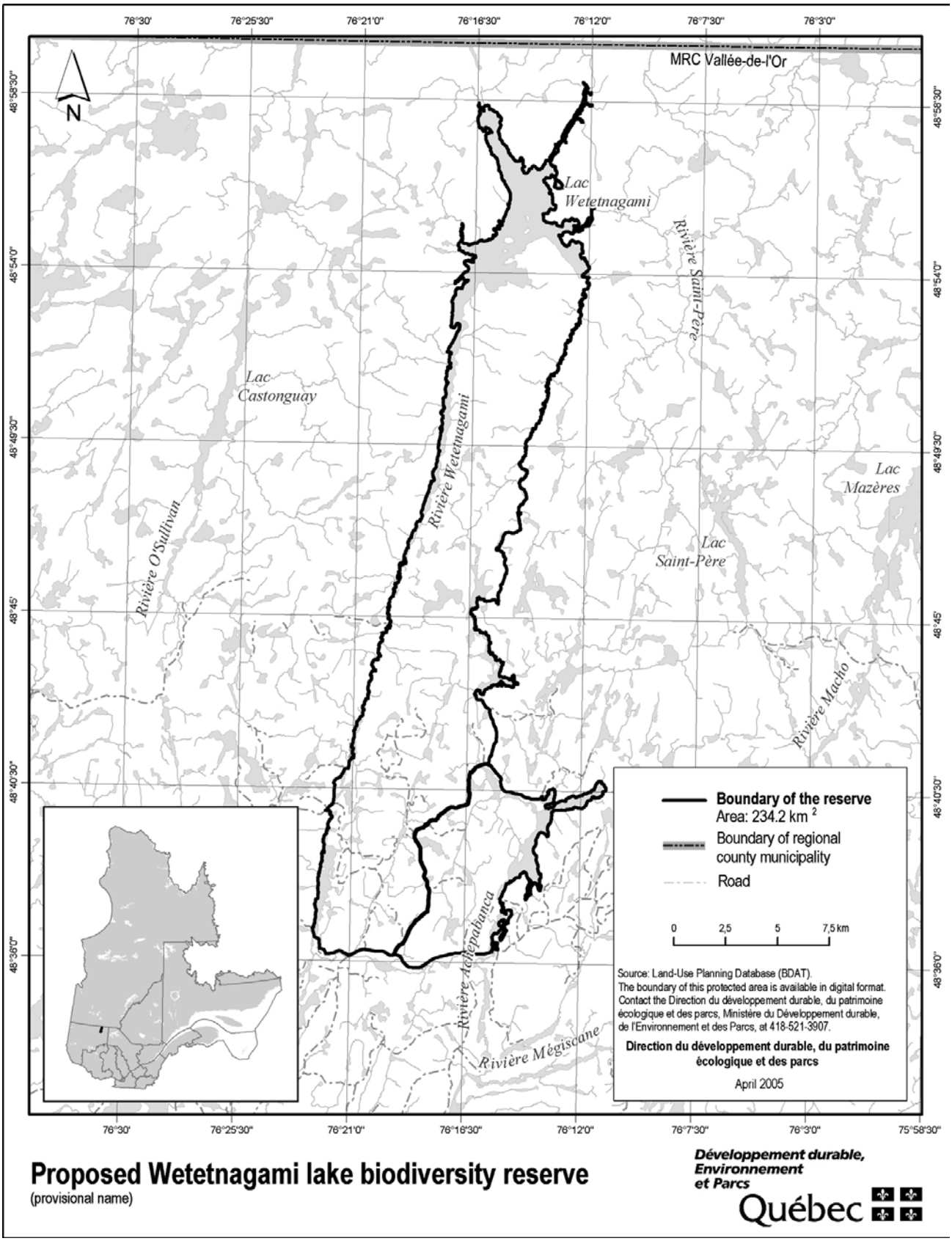
Photo 7. Lac Wetetnagami (M.-A. Bouchard, MDDEP)

4.2 Réserve de biodiversité projetée du lac Wetetnagami

4.2.1 Location, boundaries and dimensions of the proposed reserve

The Réserve de biodiversité projetée du lac Wetetnagami is located in the territory of the Ville de Senneterre in the MRC de La Vallée-de-l'Or. It is roughly 70 km northeast of the Senneterre city core and approximately 55 km southeast of Lebel-sur-Quévillon, i.e. between 48° 35′ and 49° 00′ north latitude and 76° 11′ and 76° 23′ west longitude. It occupies a geographic area of 234.2 km^2. It is bounded to the west by the shore of Lac Wetetnagami, the Rivière Wetetnagami and Lac Mitikocike, Lac Charles and Lac Charette (which are included in the reserve), to the north by the northern shore of Lac Wetetnagami, to the east by a river that flows into Lac Wetetnagami and a series of streams and lakes lying along the topographic fault, then by Lac Macoustigane, a forestry road, Lac Achepabanca and the Rivière Achepabanca and, to the south, by a forestry road. A forestry road is excluded from the reserve along a 40-m right-of-way.

Figure 65. Geographical location and boundaries of the Réserve de biodiversité projetée du lac Wetetnagami, as presented in the summary conservation plan



4.2.2 Legal framework

The territory described below has the status of a proposed biodiversity reserve, pursuant to the *Natural Heritage Conservation Act*. The same Act governs its regime of activities and its conservation plan.

4.2.3 Place name

The provisional place name is the Réserve de biodiversité projetée des marais du lac Parent The proposed place name for the granting of permanent protection status is the Réserve de biodiversité Wetetnagami since the place name clearly defines the two principal constituent elements of the territory, i.e. Lac Wetetnagami and the Rivière Wetetnagami. The Commission de toponymie du Québec notes that *Wetanagamin*, according to Father Joseph-Étienne Guinard, is made up of wétan and gamin means "easy water" among the Cree. The river meanders over its fairly lengthy course across flat terrain, in particular in the vicinity of the lake bearing the same name. In his exploration report (1901), Henry O'Sullivan writes the place name Witetnagami, while Eugène Rouillard, in his *Dictionnaire des rivières et lacs de la province de Québec* (1914), uses the current form.

