

### 3.2.3 Ecological units of the Piché-Lemoine proposed biodiversity reserve

#### A diverse forest

The Piché-Lemoine forest proposed biodiversity reserve (see appendix 4) covers about two thirds of the Piché-Lemoine forest, a territory designated by Ville de Val-d'Or as a recreational site.

Lemoine lake is almost entirely within the protected area. It, along with Fournière and Montigny lakes, makes up the head lakes of the Harricana river watershed.

The rocky basement of this territory is mainly composed of paragneiss (metasedimentary rocks). Certain parts situated to the west are granite and other sectors oriented northwest/southeast are made up of ultramafic (volcanic) rocks.

The general relief consists of a poorly drained clay and silt glaciolacustrine plain where bogs occupy areas with very poor or non-existent drainage. A few rare till mounds emerge in the area. Elevation varies between 293 and 363 metres with an average of 309 metres.

The forest cover is made up of mixed, deciduous and softwood stands in equal proportions. The main populations are black spruce stands and white birch stands. There are a few yellow birch stands, aspen stands and jack pine stands. The territory is mainly composed of average age forests (50-70 years). The young forests (10-30 years) and the mature forests (90 years and more) occupy equal proportions on the territory, that is, about 20% of the forest cover each.

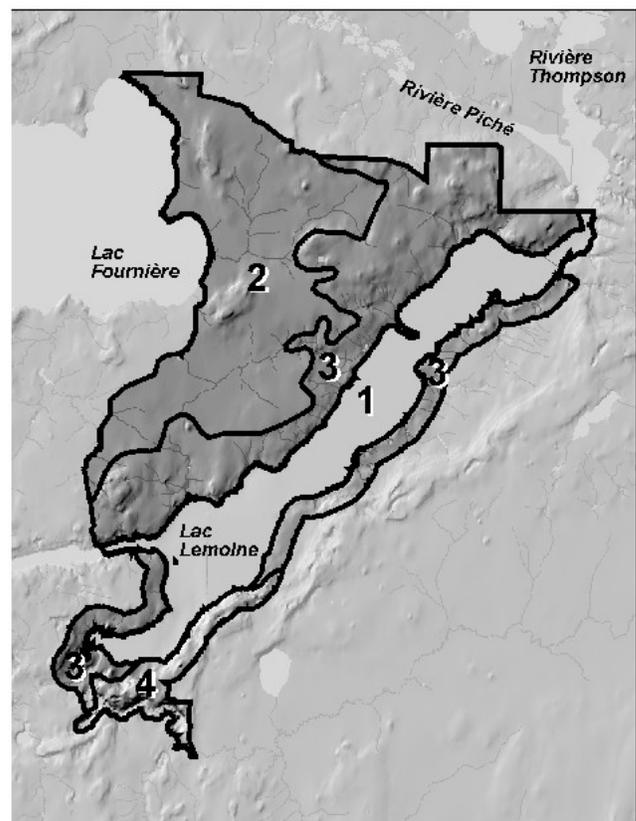
This territory is divided into four distinct ecological units (see map to the right):

- Lemoine lake (1)
- The bog (2)
- The plain (3)
- The Harricana Moraine (4)

The five ecological units are mainly distinguished by the combination of their landforms and surface deposits. The vegetation cover of each unit is influenced by these physical features. The natural and anthropogenic disturbances have also influenced the forest growth dynamic.

It should be noted that the proposed biodiversity reserve is located near the passage of the Harricana Interlobate Moraine, of which ecological unit 4 protects a small part.

The numerous eskers in Abitibi-Témiscamingue originate from two glacial lobes meeting and evacuating meltwater and creating a large deposit of sand and gravel known as the Harricana Interlobate Moraine (Miron, 2000).

