrush & Fern-leaved.	 Photo 8: Albany Rapids. Source: Ontario Parks.	
5.2 Rare Plant Species	Eastern White Pine is regionally significant north of the Peterbell wetlands. White & Red Pine are rare in Lake Abitibi ecoregion. Jack Pine is regionally rare at Thunder House Falls. Rare vascular plants: Limestone Oak Fern, Panic Grass, & Field Sedge. Several provincially, regionally and locally significant plants around Missinaibi & Little Missinaibi lakes (Brunton 1982) include: Slender Rush, Brown-fruited Rush, Fragrant Fern, Spreading-pod Rock-cress, Hornemann's Willowherb, Fragile Rockbrake, Scentbottle, Auricled Twayblade, Large-leaved Goldenrod, Swaying Rush, Robbin's Pondweed, and Bog Twayblade. Yellow Birch was found north of its range in the park, the only site recorded in the Clay Belt.	None	No recent inventories – we do not know whether there have been any changes to plant populations.
6. FAUNA			
6.1 Significant Animal Populations	Chapleau Crown Game Preserve - highest density of Black Bear in the province. Travelling south to north, the Missinaibi traverses two ecozones, two ecoregions & four ecodistricts. The river provides a connective travelway for terrestrial & aquatic animal populations. Thus, biodiversity is very high in the park at all levels. Elk, which were extirpated from the province with settlement, were re-introduced when they were released along the railway near Peterbell	Surveys for Black Bear, Snowshoe Hare, & Moose are performed by MNRF. 2011: Winter aerial MNRF survey for Elk (Photo 5).	Forestry adjacent to the park (Figure 4). Roads or other development may bring in more people and non-native species.

	in 1933. A small population still persists in Missinaibi Lake area as of 2011. Further to the clean and free-flowing water resource and travel route available from the Missinaibi River, Missinaibi and Little Missinaibi lakes make up a significant proportion of the Chapleau Crown Game Preserve, the largest game preserve in the world, a furbearer refuge; no public hunting/trapping since 1925.		
6.2 Rare Animal Species	Sturgeon is a species of special concern in James Bay area of Ontario; threatened in the rest of Ontario; considered threatened or endangered in Canada. Commercial fishing was stopped in 1972. Woodland Caribou have been extirpated from the upper parts of the river. Woodland Caribou persist in the landscape around Missinaibi Provincial Park in the Far North of Ontario. There is no evidence, yet, that Woodland Caribou use the park's resources, despite habitat suitability analysis indicating good habitat in the Thunder House Falls area.	Ongoing: Sturgeon landscape scale study in Moose River Basin. The population is stable. Ongoing: MNRF with academic & non-profit partners studying Caribou populations & movement with satellite transmitter collared individuals. 2010: Aerial population surveys.	Same comment as for 6.1

Photo 9: Two Portage Rapids. Source: Ontario Parks.

Photo 10: Peterbell Marsh and Swamp: extending back from the open river channel; note the string bog, included in the park in the bottom / middle of photo b. The Canadian National Railway crosses the photo diagonally with logging operations and roads south and west adjacent to the park. a) Source: Ontario Parks; b) Source: Google Maps.


Map 3: Earth Science Values along the Missinaibi
1. POTHOLE AREA
2. ESKERS
3. LEVEES ON THE BASIN OF LAKE BARLOW-OJIBWAY AT PETERBELL MARSH
4. EARLY PRECAMBRIAN METASEDIMENTARY ROCK AT BEAVER RAPIDS
5. TRANSITION OF EARLY PRECAMBRIAN METASEDIMENTS
6. EARLY PRECAMBRIAN GNEISSES AND MIGMITITES
7. PRECAMBRIAN-CRETACEOUS UNCONFORMITIES
8. CRETACEOUS SILICA SAND, KAOLINITE & FIRECLAY
9. COMPLETE QUATERNARY STRATIGRAPHIC RECORD
10. MISSINAIBI FORMATION
11. MISSINAIBI FORMATION, FOREST PEAT MEMBER
12. UNCONSOLIDATED CRETACEOUS DEPOSITS
13. MARINE FOSSILS
14. DEVONIAN GYPSUM
Produced by Ontario Parks Northeast Zone
© 2015 Queen's Printer for Ontario
0 10 20 30 40 50 km
N
W
E
S
Moosonee
Moose River
Moose River Crossing
Mattagami River
Abitibi River
Missinaibi River
Pivabiska River
Thunderhouse Falls Area
Bell's Bay
MISSINAIBI PROVINCIAL PARK
Hearst
Mattice
Hwy 11
Glassy Falls
Mattawitchewan River
Kapuskasing
CNR
Brunswick River
Missinaibi River
Brunswick Lake
Fire River
ACR
Greenhill River
Missinaibi River
Peterbell
CNR
MISSINAIBI PROVINCIAL PARK
Missinaibi Lake
Fairy Point
Hay River
Whitefish Falls
Little Missinaibi Lake
Foleyet
Hwy 101
CPR
Chapleau
Cochrane
Timmins
Hwy 11
Hwy 144
THE SHOALS


Map 4: Life Science Values along the Missinaibi
1. REVA ISLAND
2. SNAKE ARM BAY
3. HAY RIVER
4. PETERBELL STRING BOG
5. PETERBELL MARSH
6. SWAMP PORTAGE RAPIDS TO FIRE RIVER
7. ALICE ISLAND ELM SITE
8. THUNDERHOUSE FALLS AREA
9. GENTLES TWP ELM ASH COMMUNITY
Produced by Ontario Parks Northeast Zone
© 2015 Queen's Printer for Ontario
0 10 20 30 40 50 km
N
W
E
S
Moosonee
Moose River
Moose River Crossing
Ecodistrict 2E-2
Mattagami River
Abitibi River
Missinaibi River
Pivabiska River
MISSINAIBI PROVINCIAL PARK
Ecodistrict 3E-1
Hearst
Mattice
Hwy 11
Glassy Falls
Beaver Rapids
Albany Rapids
Mattawitchewan River
Kapuskasing
CNR
Brunswick River
Missinaibi River
Brunswick Lake
Cochrane
Ecodistrict 3E-2
Fire River
ACR
Missinaibi River
Greenhill River
Swamp Portage Rapids
Peterbell
MISSINAIBI PROVINCIAL PARK
CNR
Ecodistrict 3E-5
Missinaibi Lake
Fairy Point
Hay River
Whitefish Falls
Timmins
Hwy 11
Foleyet
Hwy 144
Little Missinaibi Lake
Hwy 101
CPR
Chapleau

Cultural Heritage Values

The Missinaibi's wealth in cultural heritage is documented in Tables 5 and 6 and Map 5.

People and Uses in Prehistory

The Missinaibi is a pre-contact First Nation travelway. The river is the main segment, in a waterway network that links communities in the Great Lakes drainage to populations in the Arctic watershed. The Missinaibi is within the largest north-flowing protected area with a cultural corridor in central Canada. Longstanding cultural use is evident from its many portages and campsites and some place names that are witness to a long tradition of use. The word Missinaibi means 'Pictured Waters'. Sacred places include a concentration of rock art pictograph sites on headwater lakes and dramatic geological settings have been given powerful names… Thunder House Falls and Conjuring Rock. Travel on the river likely goes back to when it emerged on the Canadian Shield at the end of the Wisconsin glacial period.

Given the glacial history of the area, the Missinaibi valley may not have opened up to human settlement much before 5,000 to 7,000 years ago (Arthurs 1983, Pollock 2010). There is very little evidence of people from the Archaic period: an end scraper from a site near Missinaibi Lake and a Brunswick Lake site has evidence from 3,000 years ago. The oldest Archaic find on the Missinaibi is near the mouth of the Hay River, dating back to 5,000 years ago.

There are only a few artifacts from the Laurel culture of the Initial Woodland Period 2,500 to 1,400 years ago from Missinaibi Lake and near the Pivabiska River. The Missinaibi was probably at the northern periphery of the Laurel Culture area.

The most extensive prehistoric use of the Missinaibi River appears to have been during the Terminal Woodland 1,400 to 350 years taking us to after 1,650 AD. The Blackduck and Moose River traditions are considered to be ancestral to historic Ojibwa and Cree, respectively (Pollock 1975). Blackduck ceramics from 1,300 to 1,400 years ago are found along the entire Missinaibi River. Late Blackduck pottery that is present with non-local pottery from Iroquois and Michigan cultures in the Missinaibi Lake area indicates the importance of long distance trade. The Moose River tradition is only found in the northern part of the river and includes Selkirk and Valentine phase ceramics.

A spectacular legacy of first rock art dates from prehistoric cultures that used dramatic shoreline outcrops at Fairy Point and Whitefish Falls, on Missinaibi Lake and another site in a glacial-sculpted rock on Little Missinaibi Lake (Cover Photo 1, Map 5). This group of rock art sites, and including one in Chapleau-Nemegosenda Rivers Provincial Park to the east, is representative of a major ancient rock art concentration in northeastern Ontario that can still connect today's cultures to the powerful natural world.

It is notable that such a large and long river is not impounded or regulated; this adds to its significance and special character. When on the Missinaibi, visitors can find many places that appear like they were in pre-contact time.

European Exploration and The Fur Trade

With the arrival of Europeans, the Missinaibi was refocused for two centuries as an exploration and fur trade route in the economic development of what would become Canada.

The first written account to Missinaibi Lake is in French records from 1666. However, Pierre D'Esprit Radisson and Médard Chouart de Groseilliers may have been there earlier. Radisson and Groseilliers claimed to have explored the Missinaibi up to James Bay during their Lake Superior expedition in 1659. Whether they were there then or not that year, it appears that the Michipicoten Ojibwa on Lake Superior at least told them about a north country with abundant and quality furs. When the leaders of Nouveau France rejected Radisson and Groseilliers bids to work in the interior and confiscated their bounty of furs, they persisted and turned to the English. With the help of these veteran explorers, the English established the Hudson Bay Company (HBC). England gave HBC the trading rights over all the land draining into Hudson Bay as of 1670. For the next century, First Nations' traders travelled down the Missinaibi and/or the Moose Rivers to trade with the HBC. The HBC claim to the lands in this watershed was again confirmed in the Treaty of Utrecht in 1713, though the French had originally disputed the claim during several battles and skirmishes. When fur-bearing animal populations declined in the Great Lakes basin starting in the 1770s, the traders out of Montréal expanded out of the Lake Superior region, over the height-of-land and into the Missinaibi. To counter this incursion, and stem the loss of furs, the HBC decided to move inland and built posts in the interior.

In this way, the Missinaibi River became one of the first waterways in the HBC expansion and influence over the interior of North America. In the fall of 1776, a small HBC party led by Thomas Atkinson was sent up the Missinaibi River to build a way-station to an intended post on Lake Superior. He ended up near the Pivabiska River (Map 5). However, the way-station, complete with stockade fortification initially known as Wapiscogamy House and later renamed Brunswick House did so much trade from 1777-1780 that it became a full post from 1781 to 1783. In addition to trading, Wapiscogamy House obtained raw materials and articles for Moose Fort, which were not easily obtained at James Bay (e.g., birch bark, canoes, and snowshoe frames).

In 1777 John Thomas attempted to establish a post at Michipicoten on Lake Superior, but he found Montréal traders already well-established and retreated back above the height-of-land to Missinaibi Lake. Missinaibi Lake was too far from Wapiscogamy House for provisioning. It lasted only three years before it was burned and abandoned in 1780.

As above, the Missinaibi illustrates the first competition and conflicts between HBC and the North West Company (NWC), which was formed in 1783. The NWC coalition of Montréal and Scottish traders controlled about three-quarters of the Canadian fur trade by the 1790s. The conflict came to a head on the Missinaibi, where the Montréal traders' tactics caused the HBC traders much difficulty. The NWC held posts briefly on Missinaibi Lake (1800-1803), Brunswick Lake (1796-1806), Wapiscogamy Creek (ca. 1801-1806) near the confluence of the Coal and Missinaibi Rivers (ca. 1800), and near Moose Fort. The first and the last of these posts have not been located. It is because of the detailed records that were mandated for the HBC posts that we know the HBC history so well, compared to little information about the Canadiens, Peddlars, and the subsequent NWC.

In 1788, there was a second attempt by HBC at another post further south from Wapiscogamy. A site was chosen at the location of a major aboriginal fishing habitation on the west side of Brunswick Lake (named Micabanish Lake at that time). Aboriginal traders felt this would be an ideal post site as trade had been unofficially active here since 1780. John Thomas, now the Factor at Moose Fort, supported the venture and called the post *New* Brunswick House. It became the largest, most important inland post on the Missinaibi and would control the trade in furs for almost 100 years until 1879. Meanwhile, though Wapiscogamy House officially closed in 1791, a way-station continued there for New Brunswick House from 1800 to 1806. In 1796 a NWC post was established at Brunswick Lake close to the HBC post. However, the NWC abandoned it when the "Canadians" withdrew into the Lake Superior Basin in 1806 but they returned in 1812, and remained there until the amalgamation of the two fur-trading. The Missinaibi Lake site supported the New Brunswick House HBC post on the Missinaibi River.

Over the1600s to the 1800s Aboriginal people continued to follow many seasonal traditions and patterns. As fur-bearing animals became depleted in the landscape, families of Cree from the north and Ojibwa in the south gravitated to posts. Here they met and peacefully coexisted with previously separate groups. They intermarried. During this time, as aboriginal people became aligned with the English and French, they learned their trade partners' languages and became dependent on European trade goods like pottery, glass, and rifles. Traditional views of land and property began to shift. Trading posts often became the place to go for help during difficult times such as when there was sickness. First Nations peoples also began to practise the foreigner's Christian religion. By mid-to-late 1800s Anglican priests travelled the landscape visiting various posts. At Missinaibi Lake around 1896, Anglican Reverend John Saunders (Photo 12) built a small log mission church at the HBC post. It was used for both services and education. Though he was not the first religious figure to visit the post, Reverend Saunders was the first native man of the area to become an ordained minister. He travelled by canoe, dog-sled, snowshoe and rail. His responsibilities at Missinaibi Lake were as the preacher and school teacher, teaching English to his aboriginal charge. Later, another Anglican minister out of Missanabie, Alexander Paul, also an Ojibwa, visited the New Brunswick First Nation several times before 1925.