4.2.4 Ecology

Physical environment

As noted in the "Climate" section, the region of the proposed biodiversity reserve has a subpolar, subhumid climate with a medium growing season. The territory is located in the Superior Geologic Province and its basement rock is almost entirely made up of quartz-rich granitic rock, Archean-age intrusive rock. The topography varies from 362 m to 552 m in altitude, with an average altitude of 415 m (Figure 66). The Réserve de biodiversité projetée du lac Wetetnagami is located in the Mégiscane Lake Hills natural region (Mistassini Highlands natural province), more precisely in the Lac Wetetnagami hummocks physiographic unit. Because of its longilineal north-south profile, its geomorphology (Figure 67) varies from the north to the south.

Figure 66. Topography of the Réserve de biodiversité projetée du lac Wetetnagami

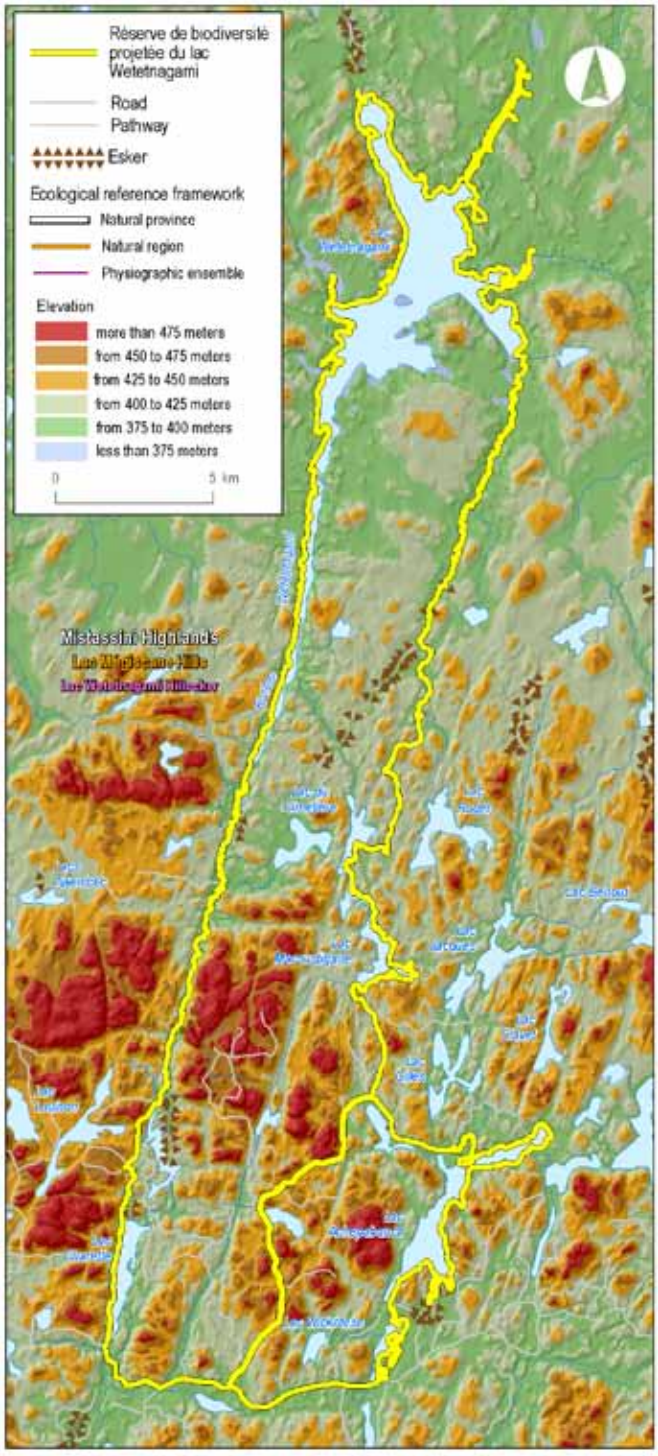
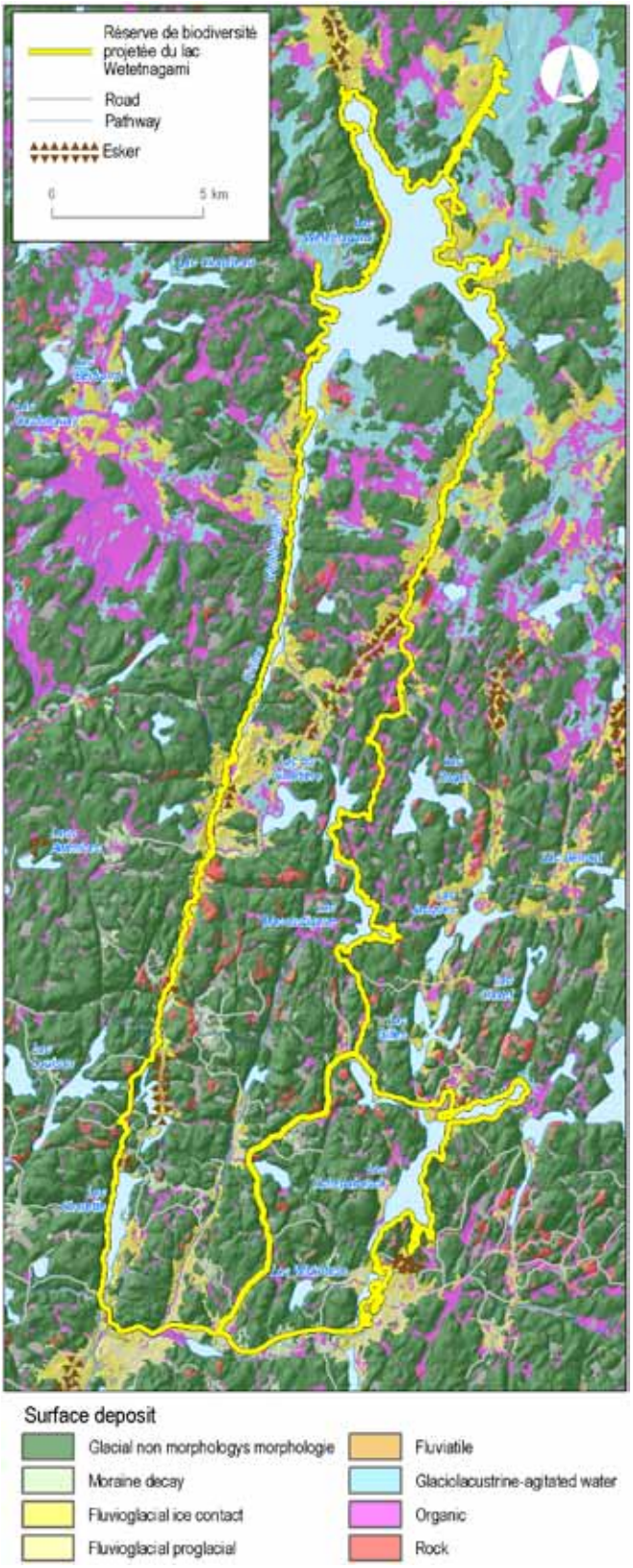