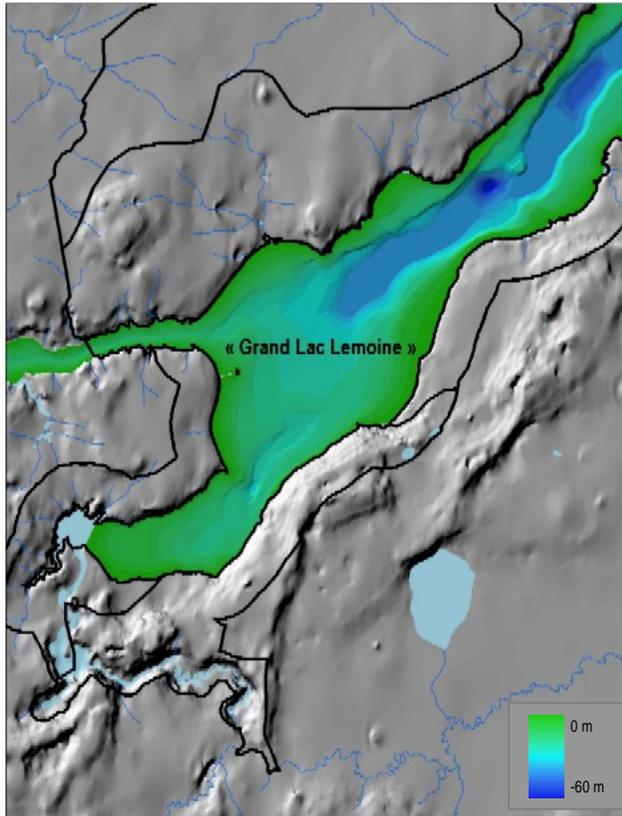


*Location of ecological units*

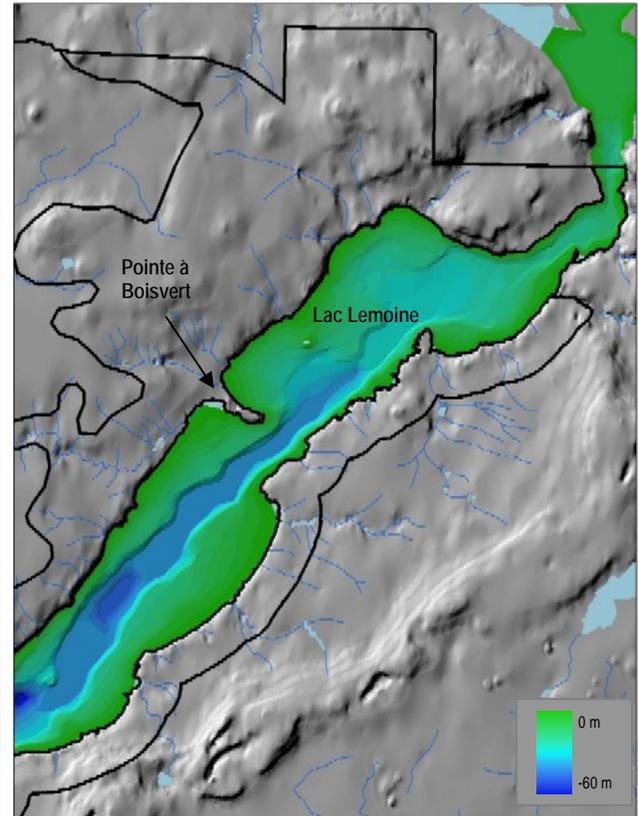
### 3.2.3.1 Ecological unit 1 – Lemoine lake (23 km<sup>2</sup>)

#### Lemoine lake

- Its average elevation is 293 metres with a surface area of 23 km<sup>2</sup>
- It is 30 kilometres long on a northeast/southwest axis
- It is 2.6 kilometres wide in the southwest end where it is commonly referred to as “Grand Lac”
- Its maximum depth is 52 metres at the northeast end of the “Grand Lac”
- It empties into Thompson river, which feeds Montigny lake
- The banks in the northeast and southeast are occupied by resort dwellings and the northwest banks are relatively unoccupied
- This lake is largely used for water sports and fishing