Photo 12: Reverend John Saunders (Sanders). Source: Chapleau Public Library; Photographer Vince Crighton.

Throughout the fur trade era, many aboriginal people, “the homeguard” were employed by HBC to remain around the post. They hunted, fished, and did gardening and cutting hay for domestic livestock kept at the posts, as well as were boat and snowshoe-making labourers. On top of the fish caught and preserved, and the potatoes, oats, barley, wheat, turnips, cabbage, corn, parsnips and onions grown, New Brunswick House ledgers show that from 200 to 400 Snowshoe Hare were snared each winter. Cattle, sheep, and pigs were kept as work and food animals. Aboriginal skills such as fishing, trapping, cooking, sewing, and food preservation became indispensable to the post operations. European men married Aboriginal women. Each spring, large wooden “batteaux” would come up from Moose Factory with provisions and returned back to Moose Factory with winter fur bundles collected by some 20 aboriginal families with whom the HBC traded in the area. About half the furs were Beaver, but Marten, Otter, and Muskrat were also common.

In 1821, with the fur supply dwindling, the NWC and HBC merged. For the next 30 years, furs were channeled through Moose Factory. In the 1850s and 1860s, however, when the Sault Canal was built and steamer traffic entered the Great Lakes, trade again shifted east towards Montréal. But the principal factor in changing the way of life that had been evolving over the past couple of centuries was the coming of the railways.

Though there were many advantages for the First Nations to work and trade with the European traders, there were also disadvantages. Sickness such as smallpox and influenza killed many in 1888-1891 and in 1918-1919. A grave marked for Joseph Marten, who died in 1925 occurs along the Missinaibi River (Photo 13). The boy probably died during an epidemic in the area around that time.

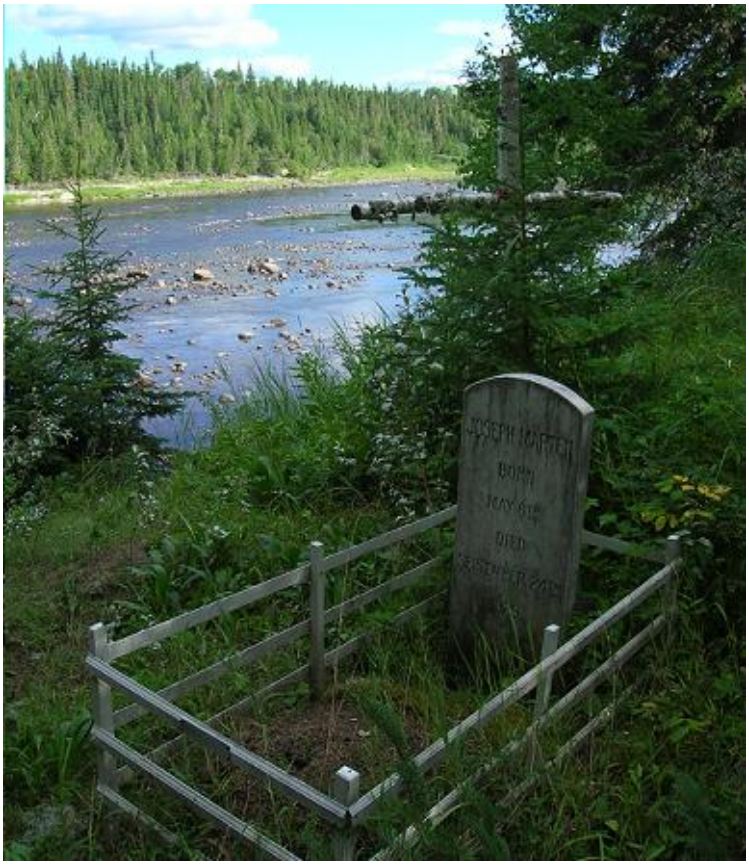


Photo 13: Joseph Marten grave stone - a young boy who was buried along the lower Missinaibi River near the confluence with the Pivabiska River. Source: Ontario Parks.

In 1879, New Brunswick Post closed and was moved to Missinaibi Lake to the same site as the first Missinaibi Lake post. The name of New Brunswick Post was retained at the Missinaibi Lake site. Over the next half-century, between 100 and 200 families came to live there or just across the water. In 1905, the James Bay Treaty was negotiated with Cree and Ojibwa peoples, "to open [the land] for settlement, immigration, trade, travel, mining, lumbering, and…other purposes". The boundary of this treaty extended to the height-of-land just south of Missinaibi Lake. Reserves were not to exceed one square mile for each family of five and each aboriginal person was made a gift of eight dollars, with four dollars paid each year thereafter on Treaty Day. Teachers and schools were to be provided. In 1906, this treaty was signed at Missinaibi Lake by George Moosonee, Grace McTavish, Claude D. Evens, Edmund Morris, Duncan Scott, Samuel Stewart, Daniel MacMartin, Alex Peekelay, Pootoosh, Peter Mitiganabic, Tom Meshwabun, and Jacob Windabaic. A 70-square kilometre reserve was established at Missinaibi Lake and its people were called the "Brunswick House Band".

The Canadian Pacific Railway had been completed in 1885 and Missanabie Post (note the different spelling) on the railroad was just west of the park on Dog Lake. Business for the train really picked up during the Gold Rush at Wawa in 1897. The Canadian National Railway (CNR through Mattice) and Canadian Northern Railway were completed in 1914, and 1912, respectively. (Canadian Northern through Peterbell would eventually be taken over by Canadian National in 1923.) The Algoma Central Railway (ACR), with its north-south alignment was completed in 1915. The Missinaibi Lake area was rimmed by railways on three sides. Between 1907 and 1911, the Missinaibi Lake HBC site became an outpost for Missanabie Post, and at this point many aboriginal families began to leave Missinaibi Lake. The post was moved outright to the newly formed town of Peterbell, on the Canadian National Railway siding in 1917. Old tote-roads that had been used during the construction of the railways were now being used as part of new canoe and fur-trade routes, leading to the HBC completely switching its supply line from Moose Fort to Missanabie on the railway. Railways were pervasive: a miniature railway with a hand car had even been installed at the height-of-land portage by 1912. Railways also brought in service for mail and the telephone. Mail and messages were passed along by rail and the river and snowshoe trails were less and less important.

As the fur trade waned, the country around the Missinaibi was opened up for logging – channel modifications are still evident in some locations today where rock cribs and channel forms of river rocks were set up to drive logs through constrictions along the river.

Since the takeover by the HBC of the NWC in 1821 trapping diminished substantially. Nevertheless, trapping remains locally important. In 1976, the average annual harvest of pelts of the more than 20 traplines along the river was 1,866; today the annual average is over half that number. For all of Ontario the average yearly number of pelts taken is less than one third of what it was in the 1970s.

In July 2014, Fred Neegan, a local Mattice elder of 84 years, was honoured when a plaque installed in Mattice dedicating the Missinaibi landing in the town to him (Photo 7). Fred is a local man with both Cree and Ojibwa heritage. He even attended residential school in Chapleau from the age of five, where he said it was "worse than prison." But he emerged from that experience to trap, hunt, fish, and guide many canoeists, ensuring their safe passage. He shares his knowledge freely with anyone fortunate enough to encounter and speak with him on their way

through Mattice. On the plaque, he is lauded as a true gentleman and a “guardian of the Missinaibi”. With his history and persona Fred Neegan is both a Missinaibi River and Canadian cultural heritage ambassador, in so many ways.

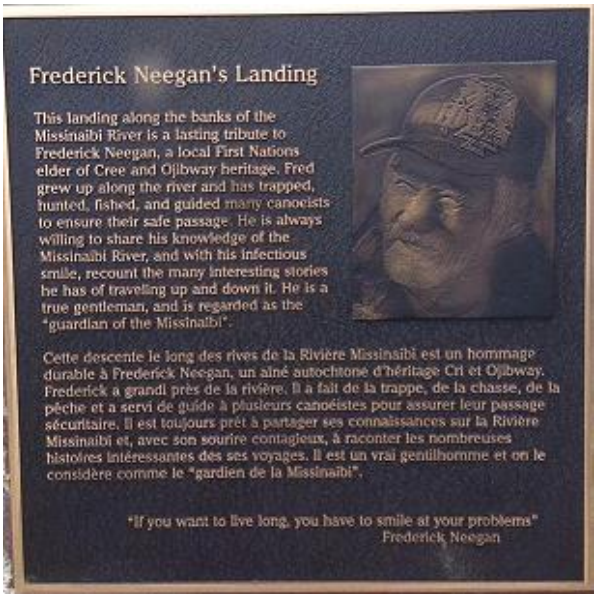


Photo 11: Plaque dedicated to Frederick Neegan in Mattice. Source: Missinaibi Headwaters Outfitters (online) http://missinaibi.com/fredslanding/

Table 5: Archaeology in Missinaibi Provincial Park

Location(s)	Year	Report Author	Report Title	Purpose / Example Artifacts
Thunder House Falls area	2010	Pollock, John	Stage I Archaeological and Cultural Heritage Assessment of the Lower Missinaibi River, Missinaibi Provincial Park	Determines the areas of high archaeological potential. Fieldwork was done in 2006 for Otter Rapids to Moosonee Hydro Line. New information includes mention of an HBC building at the confluence of the Coal River above Thunder House Falls. It was not a trading post, but like a warehouse where down-river batteaux brigades would exchange loads with upriver voyageur brigades: goods for furs.
Missinaibi Lake House, Quittagene Rapids, and Long Rapids	2009	Monk, Kimberly	Outpost Missinaibi Expedition: Archaeological Report for Site Nos. 2009-017, 018, and 019. Details can also be found in in the Outpost (magazine) November/December 2009 Issue	Artifacts were noted and photographed where possible, but left untouched: • Gordon's Dry Gin bottle, 1909-1913 • Iron threaded bolt and barrel hoop, late 19th, early 20th century • Creamware cup, mid- to late 19th century • Composite door, logging era – early 20th century
Missinaibi River Valley	1983	Arthurs, David	Spirits of the Pictured Waters – The archaeology of the Missinaibi River Valley.	Outlines details for 38 archaeological sites of all stages of human history along the Missinaibi River, including hundreds of artifacts (Figure 5). Original document prepared in 1979.
Wapiscogamy House	1980	Arthurs, David	The Historical Identification of Wapiscogamy House *in* C.S. Reid (ed.) Northern Ontario Fur Trade Archaeology: Recent Research	Outlines 1976 fieldwork in the context of research done in the hundreds of hours spent at the HBC archives in Winnipeg: • Foundations of Wapiscogamy House
Little Missinaibi Lake	1978	Conway, Thor	An Archaeological Survey of Little Missinaibi Lake: A Preliminary Report	Prehistoric sites and Pictograph locations, preliminary report – no details of the artifacts that they found.

Location(s)	Year	Report Author	Report Title	Purpose / Example Artifacts
New Brunswick House, Brunswick Lake	1975	Pollock, John	"Missinaibi" Dive Canada (magazine) September/October, 1975 Issue	Pollock went with members of a local dive club to New Brunswick House with help from Spruce Falls Power and Paper. Finds were left with John Pollock to be restored and researched at the MNR office in Cochrane. • peppermint vial, • pottery plate fragments, • grub hoe, • trade axe … (and more)
Missinaibi Lake	1974	Pollock, John	A Preliminary Culture History of Missinaibi Provincial Park	Description of several sites and associated artifacts around Missinaibi Lake, plus an expansion of the earlier cultural history assessment for Moose River Basin. Artifacts & timescales are used as evidence of people living in the area, and of potential "influencers" (e.g. through trade with adjacent aboriginal peoples). Pollock found many pre-historical artifacts, e.g., scrapers, hammers, and pottery sherds from Reva Island and Snake Arm Inlet, as well as some historical artifacts from Missinaibi House (e.g., axe heads, comb). Picture plates in document.
Missinaibi House, Missinaibi Lake	1971	Shechepanek, M.J.	Missinaibi House Site Excavation Report	From three small "test pits", all artifacts found (not detailed in this report), except one, from 1879 to 1913 era of occupation of the Missinaibi Lake House. The one piece of flint was of European origin, but from earlier than 1870. The remains of a York boat were detailed as well as mention of Prehistoric aboriginal artifacts found near Missinaibi House and near Whitefish Falls.

Figure 4: Example artifacts described by Arthurs 1983: a. from the Missinaibi near the Hay River; b. from the Darch collection (a private collection - New Brunswick House); c, d, e, f. pipe, ceramic, bottle, and copper kettle from Brunswick House HBC post on Brunswick Lake.

Chapleau Crown Game Preserve and Brunswick House First Nation

Aboriginal settlement on Missinaibi Lake became aligned to European uses based on travel, trade, and guiding services up and down the Missinaibi River. Settlement grew out of generations of seasonal uses on this large lake in a traditional territory. At the end of the 19th century, habitations still included tents and wigwams (Photo 14).

Photo 14: Aboriginal woman making a fishnet at Missinaibi House, 1906. Source: Murphy Franklin 1985.

Aboriginal labour extended to other work, such as railroad construction and joining crews to build the road from Missinaibi Lake up to Peterbell to meet the new railway in 1914. Aboriginal people had a long history working in various jobs with the HBC.

The arrival of railroads, three in the Missinaibi region, resulted in more competition for furs. Fur-bearing animals became scarce. Beaver, which was also an important food source for aboriginal people, had already become extremely rare since the 1820s. There was a famine in 1899. Missinaibi House closed in 1917. Extensive wildfires in the region in 1923 further stressed animal populations. Influential men of the time, William McLeod a fur buyer in Chapleau, and G.B. Nicholson, the MP for Sudbury, petitioned the government to create a game preserve, to reduce pressures on wildlife. The government agreed, and lands straddling Missinaibi Lake that would become the Chapleau Crown Game Preserve were purchased from the Brunswick House First Nation. The 722,200 hectare Chapleau Crown Game Preserve was created by Order-in-Council issued on May 27, 1925. The few remaining families on Missinaibi Lake were asked to leave.