Figure 67. Geomorphology of the Réserve de biodiversité projetée du lac Wetetnagami



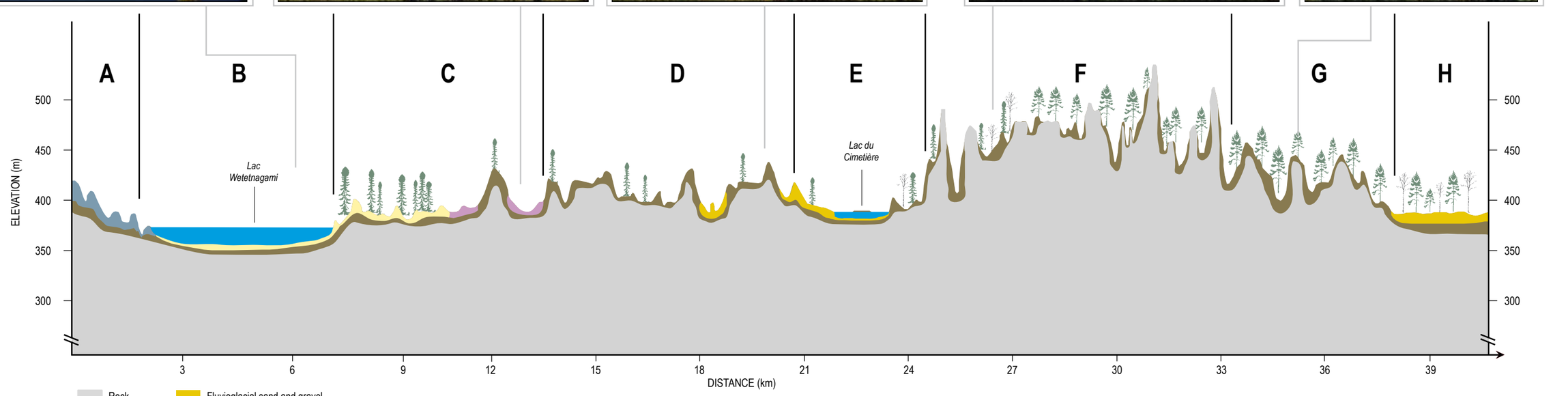
However, the geomorphology of the territory comprises two entities, i.e. groups of low hills and hummocks of thick silt in the southern half (Photo 8) and a gradually flattening relief toward Lac Wetetnagami whose average altitude also drops, in the northern portion. There are mounds of thick silt that a glaciofluvial (sand and gravel) system crosses. Near Lac Wetetnagami is a glaciolacustrine clay plain and several lowlands covered with peat bogs. The Wetetnagami physiographic sere illustrates the characteristics associated with the different environments (Figure 68).

Photo 8. Low hills sector

Figure 68.
The Wetetnagami physiographic sere

Réserve de biodiversité projetée du lac Wetetnagami

- Mistassini Highlands natural province
- Lac Mégiscane Hills natural region
- Lac Wetetnagami Hillocks physiographic ensemble



A. 1995 fire
B. Lac Wetetnagami
C. Black spruce and peat
D. Black spruce on till knolls
E. Fluvioglacial cordon
F. Low hills : black spruce and grey pine
G. Grey pine on till mounds
H. Fluvioglacial valley and grey pine