Lemoine lake (southwest part) - bathymetry



Lemoine lake (northeast part) - bathymetry



Northeast bank of Lemoine lake



Lemoine lake and Pointe à Boisvert point

### 3.2.3.2 Ecological unit 2 – The bog (31 km<sup>2</sup>)

#### Relief and surface deposits

- Open depression on Fournière lake
- Organic deposits forming bogs
- Higher parts covered in poorly drained clay and silt or glaciolacustrine sand
- A few sections of a sandy fluvoglacial system (esker) oriented north-south
- A few rare very small till mounds
- Elevation varying between 304 and 340 metres with an average elevation of 310 metres
- Average difference in elevation of 10 metres

#### Geology

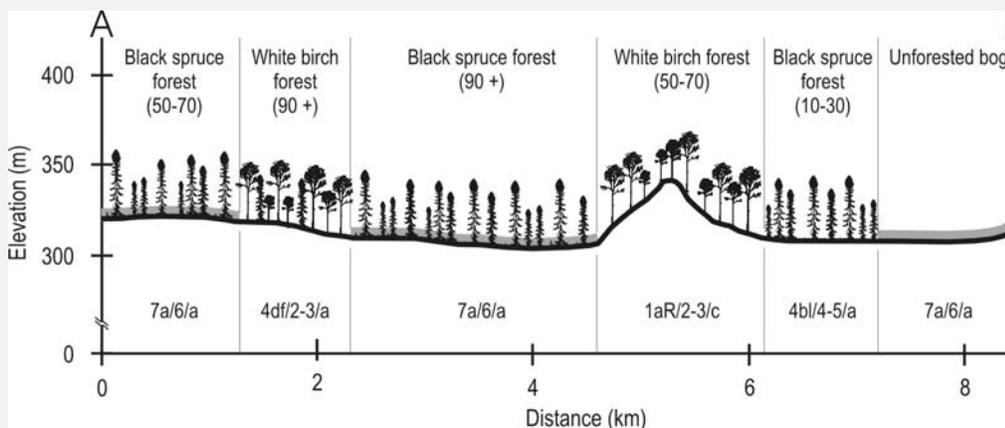
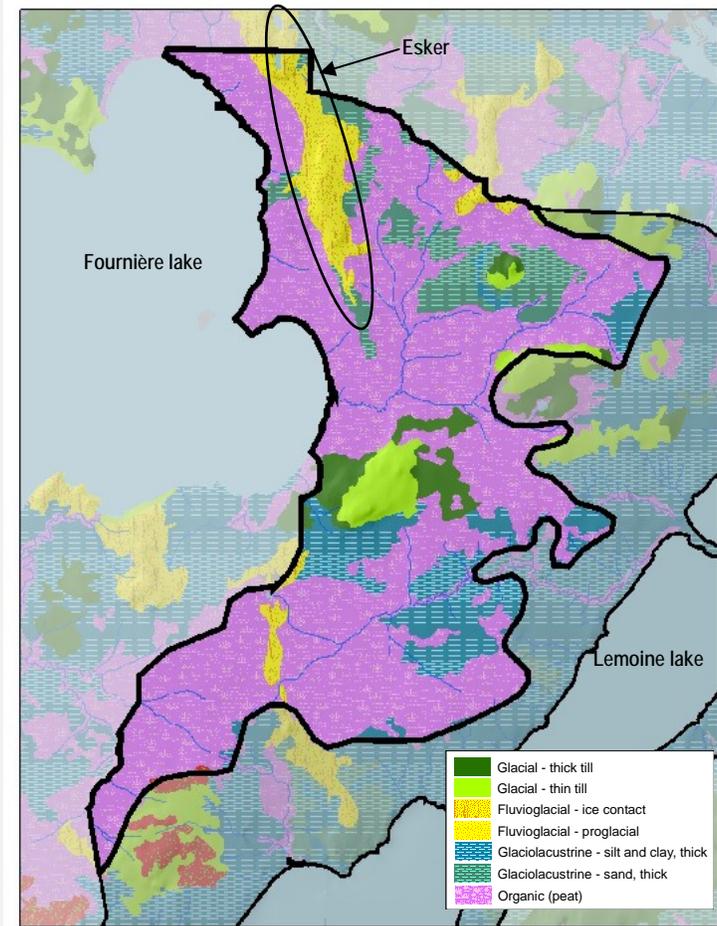
- Almost entirely made up of paragneissic rock, except in the northwest and southwest ends where the bedrock is granite
- Ultramafic rocks 1.3 kilometres wide and oriented east-west

