



turtle tracks

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Spring 2017

From the Chair

What's in a date?

This year, 2017, is the 150th anniversary of Ontario and Canada, but what's in a date?

One hundred ten years ago the Kenora Thistles made a successful challenge for the Stanley Cup. One hundred years ago an historic battle at Vimy Ridge, helped shape Canada as a nation; the Toronto Maple Leafs were founded. Sixty five years ago Queen Elizabeth ascended to the throne.

Closer to Misery Bay, Ned Saunders built his shanty 135 years ago; forty years ago the NCC completed arrangements to assume title of the Sifferd properties; the FOMB celebrate their 21st birthday, and Misery Bay has been an operating Park for 15 years.

Special events to commemorate these milestones will be held at Misery Bay this summer.

N.B. The 2017 Annual General Meeting will be Saturday June 24th at 10.00 a.m. The meeting will be followed by a guided hike with leader Marcel Bénéteau (in conjunction with 4 Elements), to look at and photograph Misery Bay wetland plants.

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Whatever your reason to celebrate in 2017, get out and participate in a celebration near you. Join us (the FOMB) for a celebration/opening of our new exhibits at Misery Bay Visitors centre, August 2nd 2017, from 2 to 4.

FOMB kicks off their Canada 150 Celebrations – February 11th

Who could have asked for a better day? The snow the previous day created the perfect conditions for our trek to the south shore of Misery Bay to see the ice formations. Ten intrepid and determined skiers and snow-shoers trekked down the inland alvar trail to the south shore. Conditions were perfect for an afternoon outside, mild, no wind, with just the right amount of freshly fallen snow.



Although not clear from these photos, in places the ice had a bluish colour to it.



The Inland alvar trail is quite a challenge on skis due to its narrow, twisty nature, with drop-offs down previous shorelines. If you are considering wilderness skiing in Misery Bay use the red trail to the beach.

Under the Visitor Centre

Peter J. Barnett

(N.B. Ontario Parks, Science North and the Friends of Misery Bay are creating an onsite exhibit of the features described here in "Under the Visitor Centre".

The Visitor Centre was built in such a location as to be perched on the top of a shore bluff that once overlooked the shore of the post-glacial Nipissing Great Lakes that remained there between 6,000 and 4,000 years ago. The flat lying bedrock plateau that the main part of the building is sitting, is one of the oldest land surfaces at Misery Bay having been exposed to weathering for at least 10,000 years following the demise of glacial Lake Algonquin and its subsequent falling water phases. The remainder of the Park, from here (the Visitor Centre) to the shore of Misery Bay have been exposed to the same weathering processes for a much shorter time (4,000 years or less).

Mildly acidic rain and soil water is slowly dissolving the carbonate-rich (dolomitic) bedrock and is creating specific features of solution weathering or **Karst**. The rainwater becomes acidic by picking up carbon dioxide from the air and additional carbon dioxide and organic acids from the soil. Vegetation, mosses lichens and even trees, also plays an important role in karst development. Several karst features are on display under the Visitor Centre (Figure 1).