Figure 69. Drainage basins of the Rivière Mégiscane and the Rivière Nicobi

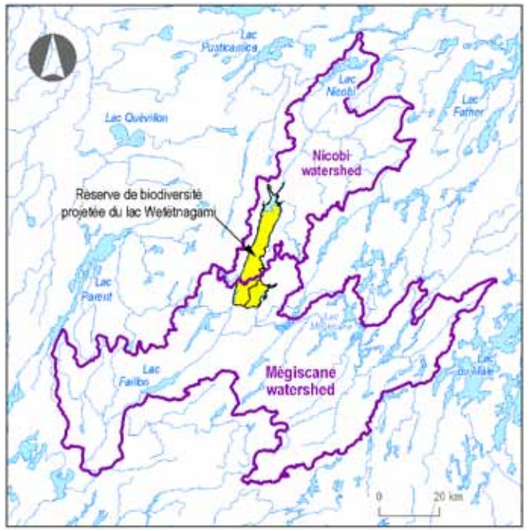
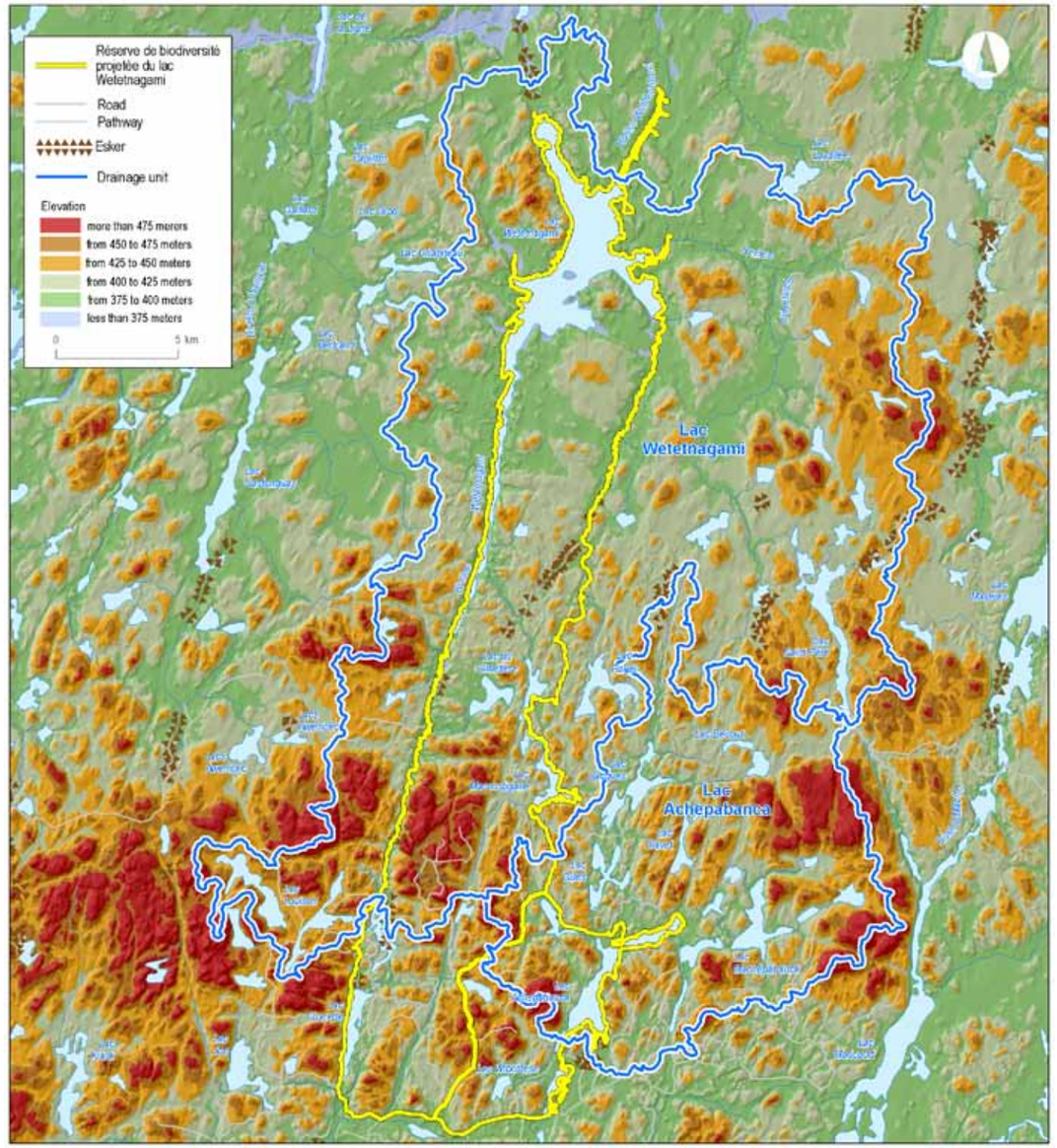


Photo 9. Lac Achepabanca

Figure 70. Drainage units of Lac Wetetnagami and the Rivière Wetetnagami and Lac Achepabanca



Unfold

The territory of the proposed biodiversity reserve can be divided into two parts, in which the lands drain in different directions. South of the low hills, in the southern third of the reserve, water flows southward toward the Rivière Mégiscane. In the low hills and the northern portion of the territory, water flows northward, in particular through the Rivière Wetetnagami that forms Lac Wetetnagami. All of the lands in the northern portion of the reserve are part of the drainage basin of the Rivière Nicobi. However, the Rivière Nicobi and the Rivière Mégiscane are both part of the large drainage basin of the Rivière Nottaway, which is joined by the Rivière Bell to the south and the Rivière Waswanipi to the north (Figure 69).

The Réserve de biodiversité projetée du lac Wetetnagami protects 27% of the lands on which water flows into Lac Wetetnagami. In the case of the Rivière Wetetnagami, roughly 40% of the lands that directly feed into the river are located in the protected area (Figure 70).

The protected area is bounded to the west by Lac Wetetnagami and the Rivière Wetetnagami. Accordingly, it does not protect the lands located to the west, which reduces its ability to adequately protect the water body and the river. In addition to Lac Wetetnagami, which has an area of 20.5 km^2, another important lake, Lac Achepabanca, (Photo 9) with an area of 4.7 km^2, is found there. There are a number of small lakes in the area, of which the three biggest ones are Lac Macoustigane (2.6 km^2), Lac Charrette (2.1 km^2) and Lac du Cimetière (1.3 km^2). The aquatic environments overall have an area of 46 km^2, equivalent to roughly 20% of the proposed biodiversity reserve.

South of Lac Wetetnagami, the reserve has several small blocks of wetlands, with a total area of 19 km^2, equivalent to 8% of the protected area. Generally speaking, they are all small, except south of Lac Wetetnagami, where several bigger ombrotrophic peatlands are located. Softwood swamps are found in the peatlands.

Biological environment

Vegetation

At the junction of the balsam fir-white birch stand domain and the black spruce-moss stand domain, the reserve protects territories whose potential vegetation is dominated to the south by balsam fir-black spruce stands and to the north by black spruce-moss stands or black spruce-heath stands (Figure 71).

However, because of forest harvests in recent decades and forest fires, the territory's forest composition is now somewhat different (Figure 72).