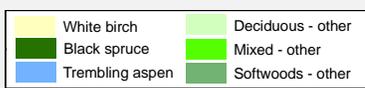
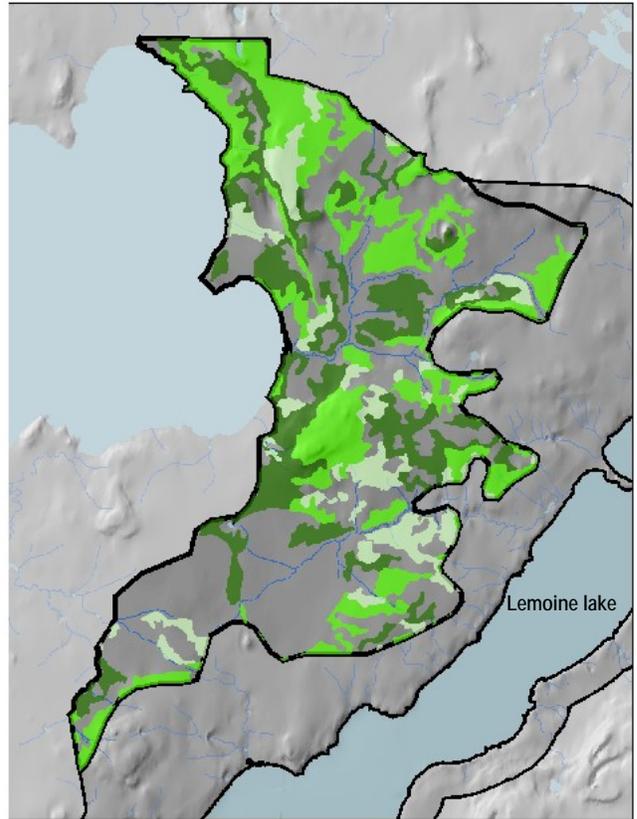
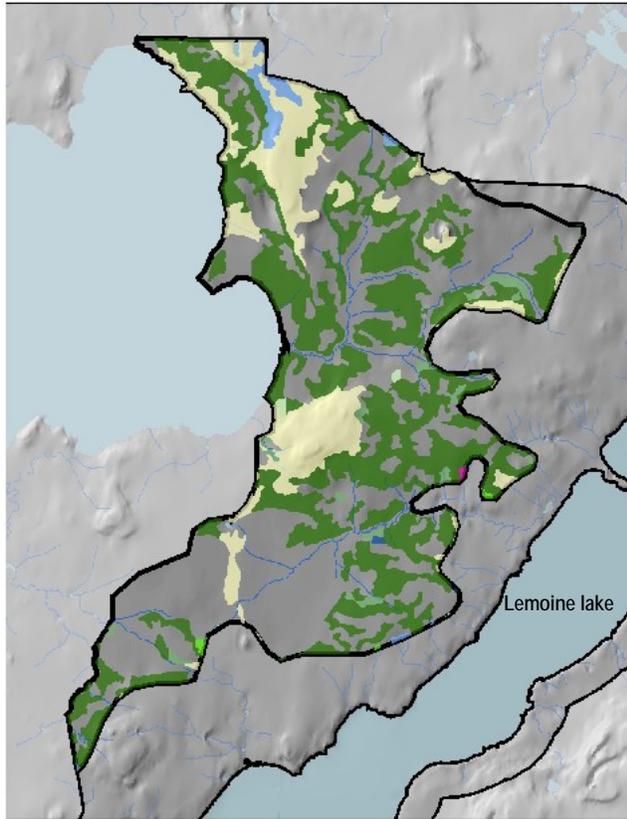
#### Watercourses and lakes