The Game Preserve's Order-in-Council and associated regulations has not changed in the past 90 years. A court decision in 2006 accommodates Aboriginal hunting once again in the area, as was originally agreed in the Robinson-Superior Treaty (1850) and Treaty 9 (1905).

Land Surveyors Travelled the Missinaibi

Phillip Turnor was an HBC surveyor and cartographer. He meticulously catalogued each day's events during his trip up, then back down the Missinaibi River in 1781[1]. However, most of the surveyors of note to the Missinaibi area came just prior to or with the advent of the railway.

Robert Bell surveyed Missinaibi Lake in 1875, documenting "Missinaibi" as "water shining from afar".

In 1881, Edward Borron surveyed around Missinaibi Lake for the province. J.E. Burchard surveyed for a possible railway and visited the lake in 1890, staying at the HBC post. Another surveyor for the Algoma Central Railway by the name of C.F. Hannington documented a fire at Missinaibi Lake in 1901. Finally, W. Tees Curran travelled through the Missinaibi in 1912 on an expedition to examine resource potential in northern Quebec.

Missinaibi History in the 20th Century

When railways reached northeastern Ontario, they changed everything. Transportation crossed the Missinaibi River and entered the vast Shield lands into previously remote areas. Improved access to furs and the fur trade brought others to compete with the HBC and associated First Nations. The railways also provided access to cut the wood required for development, including for the railway itself. Lands were sold; authorizations were allowed to 'open up the land'.

The early 20th century saw a dam built by logging interests at Crooked Lake, just south of Missinaibi Lake south of the height-of-land. This enabled them to bring logs from the Missinaibi area south to Chapleau. At first only Red and White Pine were logged. These trees became scarce on much of the Missinaibi landscape by the 1920s.

Peterbell railway station opened in 1914. The HBC post began providing trading opportunities and supplies for a small townsite there in 1917. In 1925, Currie Tie and Lumber Company brought logs down the Missinaibi to a new Peterbell sawmill. Missinaibi Timber Company took over in 1927 and enhanced the mill. Over the next 40 years, logging camps would fan out over the landscape between Missinaibi Lake and Peterbell, picking up and moving every few years to follow cutting operations. Jack Pine and Spruce became the targeted trees. Though it ceased completely during the Great Depression from 1930 to 1935, lumbering continued sporadically in the area until 1943. World War II created a major labour shortage, and put an end to the Missinaibi Timber Company.

Pineland Timber Company took over logging in 1949 from a pulp company (Driftwood Land and Timber) that only operated for two years. Throughout this time, logging process and technology barely changed. Despite the odd bit of new machinery beginning in 1953 such as the barge, an "alligator", or a tractor, horses were used to move logs and supplies until the very end of the logging era in the park in 1962 (Photo 15). Logs would be cut in the winter, placed on or near

[1] The Journals of Samuel Hearne and Phillip Turnor between 1774 and 1792.

the ice on the Missinaibi River or Lake and driven down to Peterbell every spring to be processed at the mill in the summer and shipped out by rail. The log drive was an intense “day and night” operation on the river from start to finish. The Missinaibi Lake area of the park was cut over in the 1950s. In 1950, Pineland built a dam illegally during a railway strike to ensure safe passage of their logs to Peterbell (Photo 16). The Ontario government issue a permit for it in 1951. The backed up water killed trees around the entire lake in 1957. The dam washed out in 1960 and was not rebuilt. The Barclay Bay area was logged in 1956 and 1957

In 1955, the Admiral Lake Fire devastated a large block of Pineland’s timber. The Pinelands mill at Peterbell was going to cost too much for the company to upgrade the old mill and equipment (Photo 17). The Admiral Lake Fire, compounded with earlier fires around 1900, and in 1923, 1941, and 1948 resulted in lucrative business for some; two salvage logging operations opened in the Missinaibi Lake area during this time. Boisvert opened the road from Cooke Lake to Quittagene Rapids, crossing the Missinaibi to connect with Pineland’s road to Peterbell. Seline opened a sawmill at Wrong Lake in 1955. These two men and their operations, instigated by the 1956 CNR rail strike (at Peterbell), brought the road up from Chapleau to the park at Barclay Bay that is still in use today. Salvage logging ended in the Missinaibi Lake area with the closure of the Seline sawmill at Wrong Lake in 1959.

Around 1960, the Ontario government was beginning to recognize the area’s wilderness appeal and recreational potential, and the importance of protecting cultural heritage. A tourist camp opened at Jenner Bay on Missinaibi Lake around this time. It still operates today as a corporate lodge. The government introduced the Wilderness Areas Act. Though they do not provide explicit land protection by policy, Wilderness Areas symbolize areas of important natural and cultural heritage. Four Wilderness Areas were established that have since been included as part of the park: Fairy Point, Whitefish Falls, and Missinaibi Lake HBC Post, as well as one on Brunswick Lake at the site of the HBC New Brunswick House Post.

The Peterbell HBC post closed in 1957 due to lack of business. The Pineland mill closed in 1962. Buildings were tore down and removed in 1963. The town of Peterbell did not last much longer. The school, which had opened in the 1950s that had a new building built in 1961, was permanently closed in 1963 and all the remaining families left. The railway station closed in 1964. Today, no buildings remain at Peterbell though canoeists, either at the beginning or the end of a Missinaibi adventure, can request the train to stop there.

The Old Days and New Ways: Horse and Bulldozer
Camp 10, Missinaibi Lake

Pineland Dam, Missinaibi River - 1950-1960

Pineland Sawmill, Peterbell - 1963

Photos 15, 16, 17: From left to right: 15) old and new logging methods, 16) Pineland Dam, and 17) the Peterbell Sawmill in 1963. Source: Murphy Franklin 1985; unidentified photographers.

Ontario began intensive reforestation in 1964 which lasted until the early 1970s. Junior Rangers were involved on crews out of the old Seline camp at Wrong Lake and the Barclay Bay camp. The Barclay Bay ranger camp closed in 1969, and buildings were taken down soon afterwards. However, the Wrong Lake Junior Ranger camp operated each summer for almost 20 years. From 1968 to 1977, Wrong Lake was also the parks headquarters, until new buildings were built at Barclay Bay. In 1966, the Department of Lands and Forests (Forerunner agency of MNRF) burnt many logging camps and two Game Warden's cabins to remove liabilities from the landscape around Missinaibi Lake dating from the 1920s to 1960s. Nevertheless, there remain a few relicts from the logging area in the park. Some examples include the remains of old wooden bridges at Snake Arm Bay and just before Quittagene Rapids. Quittagene Rapids, just after the outlet of Missinaibi Lake into the Missinaibi River, also has the remains of an old barge that was used on Missinaibi Lake for log drives in the 1950s. Traces of road crossings and horse stables can be found near Barrel and Long rapids. One later logging camp from a fire salvage operation that was installed and run by a man of the name Bourassa was spared and its ruins can be visited after a three-kilometre hike north from Missinaibi Lake (Photo 18).

Photo 18: Old Bourassa Logging camp, a short hike north of Baltic Bay on Missinaibi Lake. Source: Ontario Parks.

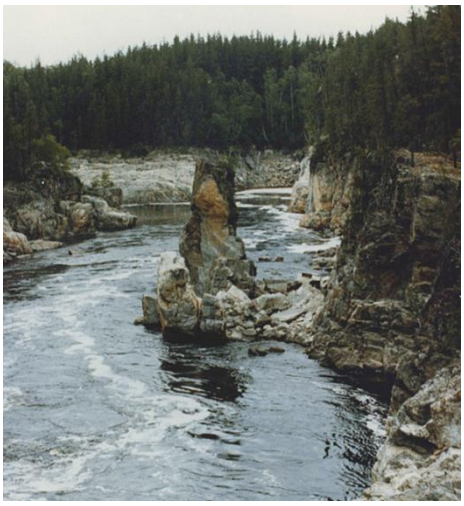
In the 1920s, gold was discovered southwest of Missinaibi Lake. Although there was an operation there, outside the area that became park there were concerns that mine drainage might get into the Missinaibi. This has not happened. Over the years that the mine was open, many miners came to Missinaibi Lake to fish and poach. The mine operation closed and water quality monitoring continues. Concerns about arsenic ending up in the Missinaibi watershed have occurred from time to time, but there have not been any incidents.

Culture: Condition and Changes Since 2004

Table 6: Cultural Heritage Values Since Designation

CHRS Cultural Framework (2000) Themes and Sub-Themes	Cultural Heritage Value	Significant Actions, Research or Studies since 2004	Changes of Threats to Value(s)
1. RESOURCE HARVESTING			
1.1 Fishing	1.1.1 & 1.1.2 First Nations people fished the river as a food source for generations. The fish diversity (e.g., whitefish, walleye, trout, sucker) & food preparation, either fresh or dried, was an extremely important for their diet. Missinaibi Lake, Brunswick Lake and river HBC locations and intervening rapids and wetlands were places of traditional aboriginal use. 1.1.3 Commercial Sturgeon fishing in the lower Missinaibi River occurred historically, but stopped in 1972 when yield was not economically viable. Sturgeon is a species of special concern in ON & endangered nationally – low levels of aboriginal use may continue.	None	None
1.2 Shoreline Resource Harvesting	1.2.1, 1.2.2 & 1.2.3 Precontact peoples hunted, trapped, fished & gathered along river shoreline. For 300 years, river shores supported one or more fur-trade posts. The river was used to transport furs in canoes, York boats/ batteaux. Traplines continue to be accessed from the river though trapping is not allowed in wilderness & nature reserve zones in the park, or in the Chapleau Crown Game Preserve. Over the centuries, as First Nations people began to settle more and closer to the posts associated with the European traders, they developed new ways of life that included the rearing of domestic plants and animals. Along the Missinaibi, natural river grasses were cut each year to feed animals over winter. Pollock (1974) & Arthurs (1980) archaeological work documents prehistoric artifacts (e.g., Brunswick & Missinaibi lakes). 1.2.4 An abandoned gravel pit, about 10 km south of Mattice, was originally on land owned by Spruce Falls Power & Paper. The land was acquired by MNRF to be regulated as park, extraction is no longer allowed.	None	None

CHRS Cultural Framework (2000) Themes and Sub-Themes	Cultural Heritage Value	Significant Actions, Research or Studies since 2004	Changes of Threats to Value(s)
2. WATER TRANSPORT			
2.1 Commercial Transportation	2.1.1 Prehistoric trade Pollock (1974); pottery trade item artifacts documented (see Prehistory in Missinaibi &Table 5). 2.1.2 & 2.1.3 Human-powered freight: fur trade canoeing (see The Fur Trade section) is well documented in HBC / NWC records; Brunswick Lake near a portage, a crushed three-metre long birch bark canoe (c1800s) was discovered in 1979 - the first find of its kind in Ontario. Wooden barge remains at beginning of river near Missinaibi Lake & clearing. Wooden structures at Quittagene rapids, & Peterbell. 2.1.4 Surface bulk transport (logs): Logging, railroad, migration & settlement with & following the railway; structures (rock cribs & channel forms) to drive logs down river to train siding until 1962.	None	None
2.2 Transportation Services	2.2.1 Fur trading posts: see The Fur Trade section. Missinaibi House many buildings & settlement of Aboriginal people, later known as Brunswick House First Nation. Reverend Saunders travelled the river, taught school & religion, news & letters taken by messengers by canoe & snowshoe routes. 2.2.2 Navigational improvements. Rollers to transfer large canoes or bateaux documented at Brunswick Lake. 2.2.4 River travellers stayed at fur-trade posts as guests. In the 1900s Missanabie on Dog Lake, Peterbell, Mattice & Moose River Crossing were starting / departure points for recreational & tourism uses on the Missinaibi; canoeists used serviced campsites & portages.	None	None
2.3 Exploration & Surveying	2.3.1 French explorers: Radisson & Groseilliers explored the river in 1659. 2.3.2 British travelled from Hudson Bay to the Missinaibi in 1776 to compete with French traders. Land Surveys 1781 - 1800s enabled rail arrival. 2.3.3 Migration & settlement: HBC was transient; Brunswick House / Pivabiska to Brunswick Lake & Missinaibi House on Missinaibi Lake (Photos 2 & 20).	None	None

CHRS Cultural Framework (2000) Themes and Sub-Themes	Cultural Heritage Value	Significant Actions, Research or Studies since 2004	Changes of Threats to Value(s)
	Railroads (1800s) brought settlers & changes to Peterbell, Mattice & Moose River Crossing. Treaties led permanent Aboriginal settlement away from the river; Chapleau Crown Game Preserve displaced First Nation people. Recreational routes re-established traditional Missinaibi canoe route, campsites & portages.	Wilson 2004; Chrismar 2008, 2009	
3. RIPARIAN SETTLEMENT			
3.1 Siting of Dwellings	3.1.1 Seasonal - pre-contact canoe route, campsite & portage use. 3.1.3 Permanent riverside dwellings: HBC & NWC fur trade at Pivabiska River, Brunswick & Missinaibi lakes. Historical & modern towns: Peterbell historic community, Mattice & Moose River Crossing ongoing at CNR / ONR rail crossings.	None	None
3.2 River-based Communities	3.2.1 Brunswick House on Missinaibi Lake; 3.2.2. HBC posts; 3.2.3 Historic Peterbell; 3.2.4 River crossing communities: Mattice & Moose River Crossing occur at rail crossings of river.	None	None
4. CULTURE & RECREATION			
4.1 Spiritual Associations	4.1.1 Sacred or spiritual & 4.1.2 Ritual & ceremonial structures: the largest & most well-known rock art concentration in northeastern Ontario; Fairy Point with other sites on Missinaibi Lake and sites on Little Missinaibi Lake; tradition estimated to be 500 to 1,400 years old (Photo 1). Missinaibi, as a name means “pictured water” referring to pictographs. The earliest reference to this name is in 1777. Conjuring House Rock, a 16-metre high pillar within the Thunder House Falls gorge, is compared to an aboriginal “medicine-man’s” conjuring house, is a sacred site (Photo 19). A church was built around 1896 at Missinaibi Lake HBC Post with an associated graveyard (Photo 2). The graveyard is overgrown in vegetation. 4.1.3 Aboriginal & 4.1.4 Cemetery at Missinaibi & Brunswick lakes; native cemetery in Mattice; various burial places on lower river (Photo 8).	None  Photo 19: Conjuring House Rock. Source: Northern Ontario Wilderness Preservation Association (1984).	None

CHRS Cultural Framework (2000) Themes and Sub-Themes	Cultural Heritage Value	Significant Actions, Research or Studies since 2004	Changes of Threats to Value(s)
4.2 Cultural Expression	4.2.1 Riverside attractions: Ancient rock art as noted above (Spiritual Associations). CHRS plaques at the park's Barclay Bay campground & Mattice. Mattice also has a statue of a voyageur portaging a canoe, & plaque honoring a respected elder & Missinaibi traveller, Fred Neegan (Photo 11). The river is cultural landscape & corridor: Ojibwa/Cree, Aboriginal/European, Frontier, Lumbering, & new immigrants. Each had its own artistic, music & spiritual expressions.		
4.3 Early Recreation	4.3.1 Recreational boating: Missinaibi is an adventure destination from the late 1800s with access afforded by the railways. 4.3.2 Early recreational angling: Missinaibi has been a recreational fishing destination since the 1920s predating the park. Even in the early days, the larger percentage of anglers visiting Missinaibi Lake were from the USA.		
5. JURISDICTIONAL USES			
5.1 Conflict & Military Associations	Conflict between HBC & NWC with the latter having no official claim over the region north of the height of land; NWC entered & built posts in sight of chartered HBC sites along this canoe route to intercept Aboriginal traders.	None	None
5.3 Environmental Regulation	The Missinaibi is referenced on a regular basis as a benchmark of a 500km free-flowing river with limited development & clean water. The protection of the Missinaibi did not occur until the 1960s. Park establishment prevented the Missinaibi undergoing the fate of development, culminating in the CHRS designation in 2004.	None	None

A thorough chronology of events on the Missinaibi to 1985 is in the publication, Missinaibi: Journey to the Northern Sky, From Lake Superior to James Bay by Canoe (Wilson 2004).