Figure 71. Potential vegetation – Réserve de biodiversité projetée du lac Wetetnagami

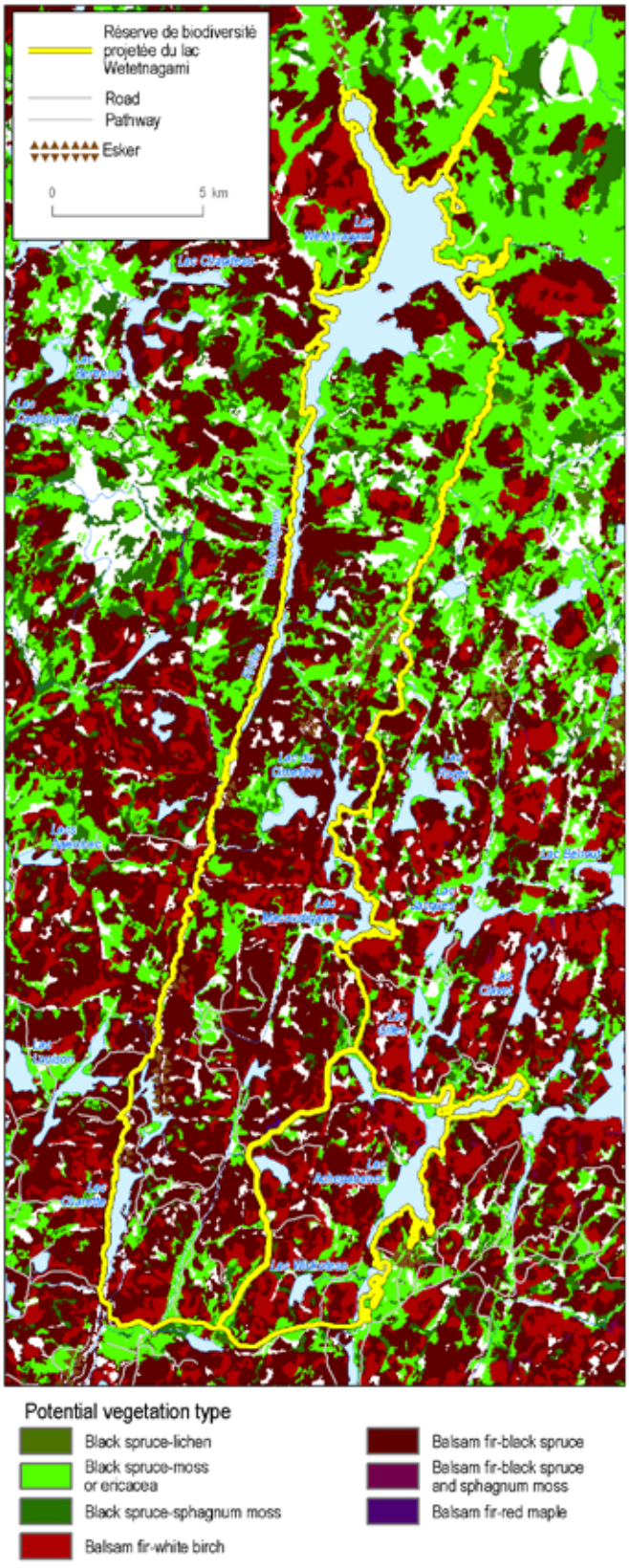
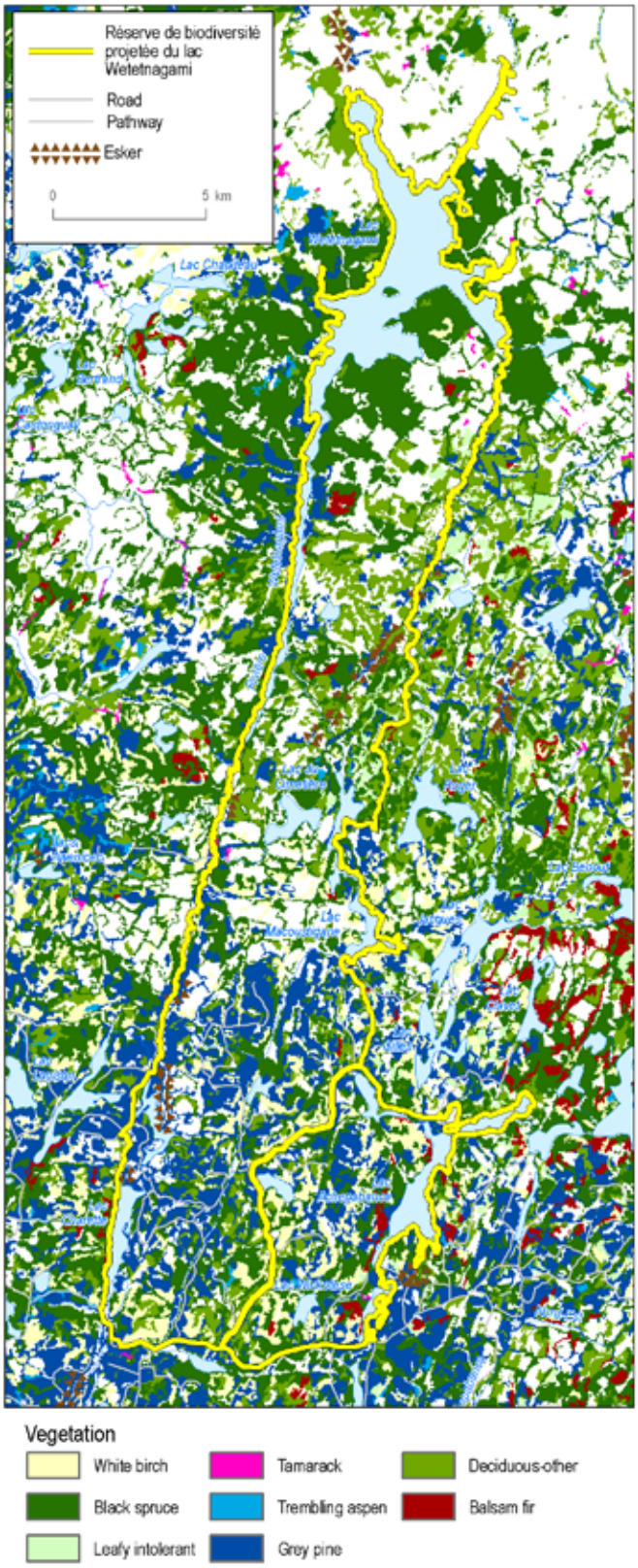


Figure 72. Vegetation – Réserve de biodiversité projetée du lac Wetetnagami



Accordingly, most of the forest stands in the territory are young (Figure 73). However, a few areas have mature stands. This is true, in particular, in the vicinity of the south shore of Lac Wetetnagami and west of Lac Achepabanca and on the biggest and most uneven low hills. The southern portion of the protected area mainly comprises jack pine stands, some of them stemming from earlier plantings, while others appear to have benefited from frequent forest fires. White birch occupies some areas abandoned by jack pine. However, to the north of low hills, black spruce stands predominate.