- No lake of significant size
- A few minor streams that empty into Lemoine lake or Fournière lake

#### Vegetation

- The forest only occupies two thirds of the unit, with the remainder consisting of unforrested bogs.
- Over half the forest territory is made up of softwood forests.
- The deciduous forests are mainly found on the till mounds, since they have better drainage.
- About half the forests are of average age (50-70 years).
- Forests aged 90 years and more occupy 28% of the forest cover.
- This unit is almost entirely covered in black spruce stands and white birch stands.
- There are a few trembling aspen stands on the fluviglacial system, northwest of the unit.





Black spruce stand near the north boundary of the reserve



Forested ombrotrophic bog

### 3.2.3.3 Ecological unit – The plain (36 km<sup>2</sup>)

#### Relief and surface deposits

- Plain slightly sloped towards Lemoine lake and made up of clay and silt glaciolacustrine deposits
- Dotted with the occasional till mound and rocky outcrop
- Dotted with a few fluvio-glacial deposits
- A few bogs occupy the rare depressions and stream banks
- Elevation varying between 295 and 349 metres with an average elevation of 315 metres
- Average difference in elevation of 20 metres

#### Geology

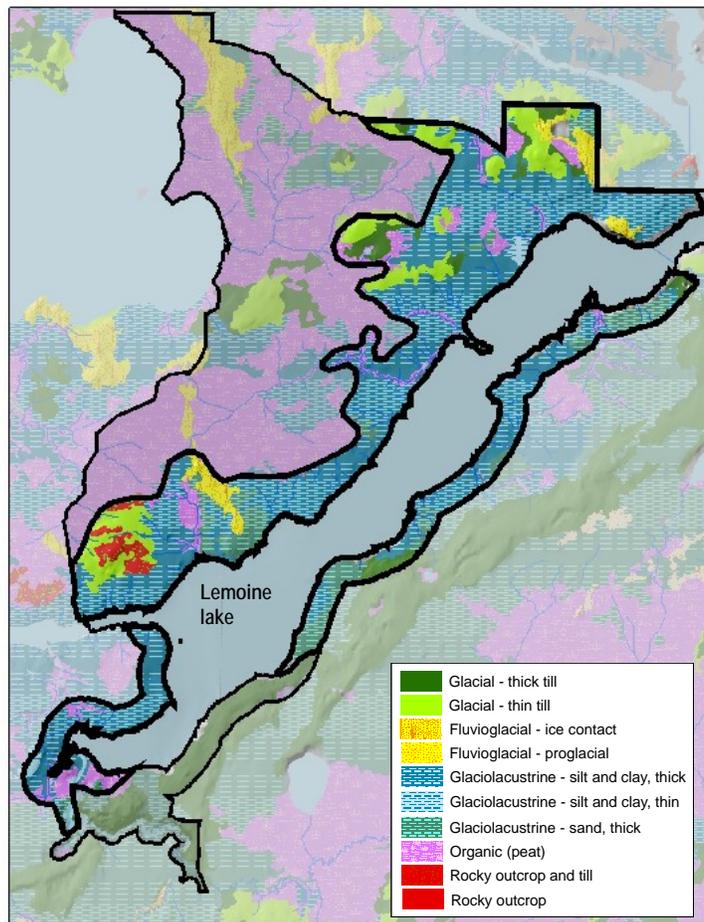
- Bedrock almost entirely composed of paragneiss
- Southwest bedrock is granite
- Bands of ultramafic rock 1.3 kilometres wide cross on the horizontal