Photo 20: Missinaibi House HBC Post site on Missinaibi Lake. Source: Ontario Parks.

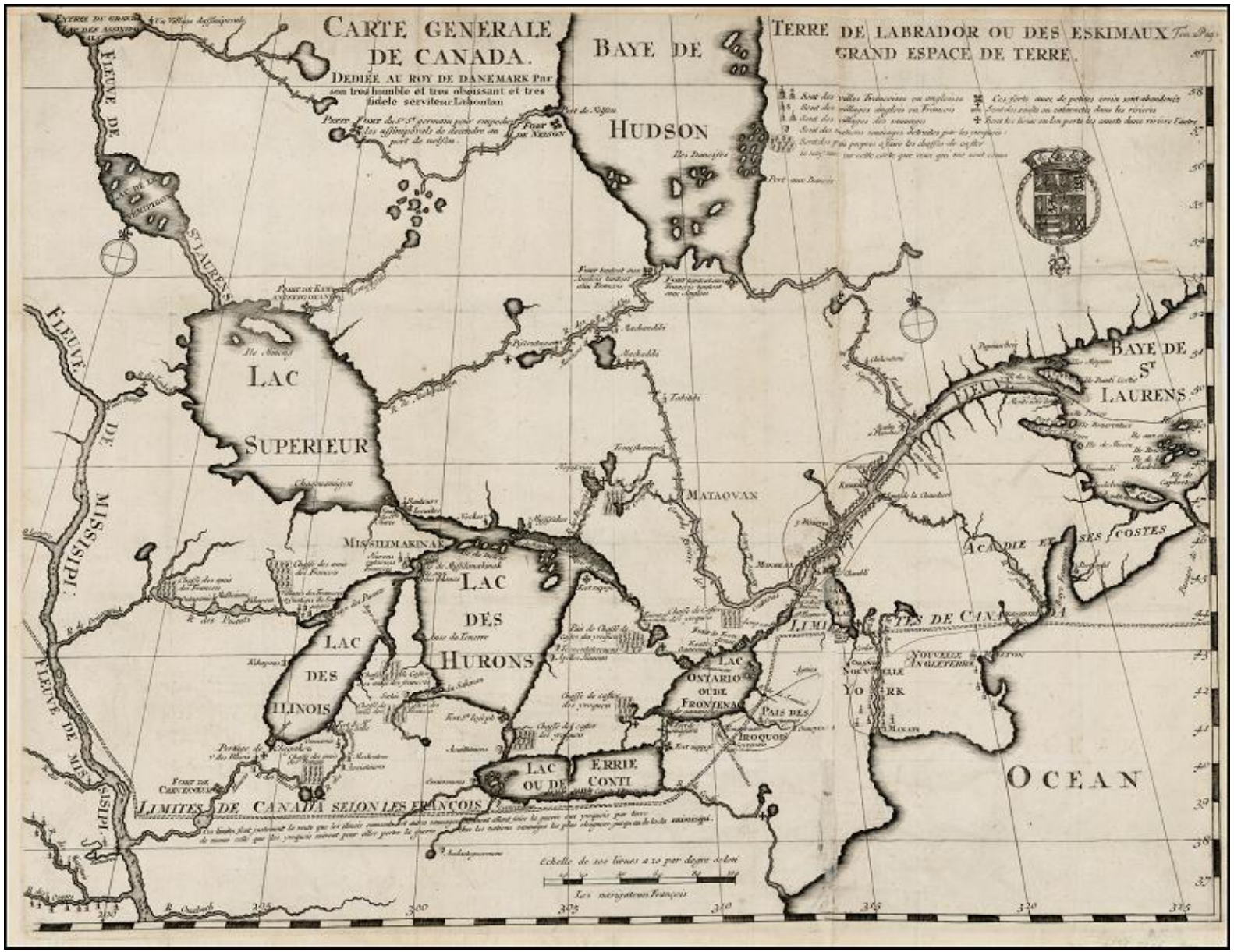
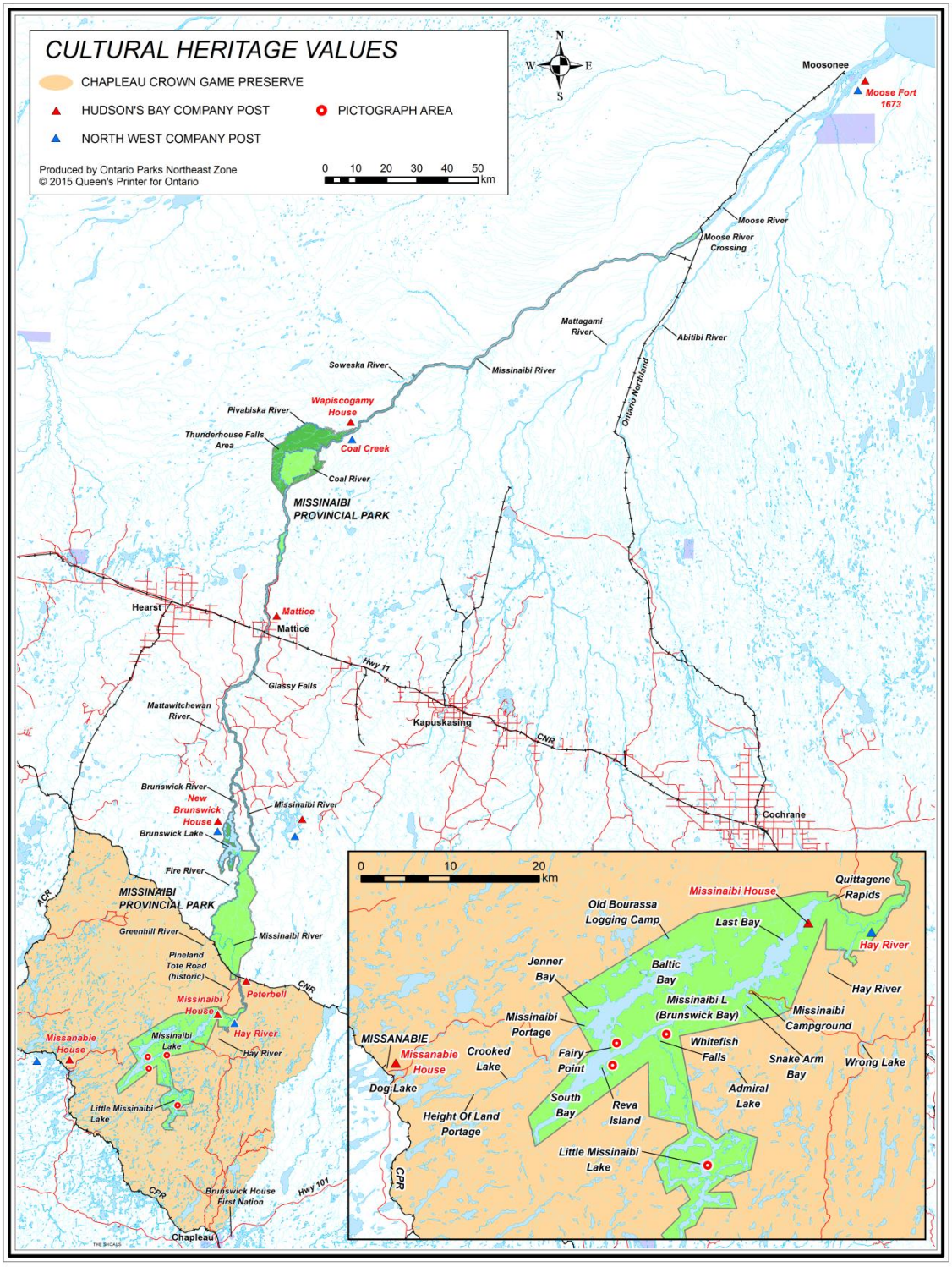


Figure 5: Early French map showing how the Michipicoten links to the Missinaibi (Machandibi on this map) from Lake Superior to Hudson's Bay. Source: Barry Lawrence Ruderman (www.raremaps.com) cited as being from the Baron de Lahontan's 1703 version for the King of Denmark in the Hague. Lahontan was a Frenchman who was in North America from about 1683 to 1693..



Map 5: Cultural Heritage Values of the Missinaibi

Recreation Values - Background and Infrastructure

Recreation flowed into the Missinaibi as railways and logging accessed the region. A quote in the introduction to this report, from J.E. Burchard, extols the “novel” attraction of this region. Toward the 1920s, railway clients were joined by fly-in tourists. The wealthy bought guide services and gear to get into the wilds. Tourists were mostly from the United States, but some also came from Great Britain. Many had read about the Missinaibi rock art pictographs or they were interested in the HBC history. The HBC post was still standing on Missinaibi Lake – visible with red and green paint. Some local artifacts were lost to visitors as ‘souvenirs’, even items from the cemetery were taken. Fly-in recreation, outfitting and guiding was important in the 1930s and diversified towns like Missanabie and Mattice. Travel benefited the railways and these towns. Missanabie and Dog Lake was important for tourists entering the Missinaibi. Twenty years later times had changed and most of the guides had disappeared from Missanabie by the 1950s, and from local tourist outfitters by the 1970s. Do-it-yourself canoeing adventurers and boaters trailered down gravel roads to Barclay Bay and Brunswick Lake. The intrepid ‘sportsmen’ worked out routes on National Topographic maps to get in and around the Missinaibi in the 1950s. Although, it was difficult to know the local scene as one group found out in 1955 when log jams blocked travel down the river at the outflow of Missinaibi Lake. Their trip broadened to include a stay at a Pineland logging camp and a horse-drawn ride around the log-jammed river to Peterbell the next day.

In the late 1960s and into the 1970s, the Ontario government received a growing number of letters and petitions to “protect” the Missinaibi. These came from concerned individuals (e.g., Campbell 1968), the National Parks service (1973), conservation groups such as the Sierra Club (1974) and the National and Provincial Parks Association (1975) promoting the protection of the Missinaibi River, to be left in its “wild” state. With Missinaibi Lake Provincial Park already established, the government began public consultations in the 1970s, which led to a park reserve on the river.

Today, the lakes and river in the park continue to draw visitors interested in extended sport fishing and canoe trips (Table 7). The park management plan provides direction on multiple official road, rail, waterway and airplane accesses. But it’s not an easy drive from major cities in Ontario.

Various publications have information and safety tips for trippers (Wilson 2004; Chrismar Mapping Services 2008, 2009 and 2014). A trip in 2009 orchestrated access to the historic Missinaibi Lake House, Quittagene Rapids, and Long Rapids. The crew included a reporter, an outdoor adventure celebrity, an underwater archaeologist, Ontario Parks Northeast Zone Natural Heritage Specialist and diving experts. An article in Outpost Magazine and a feature on The National news, Canadian Broadcasting Corporation promoted visiting the Missinaibi waterway.

Missinaibi Provincial Park as a waterway is accessible and yet there still are remote sections. A number of entry and exit places along its length allow various trip planning options (Wilson 2004; Chrismar Adventure Maps - Missinaibi 1, 2, and 3). The Missinaibi is an ideal destination for people seeking a remote wilderness camping or canoeing adventure with multiple access

options to set up trips for themselves or by using outfitters, or guides. The distribution of access leads to remoteness and to a lack of crowding, a key component for a wilderness enthusiast.

Barclay Bay campground is 88 kilometres north on a gravel road from Chapleau and offers 35 drive-in campsites as well as a group campsite on Missinaibi Lake. There are motorboat and canoe rentals, running water and vault privies, campfire wood - no electricity or comfort station. There are 100 interior campsites on Missinaibi Lake and beyond on the river's 500 kilometre length to Moose River Crossing. Users are self-directed with maps, tabloids, and other information provided at the park or by tourism operators and associations.

Motor-boating occurs on Missinaibi and Brunswick lakes and in some fly-in areas. Canoe tripping is a traditional way to experience Missinaibi Provincial Park. Lakes and river can be explored to experience cultural heritage. River travel includes a variety of challenges (e.g., flat water and white water) with views of outstanding natural diversity of geological and ecological features. Travelling the entire river can take three weeks tripping through as many as 50 sets of rapids and 34 portages.