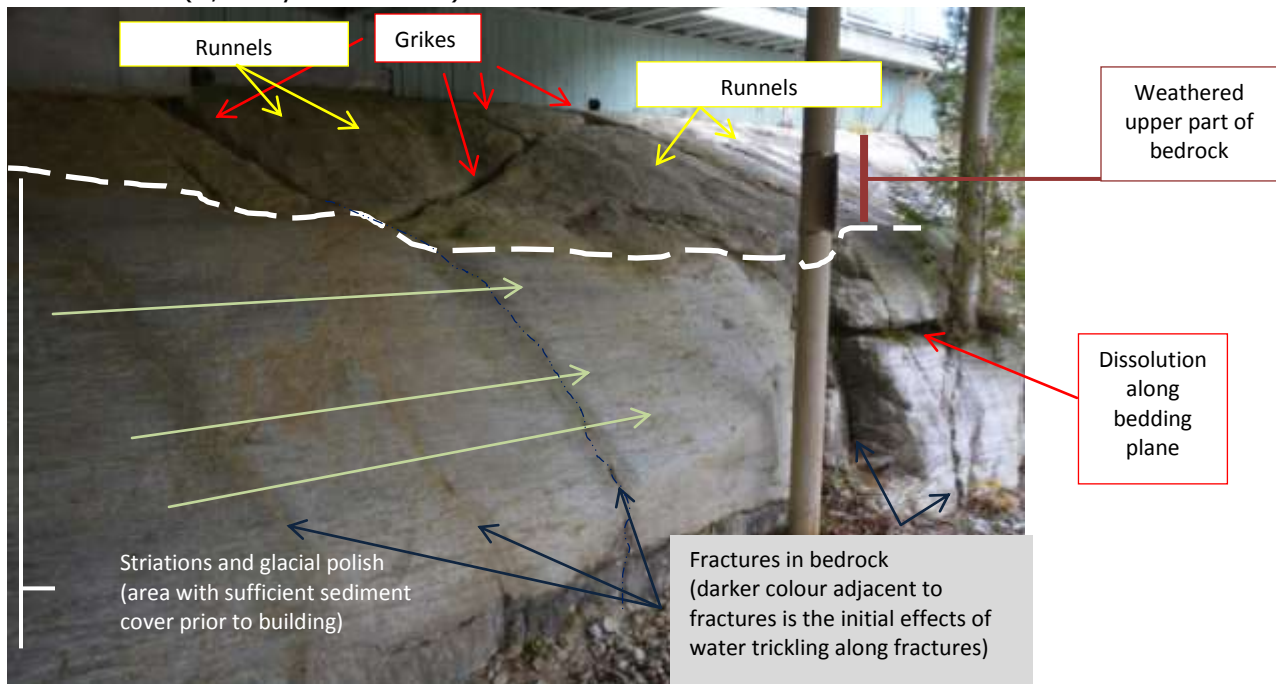


Figure 1. The face of the bedrock escarpment exposed under the Visitor Centre displaying examples of both solution weathering (karst) and glacial abrasion features.

A little recent history first. When the Visitor Centre was constructed in 1982, The face of the bedrock escarpment was covered by sediments deposited directly from the base of the glacier called **till**. This cover was thin at the top and thickened down the escarpment face. The waves of the Nipissing Great Lakes eroded into the till and not the bedrock escarpment at this locality. During Visitor Centre construction the till cover was removed exposing well striated and polished surfaces on both the face of the escarpment and the bedrock floor beneath. The bedrock surface throughout the entire Park likely was striated and polished following glaciation, however through long periods of weathering or being exposed in the near-shore zone of the post-glacial lakes to wave and current erosion or both they have been removed. Today, features of glacial movement are only found in places like this, under the Visitor Centre, where till was thick enough to protect and preserve them from weathering or on bedrock surfaces that have been exposed for less than 1,000 years or so, like at the Alvar Arena or along the shore of Misery Bay.

Back under the Visitor Centre, both features of karst and glacial erosion can be seen. Karst features include **grikes**, **clints** and **runnels**. Grikes and clints go together. Runnels are a different type of karst that forms on the surface of the



Figure 3a. Frontal view of the runnels under the Visitor Centre.

bedrock similar to forms like **pit karren** and **pans**. The latter two form on level surfaces (not present along the escarpment face) whereas runnels form on the slightly sloping bedrock surfaces here.

Weaknesses or small fractures in the bedrock are slowly widened by the mildly acidic rainwater that trickle along the fractures and dissolved the rock, widening the fractures producing "grikes" (Figure 1). Clints are the blocks of solid rock that are surrounded by grikes (Figure 2).