Part of the reserve witnessed a forest fire in 1995 (Photo 10), which came from the west and even crossed a narrow section south of Lac Wetetnagami and continued eastward. While it is not in the protected area, the north shore of Lac Wetetnagami also burned at that time when a major forest fire occurred there (Figure 74).

Photo 10. Burned areas stemming from a forest fire that crossed the Rivière Wetetnagami

Figure 73. Age of forest stands – Réserve de biodiversité projetée du lac Wetetnagami

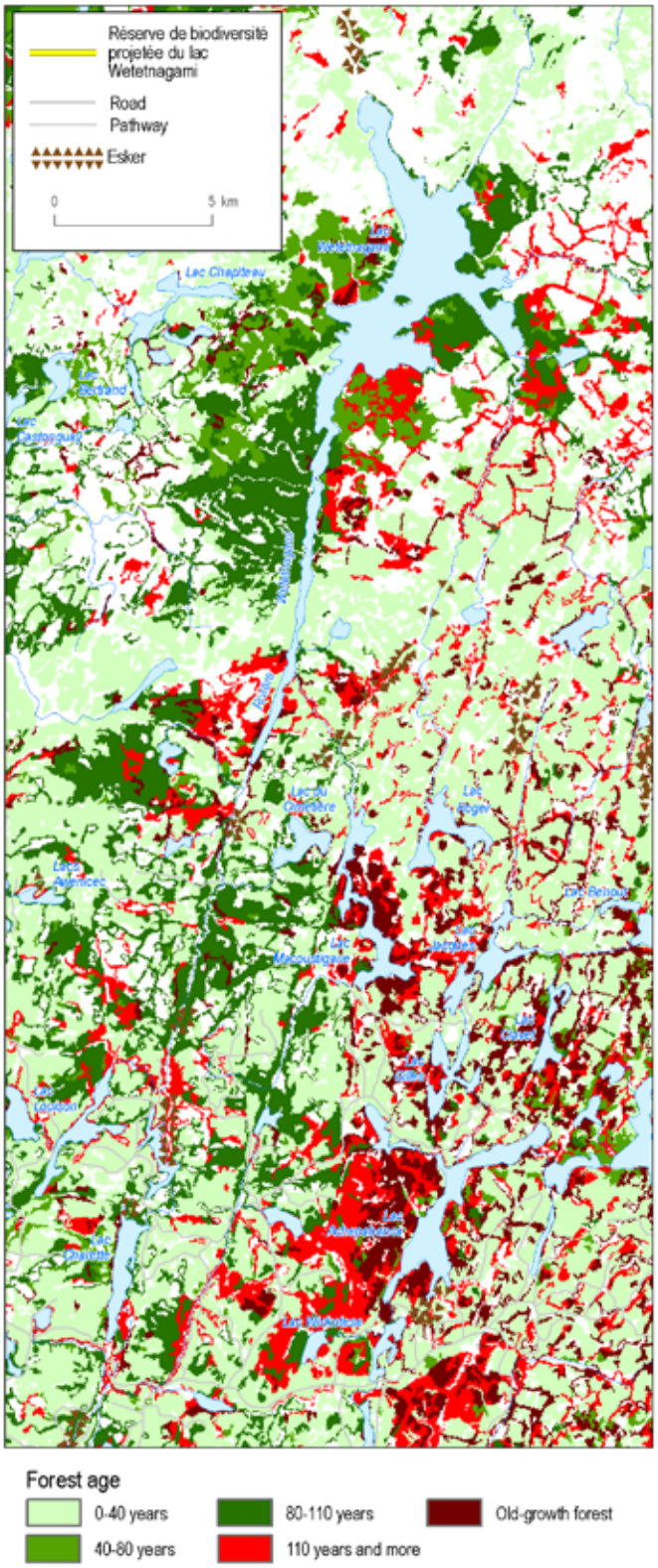
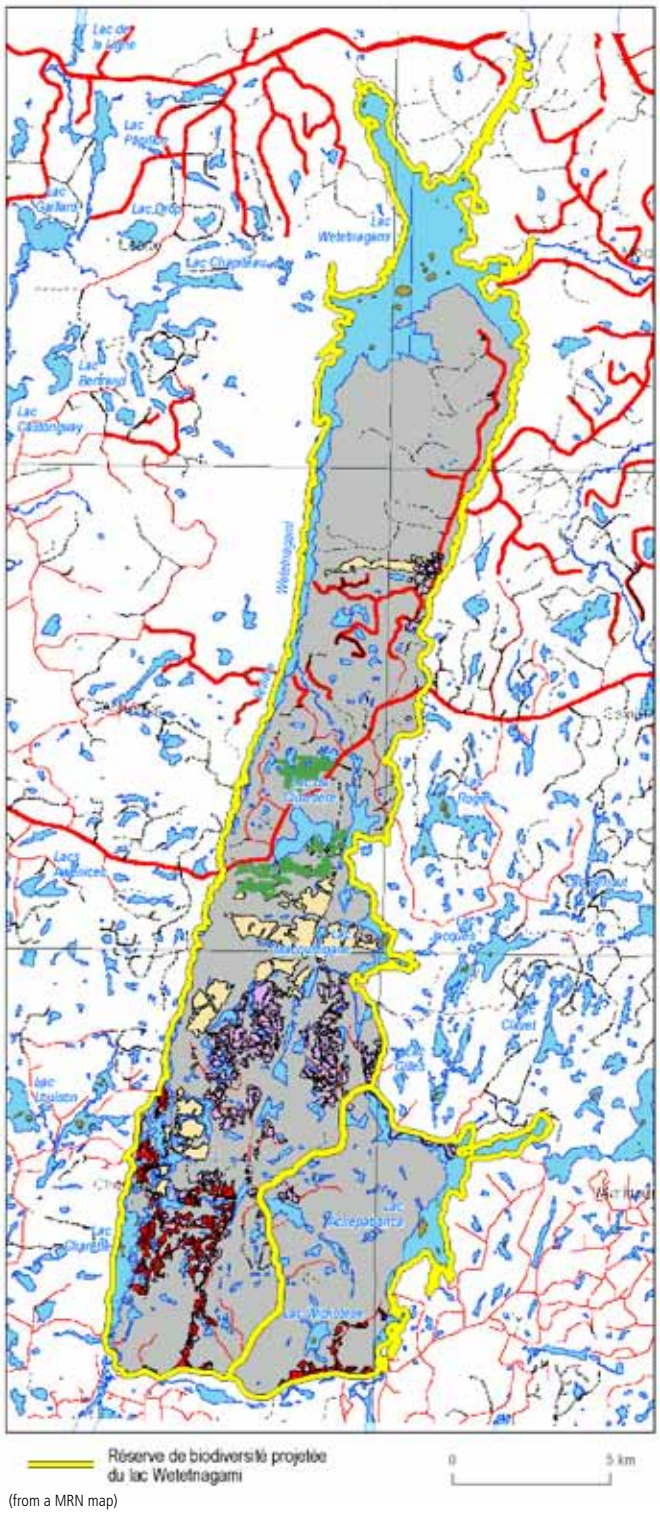