A few outfitters specialize in guided or fly-in trips on the Missinaibi, especially for larger or youth groups, or specifically for anglers and hunters (e.g., Missinaibi Headwaters Outfitters, Missinaibi Outfitters, Air Dale, and Canadian Airways). Park permits can be purchased from the park gatehouse, at the Chapleau District MNRF office in Chapleau, and various private outlets.

Visitation

Angling is a major draw to Missinaibi Lake or Little Missinaibi Lake whether through the park's Barclay Bay campground or Little Missinaibi's fly-in recreational outfitters. Most visitors come from the United States. Visitors travelling the Missinaibi River are typically looking for a wilderness canoe and camping adventure. Figures 6 and 7 illustrate visitation in past years. Car camping at the park declined relatively steadily since the 1980s (Figure 6a). By 2005-2006, car camping had dropped to about half of what it was in 2001. In the last decade, backcountry 'interior' camping has been relatively steady at around 4,000 camper nights a year (Figure 6b).

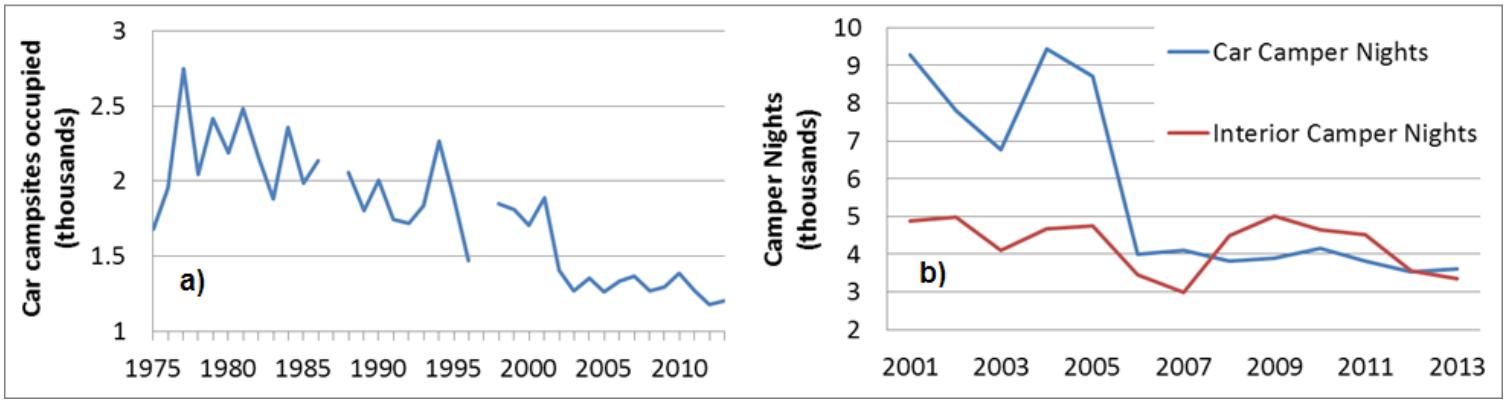


Figure 6: a) Barclay Bay car campsites occupied is defined by one campsite occupied for one night and sums all the nights the park is operating; b) Camper nights is defined as the number of nights stayed in the park for each individual camper during their trip, for all park campers.

Analysis of visitor preferences in terms of backcountry location show that most visit Missinaibi or Little Missinaibi Lakes. The majority of the people travelling the river traverse the upper river

(South of Mattice), and only five to 10 percent travel the entire river (Figure 7a). Almost two thirds of backcountry visitors to Missinaibi Provincial Park are from Ontario, another 10 to 20 percent come from the United States (Figure 7b). Note that the proportion of Ontarians has been increasing over the last five years because the proportion as the actual number of visitors from the United States decreases (Figure 7b, inset actual visitor numbers are stacked upon one another).

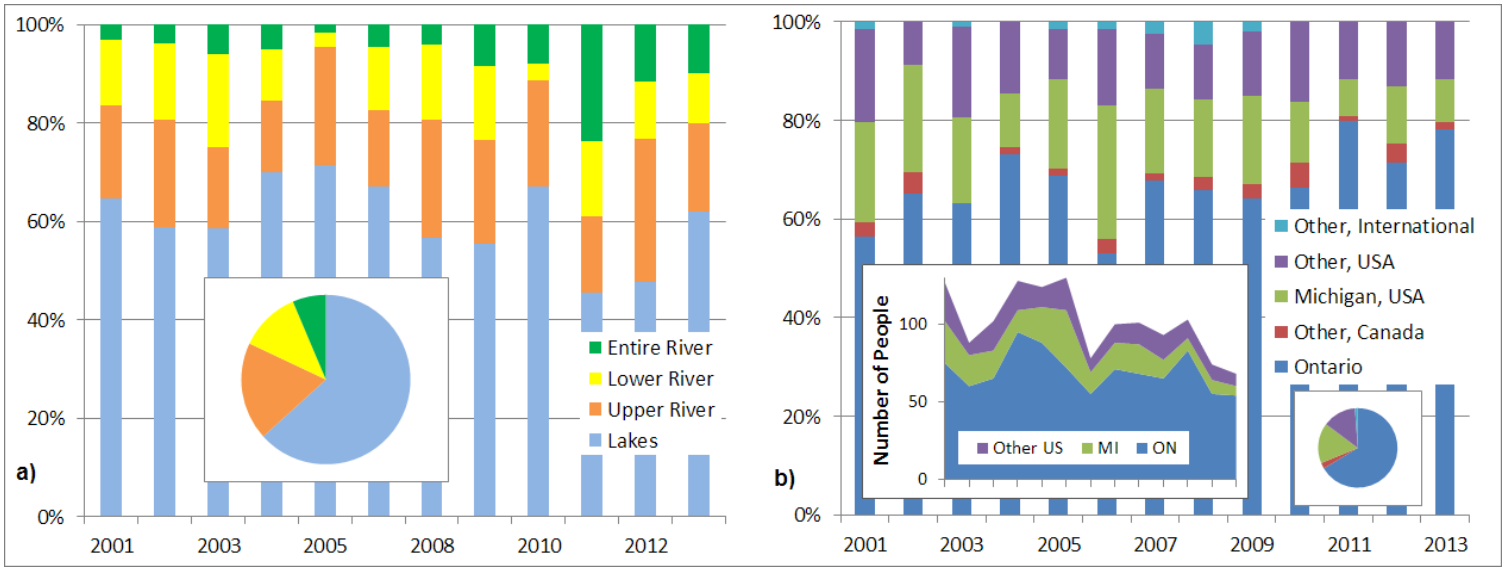


Figure 7: a) Portions of the Missinaibi River travelled by backcountry visitors during the years 2001-2005, and 2007-2013 (2006 was missing data); b) Origins of visitors travelling the river for the years 2001-2013, note that the proportion of Ontarians increases because the number of people from the US decreases over time.

By comparing 2003 to 2013, the number of backcountry trips has essentially halved, leading to a corresponding halving of the number of people and the number of trip nights on the river (Figure 8). The number of people per trip (average 3.5) and the number of nights per trip (average of 7) has remained similar from year to year over the last decade.

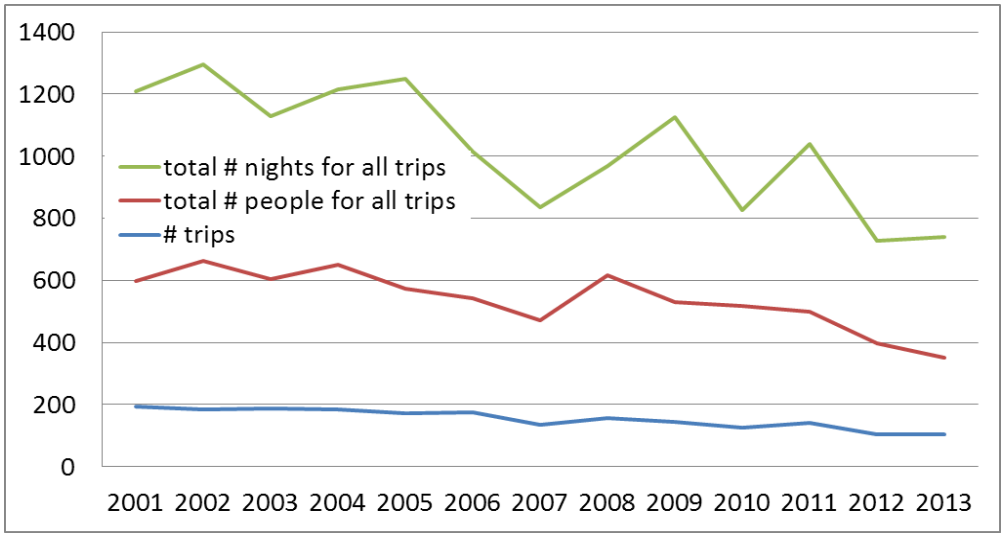


Figure 8: Trends in backcountry visitation to Missinaibi Provincial Park.

Recreation: Condition and Changes Since Last Report

The river supports low-density recreational use while maintaining its natural, cultural and aesthetic values. The Missinaibi reflects trends in northern provincial wilderness recreation, which was increasingly popular from the 1970s into the 1980s, and has since declined along with our ageing and more urban local population. In 1984, when the Missinaibi was nominated as a Canadian Heritage River, Missinaibi Lake recorded 10,000 car camper nights annually, and 300 parties of people (~6 people per party) disembarking at Moose River Crossing or Moosonee. The equivalent numbers in 2013 were around 3,000 and less than one tenth that number of parties exiting at Moose River Crossing or Moosonee (about 10 people per trip, mostly youth; Ontario Northland 2014, personal communication). Travellers use the Polar Bear Express train from Moosonee or Moose River Crossing going south at the end of their trip. Individual travellers can organize this independently, but canoe trip outfitters such as Missinaibi Headwaters Outfitters out of Chapleau also take advantage of this train, as there are no roads out of Moosonee. The train can also be used as an entry or exit point along the upper river, either through Missanabie (at Dog Lake) or via Peterbell, which is not a scheduled stop and must be requested either when train tickets are bought or when the passengers first embark. In 2014, there were eight recorded requests for the train to stop at Peterbell; flagged stops are unrecorded (VIA Rail 2014, personal communication).

For each of the past few years, the number of camper nights at the Barclay Bay campground has been very similar to the number of backcountry camper nights (between 3,000 and 4,000). But looking farther back, the total number of camper nights in the park has been on the decline mainly because of a reduction in car camping. After a surge in visitation in the years surrounding the release of the park management plan in 2004, car camping in the park virtually halved (Figure 7b). Despite this type of variation from park to park, the decrease in car camping in Missinaibi Provincial Park since the 1970s is a reflection of the decrease in camper visitation to parks across the province, which in turn reflects an increasingly older, international, and urban society. The steady decrease in visitation for car camping at Missinaibi is also due to the value of the American dollar and the recently depressed American economy. In addition, Missinaibi Park is not currently on the provincial Ontario Parks Reservation camping reservation service.

Travellers drive to various authorized access points along the river (as per Park Management Plan 2004). Unfortunately, forestry operations near the park can result in increasing levels of unauthorized mechanized access to the river, threatening ecological integrity. This concern can only be dealt with by enforcement and by working with forestry companies to minimize access from forest roads and to ensure they do not facilitate new unauthorized trails into the park.

Table 7: Recreation Values Since Designation

Recreational Capability Themes and Sub-Themes	Description of Current Situation	Significant Actions, Research or Studies since 2004	Changes of Threats to Value(s)
1. BOATING			
1.1 White-water Canoe, Kayak & Raft	500 kilometres; 50 sets of rapids along the river. Depending on water levels and	Updated river guide and maps (Wilson	None

Recreational Capability Themes and Sub-Themes	Description of Current Situation	Significant Actions, Research or Studies since 2004	Changes of Threats to Value(s)
	time of year, some can be run & in other spots there are portages (Wilson 2004).	2004; Chrismar 2008, 2009, 2014)	
1.2 Extended Canoe Tripping	Wilderness canoe trippers can embark from Missanabie, Dog Lake, Missinaibi Lake, Peterbell, & Mattice. Trippers can exit at Peterbell, Mattice, Moose River Crossing or Moosonee.	None	None
1.3 Day Paddling & Rowing	Day trips from Barclay Bay Campground, Peterbell, Mattice	None	None
2. ANGLING	Angling of all types and skills is enjoyable along the entire length of the river		
2.1 Day Angling and 2.2 Weekend Angling	Local residents from Mattice, Hearst and Kapuskasing visit the river north of Mattice and Brunswick Lake for day angling.	None	None
2.3 Extended Angling Vacation	Most park visitors to Little Missinaibi or Missinaibi lakes are on angling vacations. Many come from the United States. Anyone travelling the river on a multi-day canoe trip will take advantage of the fresh fish for a shore lunch or dinner.	None	None
2.4 Fly Fishing	With many areas of whitewater and pools below, the potential for fly fishing exists, but the river is currently not a destination for this type of angling.	None	None
2.5 Ice Fishing	Missinaibi Lake is accessible in the winter for ice fishing with authorized access through the Barkley Bay campground. Ice fishing also occurs on Brunswick Lake.	A portage from Crooked Lake had been used as a winter snowmobile access to Missinaibi Lake, but action in 2011 prohibits motorized access, as directed in the park management plan.	None
2.6 Specific Fish Species	Please see the Fauna section of this document.	None	None
3. WATER CONTACT/ CONTENT			
3.1 Swimming	Barclay Bay – a beach is available at the park campground.	None	None
3.3 Snorkel/ Scuba	The Missinaibi is not a snorkel or scuba destination, but there are known shore	Monk (2009) writes about an underwater	None