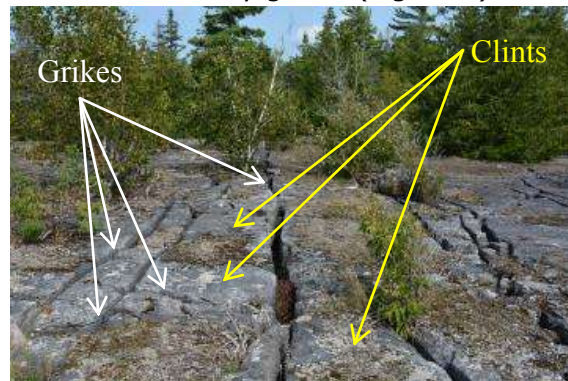


Figure 2. Clints and grikes above the Nipissing Great Lakes shoreline.

Runnels form on the surface of clints where the mildly acidic rain waters flow along a gently sloping bedrock surface that is covered by a thin layer of soil. (Figure 1; 3a, b). They are shallow winding troughs on the rock surface.



Figure 3b. Oblique view of the same runnels

Other Karst features that occur in the park include pit karren and pans (Figure 4), linear depression features formed under tree roots (Figure 5) and **sinkholes** (Figure 6).



Figure 4. Pit karren (small circular depressions) and pans (larger depressions under mosses).



Figure 5. Linear depressions probably formed under former tree roots.



Figure 6. Small sinkhole developed in the Nipissing shoreline caused by the collapse of bedrock beneath.

Back under the Visitor Centre several examples of glacial erosion can also be seen. There are the **striations** caused by rock fragments held at the base of the glacier being dragged along the bedrock surface creating the long, linear or curvilinear scratches. Finer particles in the glacier when dragged along the bedrock surface can actually polish the rock (**glacial polish**). These features remain (Figure 1) because they were protected from weathering by the cover of till left behind when the glacier melted.

Plucking also occurs beneath a moving glacier. The glacier can remove blocks of rock from the bedrock surface as water which occurs under a sliding glacier refreezes, expands and lifts off the piece of the bedrock. It leaves behind a scar and as the glacier continues to slide, the edge of the scar on the up-glacier side can remain sharp and the opposite edge down-flow is commonly smoothed and striated (Figure 7a, b).

Two other features that form by a combination of glacial abrasion and subglacial meltwater, occur under the Visitor Centre. The first is a glacial **groove**, a long linear depression in the bedrock surface, and a **comma form** that as the name suggests is a depression in the bedrock surface shaped like a

“comma”. It is formed beneath the glacier by turbulent flowing meltwater under pressure. The turbulent meltwater forms a vortex that scours into the bedrock surface later to be striated once the base of the glacier touches down on the rock surface again. Figure 7 a and Figure 7b below show the striated floor under the Visitor Centre and examples of these features that are associated with, or evidence of, glacial and subglacial meltwater erosion and a once actively moving and sliding glacier.

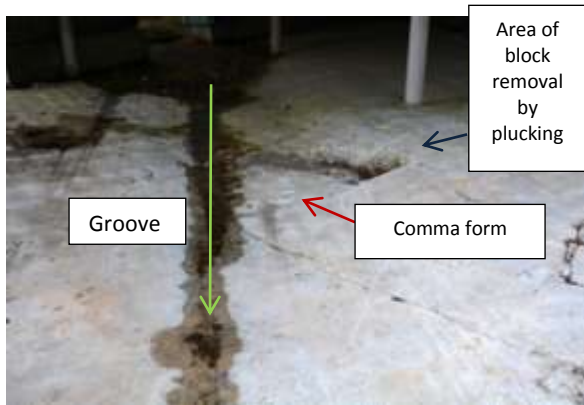


Figure 7a. Looking northward under the Visitor Centre.

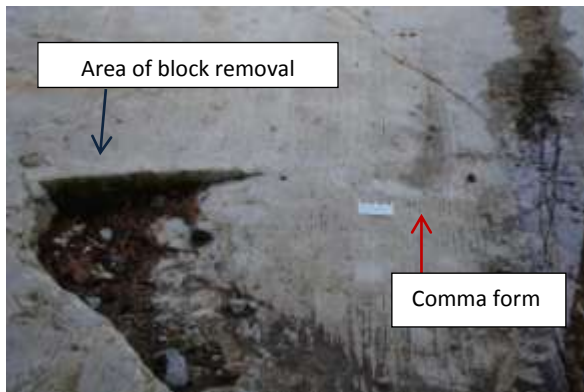


Figure 7b. Looking southward (down-glacier flow).