#### Watercourses and lakes

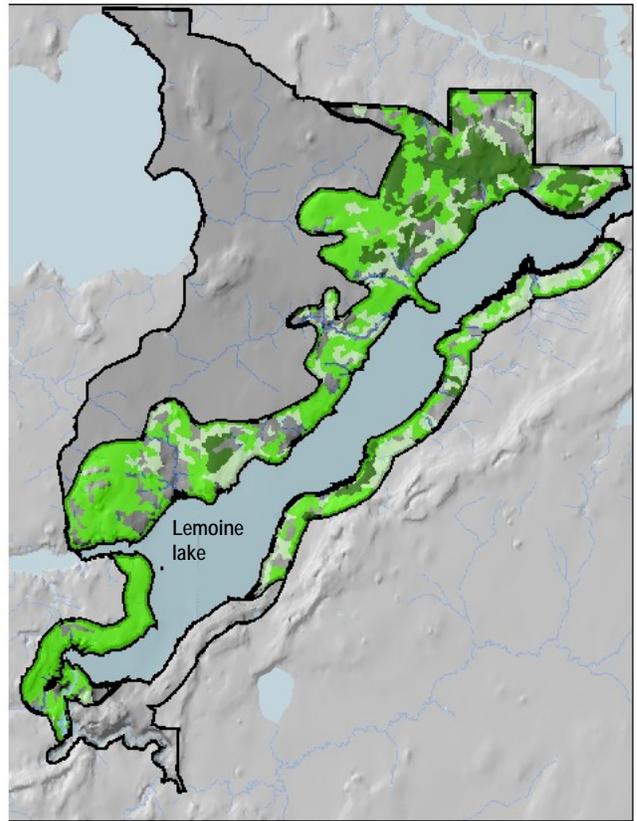
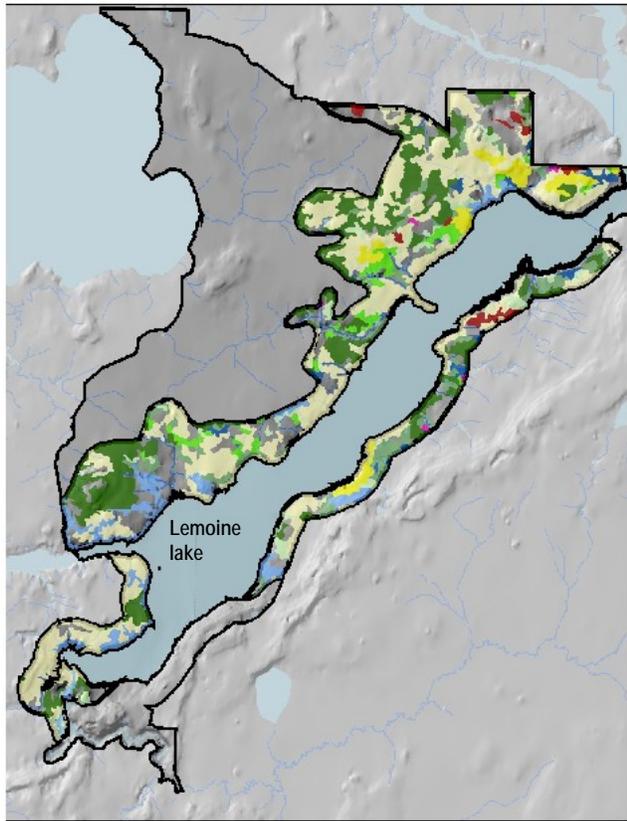
- No lake of significant size
- A few minor streams empty into the Lemoine lake

#### Vegetation

- Young forests, average age forests and mature forests each occupy about a third of the vegetation cover.
- Mixed forests cover the most area of the unit.
- Forests aged 90 years and more are mainly found in the northeast part of the unit.
- This unit is mostly made up of white birch stands and black spruce stands.
- Yellow birch stands colonize certain sites in the northeast more.
- It is the most northern occurrence of yellow birch in this part of Québec.
- These old yellow birch have a diameter breast height (DBH) of up to 95 centimetres and are sometimes accompanied by American elm and black ash.