Recreational Capability Themes and Sub-Themes	Description of Current Situation	Significant Actions, Research or Studies since 2004	Changes of Threats to Value(s)
	and in-stream archaeological sites underwater components and some people catalogue them.	archeological expedition at Missinaibi House, Quittagene Rapids and Long Rapids.	
4. WATER-ASSOCIATED ACTIVITIES			
4.1 Trail Use	There's one three-kilometre trail to the old Bourassa logging camp north of Baltic Bay (Photo 18).	None	None
4.2 Camping	Barclay Bay campground has 35 sites, including one group campsite. River trips require extended, dispersed canoe-camping with 100 campsites.	None	None
4.3 Hunting	Hunting occurs in the park outside of the Chapleau Crown Game Preserve.	None	None
5. WINTER ACTIVITIES			
5.4 Snowshoeing	Snowshoeing is combined with snowmobiling trappers checking traplines. An outdoor adventure company "Lure of the North" has guided snowshoe trips starting at Missinaibi Lake ending at Peterbell; disembarking on the railroad.	None	None
6. NATURAL HERITAGE APPRECIATION			
6.1 Wildlife	Latitudinal gradients – reach the northern limits of many species and the southern limits of others (Figure 3).	None	None
6.2 Vegetation	Such a diverse array of landform-vegetation communities in the park means that a visitor could see and tally hundreds of species each day.	None	None
6.3 Vistas/ Scenic Quality	With the forest and the river, the viewscape is very narrow, but the backcountry wilderness and rapids are at hand, along with all the diversity of flora and fauna, which always makes an impression to a park visitor/traveller.	None	Forestry operations are reviewed to stop unplanned access; may be heard by canoeists

Recreational Capability Themes and Sub-Themes	Description of Current Situation	Significant Actions, Research or Studies since 2004	Changes of Threats to Value(s)
6.4 Geological Features/ Water Features	A few examples of the dozens of such features include: Thunder House Falls (Photo 3) Fairy Point Pictographs (Photo 1) Peterbell Marsh (Photo 10)	None	None
7. HUMAN HERITAGE APPRECIATION			
7.1 Historic Sites	Fur Trading Posts: see The Fur Trade section info archaeological sites (Map 5). Rock art sites and Conjuring House Rock are sacred sites (Photos 1 & 19).		
7.2 Cultural Landscapes	In the Cultural Values section of this document the Missinaibi River corridor is a cultural heritage landscape.		
7.4 Cultural Events/ Activities	A yearly canoe trip with local elders takes place along the river starting from Dog Lake outside the park to Missinaibi Lake and north on the river.		

Photo 21: Interior Missinaibi Provincial Park Stewardship Crew canoeing near Hell's Gate Canyon, 2003. Source: Ontario Parks.

Integrity Values

Condition and Changes Since 2004

Ontario Parks initiated processes to add land to the park, as approved in the 2004 Missinaibi Provincial Park Management Plan. This includes any remaining additions south of the area delineated as the Far North of Ontario (as per Ontario's *Far North Act, 2010*).

Logging roads and operations, by virtue of the renewable nature of the resource, occur in a mosaic of use adjacent to park boundaries. Direction in the management plan identifies authorized access to the Missinaibi and the superintendent works with MNRF district offices to mitigate use impacts. Park zoning and resource management measures in the park management plan protect the diversity of flora and fauna and cultural heritage. Park values are not being degraded.

The author of this report recently flew over headwater lakes and downriver to an area north of Mattice, Ontario. From the air, the effects of logging (e.g., forest cutting, roads) are visible in the distance however the park at the water level, along most of the river corridor (200m minimum either side) appears wild with low impacts of use. Thus, the park is in good condition (Table 8). However, increasing amounts of mechanized unauthorized access on adjacent lands (i.e., all-terrain vehicles) are being identified to address park values, to reduce the effect on visitor experiences and ecological integrity.

Table 8: Integrity Guidelines Since Designation

CHRS Principles, Procedures, and Operational Guidelines	Integrity Values	Changes or Threats to Integrity Values Since Nomination
1. NATURAL INTEGRITY		
1.1 The area is of sufficient size and contains all or most of the key interrelated and interdependent elements to demonstrate the key aspects of the natural processes, features, or other phenomena which give the river its outstanding natural value.	Direction to expand the park boundary is consistent with the standards for waterway parks in Ontario. Direction in the park management plan continues to be implemented to increase the park landbase. Substantial additions in the past 10 years are still underway. Once regulated, the area will be sufficient to protect core values of the river.	Forestry operations often occur right up to the park boundary, the yet-to-be regulated lands, values, & additions are known & identified to forestry companies. Forestry operations will formally be precluded on lands recommended to be added to the park once boundary additions are legislated as per the approved 2004 management plan.
1.2 The area contains those ecosystem components required for the continuity of the species, features or objects	Most of the park is contained within a small buffer area, though important natural & cultural values are protected in larger areas along the river. Species living in the park have resource requirements, & larger animals have a core	Forestry operations on adjacent Crown lands are reviewed to prevent unplanned access to the park. Private lands were acquired & will be added to the park to meet the policies for a continuous waterway park. Park fisheries are self-sustaining & not over used – resource management

CHRS Principles, Procedures, and Operational Guidelines	Integrity Values	Changes or Threats to Integrity Values Since Nomination
	north-south corridor.	measures are in place to have them continue.
1.3 There are no human-made impoundments within the designated area.	True	Remains true.
1.4 All key elements and ecosystem components are unaffected by impoundments located outside the nominated area.	True	Remains true
1.5 Natural values for which the river was nominated have not been created by impoundments	True.	Remains true.
1.6 The water of the area of the river is uncontaminated to the extent that its natural aquatic ecosystem is intact.	True.	Remains true - no changes or new developments adjacent to the river. The Mattice-Val Côté sewage lagoon is monitored; occasional non-compliance of recommended parameters of contaminants in effluent as set by the Ministry of the Environment and Climate Change.
1.7 The natural aesthetic value of the river is not compromised by human developments.	True, though logging operations exist just outside the park.	Logging operations and forest access can compromise aesthetics (e.g., noise). Setbacks from the river are in place & enforced to prevent unauthorized access that would trample vegetation &/or cause soil erosion. Threats are constant & are reviewed by the park superintendent.
2. CULTURAL INTEGRITY		
2.1 The area is of sufficient size and contains all or most of the key interrelated and interdependent elements to demonstrate the key aspects of the features, activities or other phenomena which give the river its outstanding cultural value.	True.	Remains true. The 500 kilometre length of the park, the width of the park corridor meets or exceeds waterway park standards and contains outstanding cultural values.
2.2 The visual appearance of the river enables uninterrupted appreciation of at least one of the periods of the river's historical importance	True.	Remains true; waterway is similar to how it must have appeared to aboriginal people & HBC three centuries ago. Historic fur trade post no longer have any visible structures.
2.3 Key artifacts & cultural values for which the river is nominated are unimpaired by impoundments & human land use.	True.	Remains true. Key artifacts of the cultural landscape (e.g., portages, campsites, rock art sites) remain intact.

CHRS Principles, Procedures, and Operational Guidelines	Integrity Values	Changes or Threats to Integrity Values Since Nomination
2.4 The water quality of the nominated area does not detract from the visual character or the cultural experience provided by its cultural values	True.	Remains true.
3. RECREATIONAL INTEGRITY		
3.1 The river possesses water of a quality suitable for contact recreational activities, including those recreational opportunities for which it is nominated.	True.	Remains True.
3.2 The river's visual appearance is capable of providing river travelers with a continuous natural experience, or a combined natural and cultural experience, without significant interruptions by modern human intrusions.	True.	Remains true.
3.3 The river is capable of supporting recreational uses without significant loss or impact on its natural, cultural or aesthetic values.	True.	Remains true.

Missinaibi Provincial Park Management Plan

The Missinaibi Provincial Park Management Plan was approved in 2004. Today, planning processes continue in the form of land use planning and regulating boundary additions, as outlined in the management plan. Work also continues in an effort to implement the management plan recommendations.

The recommendations from the management plan are tallied in Table 9 along with some notes on whether and how Ontario Parks has been able to address them.

Table 9: Designation Document (Management Plan) Recommendations and Status

Management Plan Recommendation	Degree of Achievement	Actions/ Notes
Complete Boundary Amendments: Pursue 200m (minimum) boundary to meet Ontario Parks' standards for waterway parks for most areas currently at 122m and protection of natural and cultural values. Regulate Thunder House falls Ontario's Living Legacy addition.	Underway	Following approval of the management plan some recommended additions were regulate. Some issues were resolved regarding an addition in the Thunder House Falls area. This and the remaining other additions including the 200m additions in the acquisition townships are in progress.
"Existing land use permits (LUPs), including private recreation camps, will be phased out by January 1, 2010"	Addressed.	There are three existing LUPs in the park. This province-wide policy was revised to allow the current LUP holders use of their permits for their lifetime, but not to transfer them.
Licenced trapping will not be permitted in wilderness and nature reserve zones of the park with a phase-out date of January 1, 2010	Addressed.	This province-wide policy was revised to allow the current LUP holders use of their permits under a lifetime extension, but not to transfer them.
Any baitfish harvesting licences operating on in wilderness or nature reserve zones of the park will be phased out by January 1, 2010.	Addressed.	This province-wide policy was revised to allow the current permit licences under a lifetime extension, but not to transfer them.
Regulate the Missinaibi East Ontario's Living Legacy Addition.	Completed in 2004.	Complete
The buffer on either side of the river downriver as of Habel Township will be expanded to 300m.	Abandoned.	With the introduction of the Far North Act in 2010, Ontario Parks decided to leave the park as it currently stands until community planning can proceed: a 122m boundary still protects the river up to Moose River Crossing.
A site plan will be prepared for Access Zone 4	Addressed.	Park & district collaborated with a local fish & game club on A4. MNRF Hearst District did an environmental assessment & installed a new boat launch to address erosion & other problems.
Access to Glassy Falls and management needs will be assessed regarding unauthorized ATV use.	Underway.	The park boundary plan identifies a 400m buffer on the river to prevent ATV access a ridge that causes eroding soil down. Upcoming notices for proposed new park areas is imminent.
Work with municipality regarding interpretive opportunities.	Ongoing.	An interpretive Kiosk built in the municipal park in Mattice will have six panels installed in 2015.
Forest management planning will consider Areas of Concern (AOCs) around the park, to mitigate unplanned access, impacts to park viewscapes, timing & proximity of cuts in peak visitation periods, & herbicide application policies.	Ongoing.	The park superintendent participates in forest management planning to establish park value's requirements.

Management Plan Recommendation	Degree of Achievement	Actions/ Notes
"A vegetation stewardship plan will be prepared."	Not initiated.	After Ontario's Living Legacy initiative, it was determined that this level of planning was a lower priority than addressing park boundary refinements.
"fire management planning will be undertaken"	Not yet initiated.	Same comment as for vegetation stewardship planning
"A wildlife stewardship plan will be prepared"	Not yet initiated.	Same comment as for vegetation stewardship planning
"A cultural resources stewardship plan will be prepared"	Not yet initiated.	Same comment as for vegetation stewardship planning
"A park operating plan will be prepared"	Not yet initiated.	Same comment as for vegetation stewardship planning
"A campground development plan will be prepared": Develop a trailer dumping station & additional parking at Barclay Bay Develop additional campsites, privies, & a mini-comfort station. Rehabilitate Campsites as necessary. Consider stocking basic commodities (e.g. ice camping supplies, gasoline, canoe/kayak rentals, boat and motor rentals) if demand warrants Implement Water re-development for dock, boat launch, fish-cleaning area, information kiosk, etc.	Addressed and ongoing.	No actual development plan will be prepared, though continued maintenance & development are occurring. Visitation does not warrant campground expansion. However, deteriorating infrastructure & park services have been upgrade at Barklay Bay. Development projects since 2004 consist of recent upgrades to the gatehouse and woodshed. Furthermore, the park installed above-ground diesel & unleaded fuel tanks in 2013. New camper docks were built in 2014. Resource stewardship maintains backcountry campsites.
"a natural heritage education plan will be prepared"	Not yet initiated.	Same comment as for vegetation stewardship planning
"a tourism plan will examine the existing tourism infrastructure and supply of services within and adjacent to the park"	Not yet initiated.	Same comment as for vegetation stewardship planning
The Missinaibi river will be assessed for it's potential to provide benchmarks for future research – "a monitoring plan may be considered"	Not yet initiated.	Same comment as for vegetation stewardship planning
Prepare a marketing plan: "a review of park attractions, management issues, and marketing methods will be conducted"	Not yet initiated.	Same comment as for vegetation stewardship planning
Continue to monitor closure and impacts of Renabie Gold Mine and mining lands adjacent to the park.	Ongoing	Water is sampled regularly from Missinaibi Lake.
Commercial tourism LUPs, outpost camps, motorboat use & air access "will	Not yet initiated.	Inspections show that the outpost camp operators are good stewards, so changes to the policy are

Management Plan Recommendation	Degree of Achievement	Actions/ Notes
be reviewed in the future" for wilderness zones.		not deemed necessary. Commercial outpost camps do not use motorboats in wilderness zones.
Regulate motor use under the *Provincial Parks and Conservation Reserves Act (2006)*	Completed.	
"A program will be considered to manage boat caches in the park"	Ongoing	An inventory of existing boat caches began in 2005 along with an official Stewardship Project. Follow-up in the posting of notices, seizure & removal of unauthorized boats continues.
"Unauthorized aggregate pits will be closed"	Completed.	
Hunt camps in the Thunder House Falls area can continue subject to yearly renewal.	True.	
"Existing camper education programs will be enhanced"	Ongoing.	Information is available at the Barclay Bay campground access & is scheduled for the kiosk in Mattice in 2015.
Amend the Fish and Wildlife Conservation Act (1997) regulation to reflect park zoning and no-hunting areas.	Underway.	Legislation will be amended as soon as the additions are regulated into the park. Currently, the yearly Hunting Regulation Summary states that hunters are to contact the park superintendent. Zoning in the management plan is adhered to with respect to the prohibition of hunting in certain zones along the river.
The health of aquatic ecosystems in Missinaibi Provincial Park (including Missinaibi Lake) will be monitored, and ecosystem data will be collected.	Ongoing.	The plan mentions water quality, benthos, plankton, fish populations, & riparian areas. No aquatic ecosystem monitoring projects have been initiated by park staff, at this time. Interaction between humans & the environment is documented in the context of park stewardship & enforcement each year by the Ontario Parks Stewardship Crew working in that area. Monitoring of water quality & fish population is occurring by other parts of MNRF & also by the Ministry of the Environment and Climate Change.
Carry out additional earth & life-science studies, aquatic & terrestrial ecosystem monitoring & recreation use studies to provide a more thorough understanding of park values & use.	Not yet initiated.	
Anglers & other recreationalists will be encouraged to prevent accidental introduction of exotic species.	Ongoing.	This is accomplished by information materials distributed & posted at the Barclay Bay campground access.