Only along the shoreline area of Misery Bay Provincial Park are features of glacial erosion visible again. In the Alvar Arena, which was likely only exposed to weathering processes for about 1000 year, striations, **chattermarks** and broad shallow subglacial meltwater **cavetos** occur. **Rock drumlins** (Figure 8a), grooves, **cavetos** (Figure 8b) and striations occur along the shore near the Shelter at Saunder’s Cove. Karst features of pit karren and pans are also abundant along the bedrock platforms adjacent to Misery Bay.



Figure 8a. Distal end of rock drumlin.



Figure 8b. Caveto (shaded area) on flank of rock drumlin and adjacent groove (linear wet area).

Introducing the Gray Jay



This Gray Jay was photographed by Terry Land in January 2017

There are movements afoot in Canada to select a National Bird as part of the Canada celebrations for its 150th year of existence in 2017¹. Currently we have the maple as our official tree and for better or worse, the beaver as our official mammal.

So why not have an official bird? Many countries have one, the U.S. with its bald eagle being a prime example.

Historically the companions of First Nations hunters and trappers and European explorers and voyageurs, gray jays are today common visitors in mining and lumber camps and research stations, and follow hikers and skiers down trails in provincial, territorial and national parks.

"My vote for Canada's bird goes to the gray jay. Two other contenders are

¹ As of November 16, 2016, the Royal Canadian Geographic Society has declared the Gray Jay winner of its year-long online survey to choose Canada's official bird and has recommended that the federal government recognize this fact as part of the Canada 150 celebrations. Ottawa has yet to respond to this request.

birds I really like, the common loon and the snowy owl. Both of their distribution maps pretty well echo the map of Canada, however, both are also found in northern Eurasia. The gray jay, or Canada jay or whiskey jack, is all ours. We do share it a bit with the U.S. in Alaska and the western mountains, but it is all over forested Canada. For me, all of my experiences with gray jays are experiences I have had in the wilderness. Those, for me, of course, are experiences of joy. Like Canada, the gray jay is a quiet bird but not shy. In fact, it is friendly in a gentle way which is the way I like to think of us Canadians. My first memory was as a teenager in Algonquin Park driving through the gate in winter. We saw a gray jay and stopped. Rather than fly away it flew nearer to us. So on a hunch I took a little piece of sandwich and held it out. Then I was treated to the thrill of the trusting bird landing on my fingers. Friendly but wild. Could that be Canadians at their best?"

— Submitted on Friday, February 27, 2015 by Robert Bateman (Salt Spring Island, BC)

Here are no less than FIFTEEN compelling reasons why the gray jay would be a great choice:

1) Found in all thirteen provinces and territories; it is only barely found in the U.S., in the Rocky Mt. region and Alaska;

2) A member of the corvid family, arguably the smartest birds on the planet; gray jays have nearly the same body-to-brain ratio as humans. This means they're not only experts at recalling the locations of numerous winter food stashes hidden throughout their territories, but that they're instinctually

curious and quite bold in their interactions with humans. Canadians eager to visit the country's national and provincial/territorial parks to see this national symbol may encounter birds just as likely to seek *them* out in the forest.

3) Extremely friendly toward humans like all Canadians, often found panhandling on cross-country ski trails; in some traditional Ojibwa stories, the trickster *Nanabozho* takes the gray jay's form and leaves it with a playful, generous spirit. But it's to the Cree peoples especially that *Wisakedjak* is a shape-shifter who frequently appears as the gray jay, a benevolent trickster, teacher and messenger of the forest. To many western First Nations, the appearance of a gray jay in the morning is a good omen, and its' chattering and whistles an early warning to hunters of nearby predators. There are even Gwich'in guides in the Yukon who tell of gray jays singing from tree to tree to lead a lost and starving hunter home.