Figure 74. Disturbances – Réserve de biodiversité projetée du lac Wetetnagami



(from a MRN map)

Productive forest environments account for roughly 75% of the territory of the reserve and make up almost all of its forest cover (Figure 75).

Figure 75. Productive forest – Réserve de biodiversité projetée du lac Wetetnagami

According to data obtained from the SIEF, old-growth forests are found on the south shore of Lac Wetetnagami, west of Lac Achepabanca and on certain central low hills that are inaccessible for harvesting (see Figure 12). Nearly 33% of the territory of the reserve is covered in old-growth forests, an appreciable proportion. Since the SIEF data may be several years old, it is not certain that all of the stands still have the characteristics of old-growth forests.

The proposed biodiversity reserve is located at the junction of two ecological subregions, each of which has different fire regimes. In the southern portion, forest fires of more than 500 km^2 are the most frequent, while in the north, fires covering an area of between 100 km^2 and 500 km^2 are the most frequent (see Figure 44).

Wildlife

No occurrence has been mapped of rare, vulnerable or threatened species. The lakes in the reserve appear to host several fish species, including yellow walleye, white sucker, burbot, yellow perch, lake cisco, Northern pike, lake whitefish, and fallfish. Fishermen say that brown trout and lake trout are also apparently found in Lac Charrette. Blue walleye is also apparently caught in Lac Wetetnagami. Two yellow walleye spawning grounds and two Northern pike spawning grounds are found in Lac Wetetnagami. There are also six brook trout lakes in the southern portion of the reserve.

No specific inventories have been conducted in the territory as regards terrestrial species, but the ecosystems, depending on the human footprint and age of existing forests, are likely to host several species that are typical of the Abitibi-Témiscamingue region, as indicated in the section devoted to regional fauna. Moose and black bear are the main species hunted. Ruffed grouse, spruce grouse, snowshoe hare, and migratory birds such as ducks, geese, American woodcock and Wilson's snipe are the most common small game. Weasel, beaver, coyote, red squirrel, wolf, river otter, Canada lynx, American marten, striped skunk, marten, muskrat, racoon, red fox and mink are the known fur-bearing animals.

Social environment

The territory has witnessed a strong Aboriginal presence over time. Native groups appear to have used the territory in the past. Moreover, it has been classified under Category III pursuant to the JBNQA and the *Act respecting the land regime in the James Bay and New Québec territories*. The reserve is included in the territory covered by the hunting, fishing and trapping regime applicable pursuant to section 24 of the JBNQA and in the territory of application of the Peace of the Braves, through which the Cree community of Waswanipi possesses specific rights pertaining to the hunting and trapping of fur-bearing animals. Lastly, the proposed biodiversity reserve is almost entirely located in the Abitibi beaver reserve, where Natives enjoys specific rights pertaining to the hunting and trapping of fur-bearing animals.

No archaeological site has been officially inventoried, possibly because no excavation has been done in the area. According to Archéo-08 (Marc Côté, personal communication), the territory does, however, have archaeological research potential since it facilitates travel from the Rivière Mégiscane to the areas north of Lac Wetetnagami.

Aboriginal trappers and Aboriginal and non-Aboriginal hunters and fishermen appear to frequent the territory of the reserve. The territory is suited to bear and moose hunting. Between 2002 and 2006, 15 black bears and 23 moose were hunted in the territory. Nineteen shelter leases have been granted there (Figure 76). Since the territory is located in a beaver reserve, monitoring of trapping is made by band council of Native communities. Anglers prize Lac Wetetnagami and Lac Achepabanca. Moreover, the Pourvoirie Wetetnagami, located on the shores of Lac Wetetnagami, offers fishing packages, accommodation and hunting packages. The Pourvoirie Lac Achepabanca & Outpost Camps offers fishing packages at Lac Achepabanca. Holiday resorts are not widespread in the reserve, where only three vacation lot leases have been granted. The Rivière Wetetnagami offers a canoeable route.