Yellow birch of impressive diameter



Mixed forest in transition



Disturbed sector of mature deciduous trees

3.2.3.4 Ecological unit 4 – The Harricana Moraine (5 km<sup>2</sup>)

**Relief and surface deposits**

- Ridge about 40 metres high oriented northeast/south west
- Very thick sandy gravel till
- Thick sandy glaciolacustrine deposits in the lower elevation sectors
- Elevation varying between 293 and 363 metres with an average of 335 metres
- Average difference in elevation of 30 metres

**Geology**

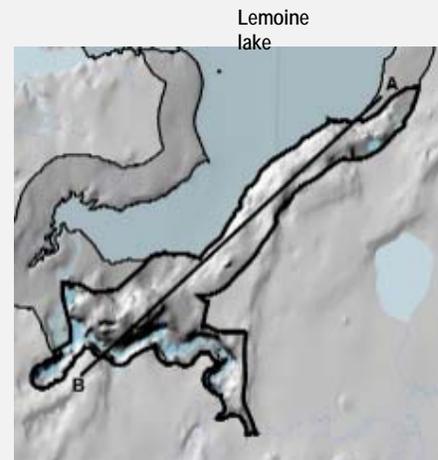
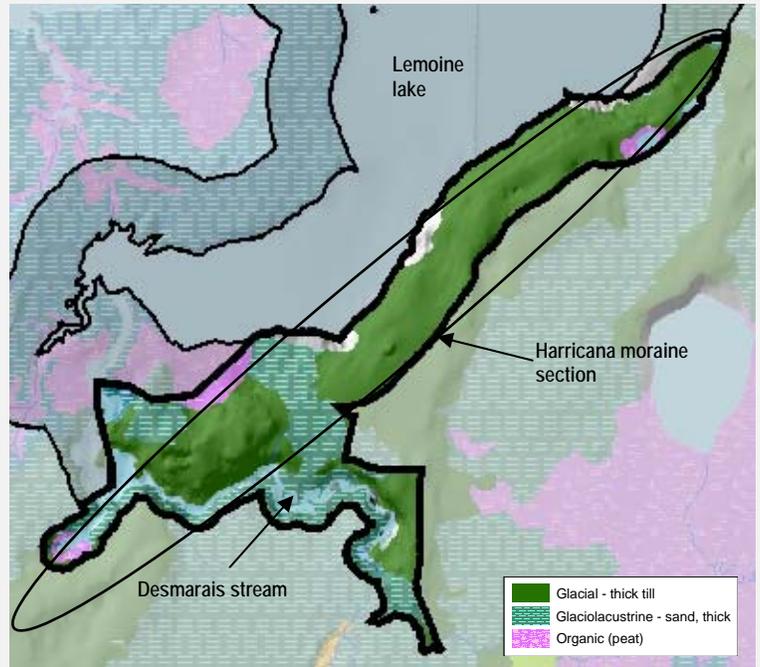
- Bedrock entirely composed of paragneiss

**Watercourses and lakes**

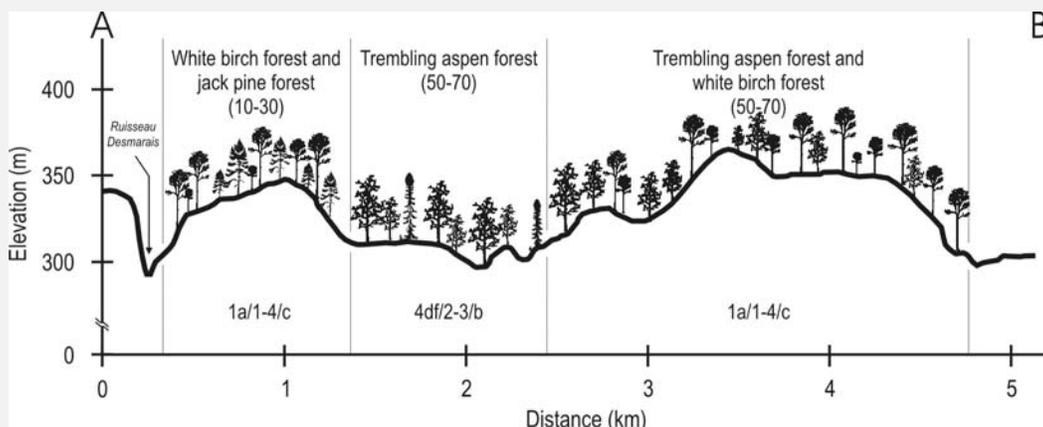
- No lake of significant size
- Desmarais stream: main tributary of Lemoine lake