Management Plan Recommendation	Degree of Achievement	Actions/ Notes
"MNR will see to re-acquire artifacts removed from the park"	Not yet initiated.	At the moment, there is no designated time or money to pursue this endeavour.
"The feasibility of hiking/backpacking trails within the park will be studied" and if necessary, prepare implementation plans for trail development.	Completed	Missinaibi is not a hiking destination, extensive canoe routes, campsites & portages are maintained.
Work with local snowmobile and ATV clubs to establish appropriate partnerships/ agreements. Trails to Thunder House Falls will be considered during discussions.	Not yet initiated.	New trails are not being considered at this time. Any decisions resulting in changes to current park policy will require a management plan amendment with public consultation.
"in an effort to enhance community awareness and appreciation… special presentations and events may be held in local communities… initiatives with the media will be encouraged"	Ongoing.	Ontario Parks partnered with the community of Mattice Val-Côté to an interpretive kiosk in the municipal park. In 2005, a ceremony took place at Mattice to showcase the Canadian Heritage River designation of the Missinaibi. In 2009, the river and its cultural heritage were featured in Outpost Magazine and on The National Canadian Broadcasting Corporation nightly television program. Each year since 2010, the Ontario Parks Northeast Zone Natural Heritage Specialist presented the Missinaibi canoe trip as a destination at a conference called "Canoecopia" in Madison, Wisconsin.
Yearly reports will be filed with the CHRS Board and a State of the River report will be submitted every 10 years.	Partially completed	Four yearly reports could not be found for 2005 to 2009. This document is the yearly report for 2014.
"Ontario Parks will work to establish conservation agreements with the principle recreational users" e.g., LUP and private landowners as well as education of backcountry visitors on "leave-no-trace" practises.	Partially completed.	The park tabloid includes information on conservation & backcountry ethics. Information in the park gatehouse & a kiosk in Mattice provide this for visitors to the park. No conservation agreements have been made with land tenure holders adjacent to the park.
Establish tourism agreements with tourist operators	Partially completed.	Missinaibi Provincial Park has agreements with three local recreational outfitters to sell park permits.
Evaluate further and rationalize park boundary to best protect values	Partially completed.	Ontario Parks has regulated some additions proposed in the management plan. Other additions are ongoing.
Work with Fish and Game clubs or other interested parties to identify, develop and maintain access at North Brunswick River	Not yet initiated.	The park monitors A4, A5, A6 & regularly enforces boat caching policies on Brunswick Lake.
Prepare a park values map for	Completed	As of 2005, Ontario Parks Northeast Zone uses

Management Plan Recommendation	Degree of Achievement	Actions/ Notes
participation in Forest Management Planning or other resource management planning or development.	and Ongoing	digital mapping & on-the-ground stewardship crews to continuously update information each year.
Close and rehabilitate all trails and other abandoned roads to Brunswick Lake and River that are not authorized.	Ongoing	This is occurring through monitoring of Forest Access Roads & input into forest management planning.
Amend policy reports and mapping of the Crown Land Use Policy Atlas after regulation of the recommended park additions	Not yet initiated.	Once the additions are regulated, then these policy reports can be administratively updated.
Monitor Access to the Park and establish controls if necessary.	Ongoing	Each year, stewardship crews monitor the state of park values & park use. Signs of two types are posted regularly: they either identify unauthorized access or the requirement for interior camping permits. Furthermore, proposed boundary additions will enable prohibitting unauthorized access in the Glassy Falls area.
Assess management needs at Glassy Falls and prepare site plans for rehabilitation	Not yet initiated.	When the proposed additions around Glassy falls are regulated, management and rehabilitation of the site will be identified for capital funding through an allocation to fulfill our ecological integrity requirements.
Work with Hydro One and TransCanada regarding management practises or corridors going through the park.	Ongoing.	Comments submitted through the Electrical Environmental Assessment process have been provided during recent Environmental Assessments as developments concern the vicinity of the park. Furthermore, applications for work permits are issued on a case-by case basis.
Consider partnerships to establish kiosks and information/ visitor centres or other interpretive facilities	Initiated and ongoing.	Missinaibi Provincial Park has partnered with Mattice Val-Côté to construct an interpretive kiosk in the municipal park on the Missinaibi River.
Assess research linkages and implement where applicable.	Not yet initiated.	
Investigate the potential for a cooperating association	Not yet initiated.	
Establish and develop backcountry facilities	Not yet initiated.	At this time, no backcountry facilities are required.

The Benefits of Canadian Heritage River System Designation

When Missinaibi Provincial Park's management plan was released in 2004, the approval provided management decision direction while the Canadian Heritage Rivers System designation added national profile to provincial park management status.

Though the river is long and the diversity of users and local stakeholders means that any planning initiative requires time, there is consensus that the natural and cultural heritage values of the park are important to all Ontarians, and as a Canadian Heritage River, to all Canadians too. Table 10 lists the benefits of Missinaibi Provincial Park as a Canadian Heritage River.

In conclusion, since designation to the CHRS, the Missinaibi River has gained continued support for protection of its values which it may not have had otherwise. The CHRS designation enhances the ongoing protection of the river's many values and generates respect, locally, nationally, and internationally. Monitoring, reporting and inventory efforts help conserve natural and cultural heritage resources and ecological integrity. Ontario Parks maintains up-to-date information on the river's values, works with partners and land use and resource management planning to address unauthorized or detrimental conditions that can affect park values.

Table 10: Summary of the Benefits to the Missinaibi River since Designation

Type of Benefit	Description
Environmental Benefits	The CHRS designation adds weight to the goal of protecting a park that sustains a free-flowing river with natural heritage values: good water quality, water, riparian & upland habitats that support high biodiversity.
Cultural Benefits	Maintenance of a traditional waterway corridor as it would have been seen & used by aboriginal people, explorers & traders means that the river itself is an intact cultural landscape. The park & CHRS designation protects the cultural tradition of central Canadian waterway with cultural heritage sites which benefit traditional & current users.
Recreational Benefits	Recreational benefits of canoeing, boating & camping on such a long free-flowing river with reasonable accessibility to all Canadians have changed very little from the pattern that extends back thousands of years.
Monetary Benefits & Increased Stewardship	Designation to the CHRS allows increased access to funding for the synthesis of reports such as this one, as well as on-the-land investigations leading to better stewardship.
Community Engagement and Collaboration	The creation of the management plan led to discussions & collaboration of Ontario Parks Missinaibi Provincial Park with local communities, especially Mattice Val-Côté. A local municipal park along the river in that community now has an interpretive kiosk provided by Ontario Parks for river travellers on their journey & visitors to Mattice. This municipal park also exhibits a Canadian Heritage River plaque alongside a plaque to a local elder commemorating the Missinaibi River as a traditional waterway (Appendix).
Education Programs	Park educational material includes self-use information such as maps, brochures, park tabloids, plaques and information at the Barclay Bay gatehouse and Mattice kiosk.
Communications Products	Plaques provide information to travellers about the Missinaibi and the Canadian Heritage Rivers System (Appendix).
Indirect Benefits	The Missinaibi as a Canadian Heritage River protects & conserves heritage values in the eyes of traditional harvesters on the Missinaibi landscape. Local tourism outfitters promote a river system that is recognized for its natural and cultural heritage values at a national level. Visitors benefit local businesses & communities.

Bibliography

Cultural Heritage Information

Arthurs, D. 1979. Spirits of the Pictured Waters – The archaeology of the Missinaibi River Valley. North Central Region Report 12, Heritage Branch - Conservation Archaeology Report, Ministry of Citizenship and Culture, Thunder Bay. Accessed at the Ontario Parks Northeast Zone Library.

Arthurs, David. 1980. The historical identification of Wapiscogamy House. in C.S. Reid (ed.) Northern Ontario Fur Trade Archaeology: Recent Research pp 189-218. Toronto: Historical Planning and Research Branch, Ontario Ministry of Culture and Recreation. Accessed at the Ontario Parks Northeast Zone Library.

Background Information: Missinaibi River. Ontario Parks Northeast Region. Accessed at the Ontario Parks Northeast Zone Library.

Baldwin, Doug. 1974. The fur Trade in the Moose-Missinaibi River Valley, 1770-1917. Ontario Ministry of Natural Resources, Division of Parks, Historical Sites Branch, Northern Region. Accessed at the Ontario Parks Northeast Zone Library.

Burchard, J.E., "Canoeing to Salt Water: a brief account of the adventure and hardships which beset a hardy group of Hudson's Bay travellers." Photocopy accessed at the Ontario Parks Northeast Zone Library.

Canadian Heritage Rivers Board. 2014. Canadian Heritage Rivers System Principles, Procedures and Operational Guidelines 2014. Ottawa. From: http://www.chrs.ca/en/publications.php. Accessed on Nov 20, 2014.

Conway, Thor. (no date). Archaeology in Northeastern Ontario: Searching for our Past. Ministry of Culture and Recreation.

Conway, Thor. 1978. An Archaeological Survey of Little Missinaibi Lake: A preliminary report. Ontario Ministry of Culture and Recreation.

Crighton, V. (no date). The Chapleau Library Presents the Historical Photographs of Vince Crighton - Volume 2. From: http://www.chapleaulibrary.com/crichton/VC2/vc2.htm. Accessed November 21, 2014.

Crismar Mapping Services. 2008/2009/2014. The Adventure Map - Missinaibi 1, 2 and 3. 1:50 000 waterproof maps.

Dewdney, Selwyn, and K.E. Kidd. 1962. Indian Rock Paintings of the Great Lakes. Toronto: University of Toronto Press.

Hayne, D.M. 1969 “Lom D’Arce de Lahontan, Louis-Armand de, Baron de Lahontan,” in Dictionary of Canadian Biography, vol. 2, University of Toronto/Université Laval, 2003–, From: http://www.biographi.ca/en/bio.php?id_nbr=956. Accessed December 22, 2014.

Journals of Samuel Hearne and Philip Turnor between 1774 and 1792. New York: Greenwood Press. 1968.

Lepage, M. 1988. Brunswick House Circa 1776: Excavation and Reconstruction of Brunswick House [Wapiscogamy]. Submitted by the Northern Ontario Wilderness Preservation Association to the Ontario Ministry of Natural Resources. Accessed at the Ontario parks Northeast Zone Library.

McLeod, W.E. 2004. The Chapleau Crown Game Preserve: History, Murder, and other Tales. W.E. McLeod, Publisher: Sudbury.

Minister of Public Works and Government Services Canada. 2000. A Cultural Framework for Canadian Heritage Rivers (2nd edition). Canadian Heritage Rivers Board, Ottawa. From: http://www.chrs.ca/en/publications.php. Accessed on Nov 20, 2014.

Monk, K.E. 2009. Outpost Missinaibi Expedition: Archaeological Report for site Nos. 2009-017, 018, 019. Submitted to the Ontario Ministry of Culture in fulfillment of the license requirements for underwater archaeological survey in Missinaibi Provincial Park. Accessed at the Ontario Parks Northeast Zone Library.

Murphy, Mary-Lynn and Kirsten Franklin. 1985. The 20th Century Human History of Missinaibi Provincial Park. Ministry of Natural Resources, Ontario Parks Northeast Region. Accessed at the Ontario Parks Northeast Zone Library.

Nation Talk. 2008. Missanabie Cree First Nation Chief's Report February 2008: Chief Glenn Nolan, Missanabie Cree First Nation. From http://nationtalk.ca/story/missanabie-cree-first-nation-chiefs-report-february-2008/ . Accessed July 30, 2014.
Nipigon Museum - The Blog. 2012. Wapiscogamy House and Red Rock House "A tale of Two Posts" - a 1982 lecture by Field Archaeologist David W. Arthurs of the North Central Region Historical Planning and Research Branch of the Ministry of Culture and Recreation. Posted Thursday July 26th, 2012. From http://nipigonmuseumtheblog.blogspot.ca/2012/07/wapiscogamy-house-and-red-rock-house.html. Accessed September 18, 2014.
Norman, D. 1975. Missinaibi. Oar & Paddle (magazine) February/March Issue pp. 14-18. Accessed in compilation, "Recent and Old Newspaper Articles and Historical Reports" (September 1978) at the Ontario Parks Northeast Zone Library.
Northeast Superior Regional Chiefs' Forum (pamphlet). 2009. Chapleau. From nsfc.ca/files/Library/communities/ChiefsForumEN.pdf. Accessed November 20, 2014.
Ontario Ministry of Natural Resources. 1984???. Chapleau Crown Game Preserve Wildlife Management Plan 1985-2000: Background Information.
Parsons, Brian. 1971. Preliminary History of Missinaibi Provincial Park. Ministry of Natural Resources, Division of Parks, Historical Sites Branch. Accessed at the Ontario Parks Northeast Zone Library.
Pollock, J., and J.A. Burns. 1974. (Part 1: Pollock) A Preliminary Culture History of Missinaibi Lake Provincial Park. (Part 2: Burns) Faunal Analysis of the Snake Arm Inlet Site. Ontario Division of Parks Preliminary Resource Inventory. Ministry of Natural Resources, Historical Sites Branch, Archaeological Section. Accessed at the Ontario Parks Northeast Zone Library.
Pollock, John. 1976. Algonkian Culture Development and Archaeological Sequences in Northeastern Ontario. Ontario Ministry of Culture and Recreation.
Pollock, John. 2010. Stage 1 Archaeological and Cultural Heritage Assessment of the Lower Missinaibi River Provincial Park. Woodland Heritage Services Limited Project # J2010-07. Accessed at the Ontario Parks Northeast Zone Library.
Pugh, D. July 1970. A history and description of the Missinaibe [sic] River. Ministry of Natural Resources, Division of Parks, Historical Sites Branch. Accessed at the Ontario Parks Northeast Zone Library.
Pugh, D.E. 1972. Cultural Optimality, a Study of the Rise and Decline of the Cree Culture of North Eastern Ontario: A thesis Submitted to the Department of Canadian Studies of Carleton University in Partial Fulfilment of the Requirements for the Degree of Master of Arts. From: www.donpugh.com/MA%20Thesis/Cultural%20Optimality.pdf . Accessed November 20, 2014.
Saunders, Reverend J. 1876. My Autobiography. Public Archives of Canada in the Church Missionary Society File No. C I/a, Appendix B (Reel AI02). As cited by Parsons (1971).
Shechepanek, M.J. "Trading Posts of the Moose -Michipicoten Trade Route" IN Canadian Geographic Journal, February 1971.
Shechepanek, M.J. 1971 Missinaibi House Site Excavation Report. Ontario Parks Northeast Region. On file at Ontario Parks Northeast Zone, Sudbury.
Smith, D.B. 1994. "Sanders, John" *in* Dictionary of Canadian Biography, vol. 13, University of Toronto/Université Laval, 2003. From: http://www.biographi.ca/en/bio/sanders_john_13E.html. Accessed November 21, 2014.
Solomon, E. 2009. What Lies Beneath: Searching for Lost History in the Murky Waters of the Missinaibi. Outpost (magazine) November/December Issue pp 34-52.
The Canadian Heritage Rivers System Charter. 2014. Canadian Heritage Rivers Board, Ottawa. From: http://www.chrs.ca/en/publications.php. Accessed on Nov 20, 2014.
Wheal, Ian. 1984. Historical Report on the Human History of Missinaibi Provincial Park 1900-1968. Accessed at the Ontario Parks Northeast Zone Library.