4) Very hardy like all Canadians, having highly adapted itself to living in very cold regions;

5) Figures strongly in First Nations folklore, also called the whiskey jack; the common moniker "whiskey jack" has nothing to do with the grain-based alcohols, but is rather an Anglicization of the Cree *Wisakedjak* and similar variations used by nations in the Algonquian language family, which makes the gray jay Canada's only bird commonly referred to by a traditional Indigenous name.

6) Is not an endangered species and thus, not at risk of disappearing; Gray jays are neither hunted nor endangered, but they are prime indicators of the health of the boreal and mountain forest ecozones and

of climate change — in a prime position to inspire a conservation philosophy for all kinds of northern land uses.

7) Figures prominently in the boreal forest ecological zone, constituting a vast portion of our country worthy of protection and under pressure from clear-cutting and oil and gas development;

8) Not a hunted species, so it is not shot by Canadians;

9) Not an official bird species for any of the 10 provinces and recognized territories nor any other country (common loon is Ontario's bird; snowy owl is Quebec's bird)

10) Formerly called the Canada jay by ornithologists; its French name is *mésangeai du Canada* and its Latin name is *Perisoreus canadensis*!)

11) Stays in Canada year-round; Gray jays are year-round residents of Canada remaining in the northern forest when the majority of loons and Canada geese have flown south and even snowy owls have descended from the Arctic. They are astonishingly good at making the most of even the coldest, darkest winter months. These tough birds are unique for nesting as early as February, while the forests are still thick with snow, and have been recorded incubating eggs in snowstorms and at temperatures as cold as -30 C

12) Not flamboyant in its appearance, best representing the conservative nature of Canadians! The deceptively cute Gray Jay is one of the most intrepid birds in North America, living in northern forests year-round and rearing chicks in the dark of winter. Highly curious and always on the lookout for food, Gray Jays eat just

about anything, from berries to small animals. They may even land on your hand to grab a raisin or peanut. During summer they hoard food in trees to sustain themselves through bleak winters.

13) Not regarded as an obnoxious or nuisance species (like the Canada goose which is culled in the U.S.!))

14) Cannot be confused with any other bird species (99.6 per cent of Canadians cannot tell the difference between a raven and a crow!)

15) Not a circumpolar species, i.e., not found in other northern countries (as are the snowy owl and raven); historically the companions of First Nations hunters and trappers and European explorers and voyageurs, gray jays are today common visitors in mining and lumber camps and

research stations, and follow hikers and skiers down trails in provincial, territorial and national parks.

Truly a Canadian bird! If Canada adopts this species as its national bird, we might even be able to convince the Nomenclature Committee of the American Ornithologists' Union to rename it the Canada jay. The only thing going against it is that many Canadians do not see this bird every day (unless they enjoy skiing!), but lots of states and provinces as well as other countries have official birds that the public does not see on a regular basis and may in fact never see them as a live bird. The fact is that once it is chosen, we can promote the bird so that Canadians make an effort to visit our boreal forest to become very familiar with it and indeed, be proud of it as our National Bird.



Bladderworts: Misery Bay's Pretty Little Carnivores

by Marcel Bénéteau

Misery Bay is home to an amazing collection of flowering plants that bloom from early spring to late autumn in a wide range of habitats. Well known for its exotic orchids, provincially rare thistles and Lakeside Daisy (aka Manitoulin Gold), the park also hosts a variety of more obscure plants that are just as exotic and



Fig. 1 Common Bladderwort, floating stems and bladders

amazing in their own right. Three types of carnivorous plants are found in the park, all of them employing different strategies to get nutrients from their impoverished environments. Pitcher Plants drown and digest insects in their specialized, tube-like leaves. The Sundews trap insects with the sticky dew-like secretions lining their spiky leaves that relentlessly enfold the victims as they struggle to escape. But the most ingenious – and most easily overlooked – of all the meat-eaters are no doubt the little plants of the Bladderwort family. These tiny innocuous-looking

yellow-flowered plants would be among the last species you would suspect of having carnivorous appetites.