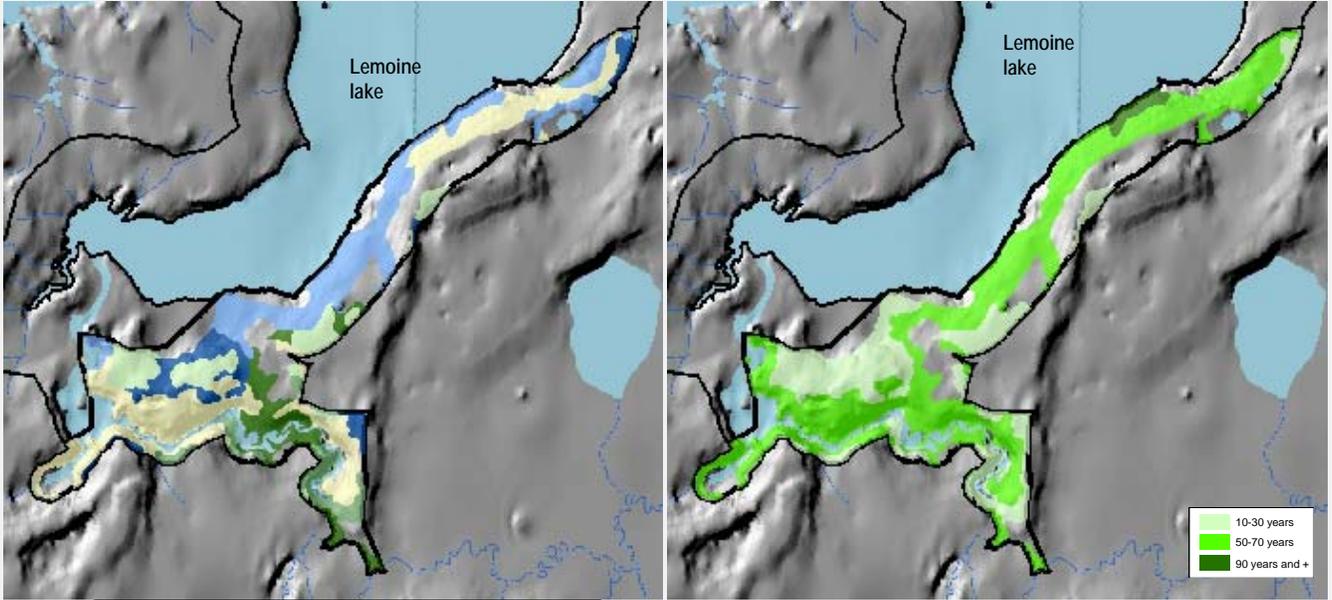
**Vegetation**

- This unit is mostly made up of mixed and deciduous forests.
- The mixed stands mostly occupy the top of the elongated ridge of the moraine.
- There are a few streams near the Desmarais stream.
- Two-thirds of this unit is composed of forests of average age and one third of young forests.
- Aspen stands and white birch stands are the main species.
- The trembling aspen mostly occupy the slopes of the moraine ridge.
- A few jack pine stands dominate the steeper slopes of the moraine ridge.
- Certain banks of the Desmarais stream are colonized by black spruce stands.



*Location of transect*





Jack pine stand southwest of Lemoine lake



Riparian vegetation near the Baie Noire bay



Inhabited banks south of "Grand Lemoine" lake