Land Acknowledgment

The land we are walking on is the traditional unsurrendered and unceded territory of the Wolastoqiyik, Peskotomuhkatik, and Mi'kmaq peoples. The ancestors of these peoples have been living here since time immemorial as the first peoples on this land. We acknowledge that the earth we engage with here today has sustained the Wabanaki peoples since the beginning, cultivating their cultures and shaping their perspectives.

While walking, we hope to honour these peoples and this land through awareness, gratitude, and thoughtful action.

Find all of our resource info, definitions of terms, and more, by scanning the QR code!

Resources

- New Brunswick Museum, 'Magnificent Rocks'
- Town of Hampton, 'Dutch Point Park'
- Natural Resources Canada 'Trees of the Acadian Forest'
- Nature Trust NB, 'Hampton Marsh Nature Preserve'

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Dutch Point Park Guided Walk

GÉOPARC
STONE HAMMER
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How Ancient Environments Shape Modern Landscapes

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HAMPTON It's our nature!

Dutch Point Park

Dutch Point Park is a 30 acre park open year-round with a network of multi-use trails. Once farmland, this area was acquired and developed by the town of Hampton in the 1980s. It is the entrance to Hampton's portion of the Trans Canada Trail, the world's longest trail network, spanning 28,000 km and connecting Canada from coast to coast to coast.

Suggested Route: *We suggest that you navigate the trails in whichever direction feels right. Read the sections associated with each marker at the location they are pinned, or, wherever inspiration strikes.*

UNESCO in NB

United Nations Educational, Scientific and Cultural Organization

Living within a UNESCO-designated area means living somewhere with internationally significant natural and cultural heritage!

UNESCO Global Geopark's are places where landscapes with outstanding geological heritage are used to support education, tourism, and sustainable development.

Established in 2010 as the first geopark in North America, Stonehammer is a 2500km area where you can find rocks and **fossils** that represent an almost continuous geologic history going back 1 billion years! The colonial study of geology in this region began in the early 1800s and received global recognition a few years later with the incredible finds of the **Steinhammer Club**, from whom our geopark takes its name.

Stonehammer is one of only two UNESCO designated areas in New Brunswick. We work closely with the other designated area, the **Fundy Biosphere Region.** UNESCO Biosphere Regions are areas that work to build vibrant and resilient human and environmental communities through conservation and promotion of sustainable development.

Hampton is also home to two **UNESCO Schools.** This network acts as a laboratory of ideas by experimenting with innovative teaching and learning approaches to address global challenges.

Walking in Nature

Exposure to nature has been linked to many benefits, such as improved attention, lower stress, better mood, reduced risk of certain health disorders and increases in empathy.

"There is mounting evidence, from dozens and dozens of researchers, that nature has benefits for both physical and psychological human wellbeing. You can boost your mood just by walking in nature, even in urban nature. And the sense of connection you have with the natural world seems to contribute to happiness even when you're not physically immersed in nature." - Lisa Nisbet, PhD Psyc, Trent University

Weir, Kiersten "Nurtured by Nature." American Psychological Assoc., Vol. 51, No. 3: Apr. 1, 2020. Online.

Notice a word in bold? Scan our QR code to learn more!

The Landscape

Looking at the **Kennebecasis River**, you'll notice that it runs through a smooth U-shaped valley. This valley wasn't carved by water; it was carved by ice. The **ice age** that shaped the surface of modern-day New Brunswick began about 100,000 years ago and ended about 11,000 years ago. These glaciers reached more than 2 km in thickness. **Glaciers** grow (advance) during periods with lots of snowfall, and melt (retreat) during warmer **interglacial periods**.

Advancing glaciers pick up soil, gravel, and boulders from the surface of the land. These materials become embedded at its base and, as the glacier moves across the land, they scrape and scour the earth, smoothing out rough edges, and creating features such as **striations**. Retreating glaciers deposit these embedded materials as they melt, disrupting the way the melting water moves and drains, and leading to the formation of ponds and **bogs**.