Four members of the Bladderwort genus make their home in wetter areas of Misery Bay. Three of these can be seen rising above the water along the boardwalk on the west side of the park; the other one is easily found along the nearby shoreline. The genus name is *Utricularia*, which means “little bottle,” referring to the bladder-like structures the plants use to



Fig. 2 Close-up of bladders

trap tiny animals (see **Fig. 1 and 2**). These are usually submerged and not readily apparent; they have nevertheless been described as the most complex structure in the plant kingdom. The bladder walls pump water out of the bladder, creating a powerful vacuum inside. Small trigger hairs near the opening release a “trap door” that swings inwards when a small creature brushes against them, sucking in water and critter in *one millionth* of a second. The door snaps shut and the bladder walls pump

the water out, creating a new vacuum while enzymes digest the victims. Aquatic worms, water fleas and insect larvae are all fair game. This is the sole source of nutrition for these free-floating, rootless plants.



Fig. 3 Common Bladderwort flowers



Fig. 4 Common Bladderwort, close-up of flower

All Bladderworts produce flowers at the end of a thin stalk that rises above the surface of the water and this is what you

can most easily observe. The tiny size of their blooms does not take away from their unusual and complex forms. Common Bladderwort (*Utricularia vulgaris*) (figures 3 and 4) can be easily observed throughout the summer from the fen boardwalk. The irregular flowers are 1 to 2 cm across, bright yellow and composed of two equal lips, the lower one curving upwards in a spur. Some red veins are often visible on the flowers, several of which can appear on the stalk.



Fig 5 Flat-leaved Bladderwort, close-up of flower

Flat-leaved Bladderwort (*U. intermedia*) also flowers throughout the summer months in shallow peaty water (Fig. 5). It is easily identified, as not only the (submerged) leaves but also the lower flower lip is broadly flattened, with an inflated pouch at its upper end.

Small (or Lesser) Bladderwort (*U. minor*) (figures 6 and 7) grows in similar habitats but is less common and easily overlooked due to its minute size (5-6 mm) and much paler colour. Simpler in shape, it has a long, fairly rectangular lower lip which is twice as long as the upper lip.



Fig 6 Small Bladderwort

Horned Bladderwort (*U. cornuta*) (figures 8 and 9) differs from the other members of the genus found in the park in being usually observed in dryer environments. Although the flowers can be seen blooming profusely on sandy or peaty shores, these areas are water-covered at least part of the year and remain wet



Fig. 7 Small Bladderwort, close-up of flower

below the surface. The tiny bladders – with slight modifications to keep out inorganic material - trap small terrestrial organisms such as rotifers and protozoa that live in moist soil. The name “horned” refers to the long curved spur curling up beneath the bonnet-shaped lower lip.



Fig. 8 Horned Bladderwort



Fig. 9 Horned Bladderwort, close-up of flowers

Notable dates for 2017:

- May 20th: Opening weekend.
- June 16th – 18th: Ontario Nature North Eastern Regional meeting hosted by FOMB and Manitoulin Nature Club. Saturday June 17th, members are invited to join in a morning orchid hike at Christina Bay (10:00 till noon) and an afternoon geology hike at Misery Bay from 2:00 till 4:30. This will be followed by a barbecue (\$5.00) at Hideaway Lodge in Kagawong, presentations and a star-gazing party.
- June 24th : 4 Elements activity at Misery Bay: Wetlands Plant Walk and Photography Tips, led by Marcel Bénéteau and Jenna Carter, 1:00 – 5:00 PM(following AGA)
- July 24 – 28: This has been declared Phragmites removal week. The FOMB will be hosting a “Phrag Busting” day – stay tuned for more details.
- Aug. 24th: 4 Elements activity at Misery Bay: Geology Walk and Earth Pigment Painting, led by Peter Barnett and Mira Jones, 1:00 – 4:00 PM.

**YES! I want to become a
Friend of Misery Bay!**

Name: _____

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2017 Membership Fees

Student \$10.00 _____

Adult \$20.00 _____

Family \$40.00 _____

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