Natural Heritage Information

Minister of Public Works and Government Services Canada. 2001. A Framework for the Natural Values of Canadian Heritage Rivers (2nd edition). Canadian Heritage Rivers Board, Ottawa.
Benke, A.C., C.E. Cushing, eds. 2005. Rivers of North America. Elsevier Academic Press, Burlington MA, USA.
Bird and Hale Limited. 1992. A Biological Inventory and Evaluation of the Hay River Wetlands Area of Natural and Scientific Interest. Prepared for the Ontario Ministry of Natural Resources, Northeast Region and accessed at the Ontario Parks Northeast Zone Library.

Blackburn, C.E. 2004. Earth Science Inventory Checklist - Missinaibi-East Addition. Blackburn Geological Services for Ontario Ministry of Natural Resources, Ontario Parks, Peterborough.
Blackburn, C.E. 2004. Earth Science Inventory Checklist - Missinaibi-Hay River Addition. Blackburn Geological Services for Ontario Ministry of Natural Resources, Ontario Parks, Peterborough.
Blackburn, C.E. 2004. Earth Science Inventory Checklist - Missinaibi-Thunder House Falls Addition. Blackburn Geological Services for Ontario Ministry of Natural Resources, Ontario Parks, Peterborough.
Brunton, D.F. 1982. Missinaibi Park Life Sciences: A Reconnaissance Life Science Inventory of Missinaibi Lake Provincial Park, Sudbury/Algoma Districts Ontario. Prepared for the Ontario Ministry of Natural Resources, Northern Region, Cochrane.
Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds.). 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto.
Crins, William J., Paul A. Gray, Peter W.C. Uhlig, and Monique C. Wester. 2009. The Ecosystems of Ontario, Part I: Ecozones and Ecoregions. Ontario Ministry of Natural Resources, Peterborough Ontario, Inventory, Monitoring and Assessment, SIB TER IMA TR- 01, 71pp.
Dove-Thompson, D., C. Lewis, P.A. Gray, C. Chu, W. I. Dunlop. 2011. A Summary of the Effects of Climate Change on Ontario's Aquatic Ecosystems. Ontario Ministry of Natural Resources, Science and Information Resources Division, Peterborough.
Draper, D.M. 1992. Data Compilation for Mattagami Formation Deposits Occurring on the Missinaibi River as affected by the Missinaibi Park Reserve Extension. Ontario Ministry of Natural Resources. Accessed at the Ontario Parks Northeast Zone Library.
Environment Canada Water Office. 2014. Historical Data for Station Numbers 04LJ001, 04LM001, and 04LG004 (along the Missinaibi and Moose Rivers). From wateroffice.ec.gc.ca . Accessed November 20, 2014.
Frey, E. 1976. Earth Science Inventory - Missinaibi Park Reserve: Preliminary Report to Planning Team. Submitted to the Ontario Ministry of Natural Resources and accessed at the Ontario Parks Northeast Zone Library.
Hansen, M. C., P. V. Potapov, R. Moore, M. Hancher, S. A. Turubanova, A. Tyukavina, D. Thau, S. V. Stehman, S. J. Goetz, T. R. Loveland, A. Kommareddy, A. Egorov, L. Chini, C. O. Justice, J. R. G. Townshend. 2013. High-Resolution Global Maps of 21st-Century Forest Cover Change. Science 342:6160 pp. 850-853. From http://earthenginepartners.appspot.com/science-2013-global-forest. Accessed November 21, 2014.
Hartmann, H., G. Daoust, B. Bigué, and C. Messier. 2010. Negative or positive effects of plantation and intensive forestry on biodiversity: A matter of scale and perspective. The Forestry Chronicle 86: 354-364. From: http://www.archipel.uqam.ca/3319/1/2010_132_hartmann.pdf . Accessed December 22, 2014.
McKenzie McCulloch Associates. 1982. An Assessment of Earth Science Processes and Features For Land Use Planning of Missinaibi Lake Provincial Park and Park Reserve. Prepared for the Ontario Ministry of Natural Resources, Northern Region, Parks and Recreational Areas Branch and accessed at the Ontario Parks Northeast Zone Library.
Mosley, E. 2004. Natural Heritage Area Life Science Checksheet: Missinaibi Hay River Addition (P1542). Reviewed by Ed Morris in 2005. Ontario Ministry of Natural Resources, Ontario Parks Northeast Zone, Planning and Research Section, Peterborough.
Mosley, E. 2004. Natural Heritage Area Life Science Checksheet: Missinaibi East Addition (P1543). Reviewed by Ed Morris in 2005. Ontario Ministry of Natural Resources, Ontario Parks Northeast Zone, Planning and Research Section, Peterborough.
Mosley, E. 2005. Natural Heritage Area Life Science Checksheet: Missinaibi Thunder House Falls Addition (P1544). Reviewed by Ed Morris in 2005. Ontario Ministry of Natural Resources, Ontario Parks Northeast Zone, Planning and Research Section, Peterborough.
Naughton, D. 2012. The Natural History of Canadian Mammals. Canadian Museum of Nature, Published by the University of Toronto Press, Toronto.
Ontario Centre for Climate Impacts and Adaptation Resources (OCCIAR). 2011. Climate Change Impacts and Adaptation in Northern Ontario - Workshop Report. OCCIAR/MIRARCO, Laurentian University, Sudbury Ontario. From http://www.climateontario.ca/w_NorthernON.php. Accessed November 20, 2014.
Ontario Nature. 2013. Reptiles and Amphibians of Ontario. From: http://www.ontarionature.org/protect/species/reptiles_and_amphibians/. Accesssed January 14, 2014.

Ontario Ministry of Natural Resources. 2011. Report on the 2011 Chapleau Crown Game Preserve Winter Elk Survey - DRAFT. Chapleau District.
Ontario Waterpower Association. 2004. Abitibi River Water Management Plan - Appendix A: Terms of Reference. From www.owa.ca/ . Accessed November 20, 2014.
Penney, L. 1976. Fish and Wildlife Activity, Missinaibi River Recreation Corridor, Missinaibi Lake to Moose River Crossing. Chapleau District. Accessed at the Ontario Parks Northeast Zone Library.
Shea, G. 1977. Life Science Inventory: Missinaibi River Park Reserve, Preliminary Draft. Prepared for the Ontario Ministry of Natural Resources and accessed at the Ontario Parks Northeast Zone Library.
Skinner, R.G. 1973. Quaternary stratigraphy of the Moose River Basin, Ontario. Geological Survey Canada, Bulletin 225.
Suthey Holler Associates. 2010. Renewable Energy Opportunity Profile for the NSFC Region: Final Report. Submitted to the Northeast Superior Forest Community (NSFC), and the Northeast Superior Regional Chiefs Forum (NSRCF). From: http://nsfc.ca/nsfc/energy/project-energy-audit. Accessed November 20, 2014.
Tang, R., T.A. Johnston, J.M. Gunn, S.P. Bhavsar. 2013. Temporal changes in mercury concentrations of large-bodied fishes in the boreal shield ecoregion of northern Ontario, Canada. Science of the Total Environment 1:444 pp. 409-416.

Planning Documents

Provincial Parks Council. 1991. Missinaibi Provincial Park Proposed Zoning and Policy Options - Provincial Parks Council Recommendations. Government of Ontario.
Hammoude, A., G. Luste. 1978. Missinaibi Report. Submitted to the Ontario Ministry of Natural Resources by the Sierra Club of Ontario. Accessed at the Ontario Parks Northeast Zone Library.
Northern Ontario Wilderness Preservation Association. 1984. Missinaibi River - Phase 1: A Proposal for the Missinaibi Wild River Park. Submitted to the Ontario Ministry of Natural Resources and accessed at the Ontario Parks Northeast Zone Library.
Ontario Ministry of Natural Resources. 1974. Missinaibi River - Preliminary Fact Sheet. Compiled by Regional Parks Staff, Cochrane. Accessed at the Ontario Parks Northeast Zone Library.
Ontario Ministry of Natural Resources. 1975. Preliminary Documentation for Missinaibi River Park Reserve Resources, Constraints, and Planning Suggestions (First Draft). Northern Region, Division of Parks, Cochrane. Accessed at the Ontario Parks Northeast Zone Library.
Ontario Ministry of Natural Resources. 1977. Information: Missinaibi River. Public consultation document at Ontario Parks Northeast Zone Library.
Ontario Ministry of Natural Resources. 1978. A summary of Public Input into the Planning and Management of the Missinaibi River Park Reserve. Accessed at the Ontario Parks Northeast Zone Library.
Ontario Ministry of Natural Resources. 1978. The Missinaibi River Park Reserve Study - A boundary and Management Proposal. Public consultation document accessed at the Ontario Parks Northeast Zone Library.
Ontario Ministry of Natural Resources. 1979. Missinaibi River Park Reserve Interim Management Plan. Accessed at the Ontario Parks Northeast Zone Library.
Ontario Ministry of Natural Resources. 1984. Canadian Heritage Rivers System Nomination Document for the Missinaibi River, Ontario. Accessed at the Ontario Parks Northeast Zone Library.
Ontario Ministry of Natural Resources. 1990. Missinaibi Provincial Park Background Information and Issues. Accessed at the Ontario Parks Northeast Zone Library.
Ontario Ministry of Natural Resources. 1994. Missinaibi Provincial Park Preliminary Management Plan. Queen's Printer for Ontario. Public Consultation document accessed at the Ontario Parks Northeast Zone Library.
Ontario Ministry of Natural Resources. 2004. Missinaibi Park Management Plan. Ontario Parks. Queen's Printer for Ontario, Canada. From http://ontarioparks.com/english/planning_pdf/miss_park_manage.pdf. Accessed November 21, 2014.
Provincial Parks Council. 1991. Recommendations by the Ontario Provincial Parks Council and Responses from the Minister of Natural Resources Concerning Missinaibi Provincial Park Proposed Zoning and Policy Options. Government of Ontario, Ministry of Natural Resources.

Sierra Club of Ontario. 1975. Missinaibi: A Wild River Park Proposal. Submitted to the Ontario Ministry of Natural Resources and accessed at the Ontario Parks Northeast Zone Library.

Recreation Information

Chrismar Mapping Services Inc. 2008/2009. Missinaibi 1, Missinaibi 2, Missinaibi 3 (maps) The Adventure Map Series (waterproof) is made by Mark Jameson and Christine Kennedy. Uxbridge, Ontario. www.chrismar.com.

Wilson, Hap. 2004. Missinaibi, Journey to the Northern Sky: from Lake Superior to James Bay by Canoe. Erin: Boston Mills Press.

VIA Rail Canada. 2014. Personal Correspondence regarding the inquiry from Ontario Parks as to the number of stops and pickups at Peterbell, on the Missinaibi River. Access to Information Request Response.

Appendix: CHRS Commemorative Plaque Inventory

There are two plaques along the Missinaibi River announcing its designation into the Canadian Heritage River System outlined in the table below.

CHRS COMMEMORATIVE PLAQUE INVENTORY REPORT	
Name/Job Title of Inspector(s)	Barb Henkenhaf
Plaque Title:	The Canadian Heritage Rivers System, May 2004. Missinaibi River
Location:	Town of Mattice, Ontario
G.P.S. Coordinates:	Zone 17, 3364455.48, 549790.57
Size of Plaque:	Approximately 2 feet by 3 feet.
Languages:	English, French, Cree, and Ojibwe
Date Plaque Installed:	September 2004
Mount Description:	Tabular Steel
Description of Location:	South side of Highway 11, town of Mattice
Photo Inventory	Photo 22 below.
Name/Job Title of Inspector(s)	Barb Henkenhaf
Plaque Title:	The Canadian Heritage Rivers System, May 2004. Missinaibi River
Location:	Missinaibi Provincial Park, Barclay Bay Campground
G.P.S. Coordinates:	Zone 17, 313082.14, 5364686.12
Size of Plaque:	Approximately 2 feet by 3 feet.
Languages:	English, French, Cree and Ojibwe
Date Plaque Installed:	September 2004
Mount Description:	Tabular Steel
Description of Location:	Dock/ boat launch area
Photo Inventory	Photo 23 below.

Photo 22: CHRS commemorative plaque in Mattice, Ontario. Source: Ontario Parks.

Photo 23: CHRS commemorative plaque at the Missinaibi Provincial Park campground at Barclay Bay on Missinaibi Lake. Source: Ontario Parks.