The River

The Kennebecasis River begins in the foothills of Albert County, becoming increasingly larger before emptying into the meandering, **delta**-like, river system of the **Ossekeag Creek** wetlands and **Hampton Marsh**, which is considered an **Ecologically Significant Area**. This area is a wide **floodplain** where winding streams are braided together. Although located far upstream from the **Bay of Fundy**, the Bay's high tides are still felt here. The marshes flood every spring during **seasonal run-off**. Water levels vary throughout the year, offering a constantly changing **landscape** for different animals, birds, fish, and people.

*Emily Kennedy, of the band Pallmer, grew up in this area: "I've always loved exploring the Kennebecasis - it changes so much throughout the seasons. One of my favourite places to paddle is through Beamers Creek in the early spring, when the water levels are high and you can paddle between the trees." To listen to music inspired by the flooding of the Kennebecasis, check out Pallmer's song '**Freshet**,' via the QR code.*

The Rocks

While there isn't much **bedrock** exposed in Dutch Point Park, we know that rocks to the south are **Carboniferous sandstones** and **conglomerates**, while rocks to the north are harder **Silurian volcanics**. This 450-300 million year old bedrock defines the landscape and determines the path of the river, which flows along the contact where these two types of bedrock meet.

The rocks that we do see along our walk are **glacial erratics**. These sometimes massive boulders were carried here by advancing **glaciers** and dropped during the glacier's retreat. Many of the erratics we see here are conglomerates. These conglomerates formed in a river, similar to the Kennebecasis, that existed here over 350 million years ago. Just like in a modern river bed, you will find pebbles of all types represented within these boulders. These pebbles would have been transported by the flow of that ancient river, which would also have reshaped them into smoother, rounder, rocks.

Incredible landscapes result from interaction between the elements.

You might be able to see ripples in the **sediment** along the shores of the river. These ripples can be turned into rock through the process of **lithification**. Watch for ancient ripples preserved in the rock faces along **Highway 1**!

How many types of rock can you count in the next erratic you come across?

The Fossils

The **environment** that existed here 350 million years ago would have been similar to what we see today, a **marshy**, **swampy** forest, but the **climate** would have been very different. At this time, New Brunswick would have been close to the equator, at the centre of the supercontinent **Pangea**!

This is a very important time in the history of life on Earth because it's when the very first **amphibians** were beginning to make their way out of water and onto land. Rocks from this time contain many **trace fossils** like footprints and **burrows** that were left behind by these animals. We still don't know a lot about who made these marks, but they give us a glimpse into how these early land animals interacted with their environment.

*Imagine what evidence you may leave behind to be discovered in the **fossil record** millions of years from now. How might future **palaeontologists** interpret your behaviours?*

The Animals

While walking, we might encounter a variety of wildlife, such as **muskrats**, **beavers**, and **weasels**, and birds, including ducks, **kingfishers**, **Red-wing blackbirds**, and the **Great Blue Heron**! The **habitat** here is ideal because of the abundant food resources available. The land also provides good earth to dig **burrows**, and grows strong trees to make **dams** out of and build nests in.

While the animals that live here today might seem familiar, the animals living here during our most recent **Ice Age** would have been very different. These **Megafauna** were specially adapted for colder climates, being giant and furry to maintain warmth! **Fossils** of animals like **mastodons** and **giant beavers** have been found in this region. Theories suggest that when the ice age climate changed, habitats changed too, and, as a result, these animals were no longer able to survive.

Walk quietly for a moment, do you hear any animal sounds? If so, who do you think it is? What do you think ancient mega-fauna might have sounded like?

The Plants

One of the oldest forests in Canada was found **fossilized** near Norton in 2006, and is 350 million years old! This forest was tropical, and was made up of ancient trees including **calamites**, which resembled bamboo, and could grow up to 40 feet tall! We might spot a descendent of calamites on our walk today - the **horsetail** plant is almost identical to its ancestor, but is only a fraction of the size.

As the **climate** gradually warmed over the last 11,000 years and the **glaciers** melted, the first **boreal forest** slowly expanded over the land, creating the **Wabanaki Forest** that we see here today. This forest includes tree species such as **red spruce**, **sugar maple**, **eastern hemlock** and **yellow birch**. The Wabanaki forest is now considered an endangered type of forest, and serious **conservation** efforts are needed to ensure these trees do not disappear into the past along with their ancient counterparts.

Sometimes it's easy to forget that trees are alive too. If a tree was walking through your home, how would you want it to act?