From the standpoint of accessibility, numerous logging roads resulting from the latest logging operations and several cottage or outfitting operation roads afford access to the territory of the reserve and facilitate travel there. The roads total 136 linear km. Logging (Photo 11) carried out during the decade that preceded the establishment of the reserve has affected approximately 25 km^2 of the protected area (see Figure 74). The protected area is mainly located in FMU 084-62 although its northern portion in the Lac Wetetnagami area lies in FMU 087-62.

No hiking or off-road vehicle (quad bike or snowmobile) trail is officially recognized in the territory. However, it is likely that users travel by motorized vehicle in the summer or winter on logging roads.

Figure 76. Occupancy and use of the Réserve de biodiversité projetée du lac Wetetnagami

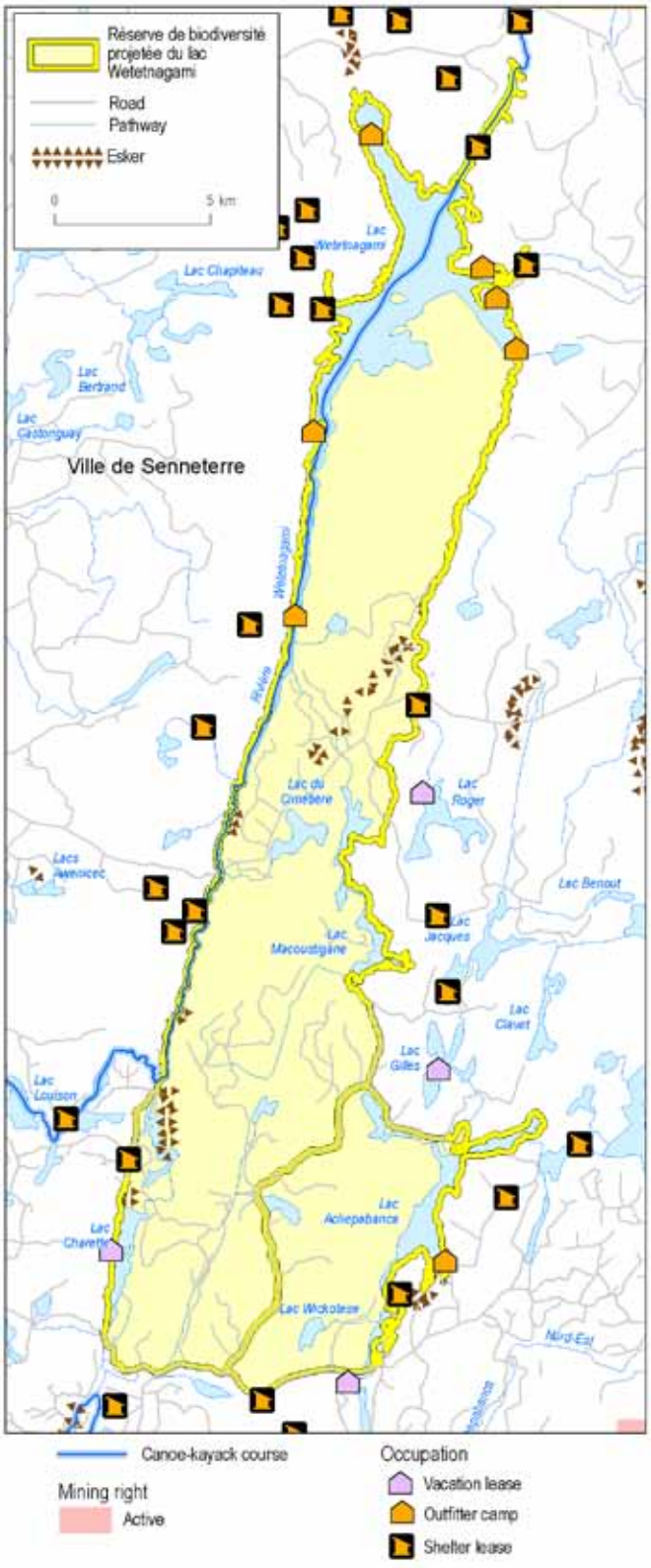


Photo 11. Former cutting area south of Lac Wetetnagami

4.2.5 Contributions of the protected area

Representativeness

From the standpoint of the representativeness of its physical components, the sector was initially targeted in order to protect a group of low hills of till with rock outcrops, located mainly in the southwestern portion of the current reserve. However, because of forestry constraints, the territory to be protected has been revised, in particular to protect a portion of the low hills but also ecosystems based on less prominent physical environments located father north, including Lac Wetetnagami. The reserve is contributing greatly to the protection of ecosystems in physiographic unit G0101, which mainly comprises till hummocks and hillocks (see Figure 66 and Figure 67).

From a biological standpoint, the reserve is protecting numerous environments corresponding to the key types of potential vegetation, i.e. black spruce-moss stands and black spruce-heath stands and balsam fir-white birch stands (see Figure 71).

In this physiographic unit, the proposed biodiversity reserve protects large areas associated with the key components of the most widespread ecosystems. It thus has a relevant contribution to make with respect to representativeness despite traces of disturbances, above all human disturbances and occasionally natural ones apparent through the existing forest tree species and the age of forest stands found in most of the forest cover. The Réserve de biodiversité projetée du lac Wetetnagami is contributing appreciably to the protection of old-growth forests although the forest stands classified as old-growth forests are usually scattered and possibly over-evaluated as regards the area covered.

Efficacy

Human beings have left some evidence of their passage through or presence in the territory, mainly stemming from forest harvests and fragmentation resulting from logging roads (see Figure 74). The general level of naturality of the protected area is very low. Forestry operations have affected roughly 11% of the territory. The protected area has 136 linear km of roads, equivalent to a ratio of 0.58 km of road per km^2, a moderate density (0.43 to 1.06 km/km^2)[13].

From the standpoint of configuration, the proposed protected area is not big enough (234. km^2) to encompass all of the successional stages of forest ecosystems. The perimeter-area ratio is 0.92, over four times the ideal ratio (a perfect circle) and is deemed to have a moderately or hardly efficacious shape. Given the reserve's elongated shape, when a 3-km strip is subtracted from the boundaries (edge effect), no conservation core remains.

The configuration of the protected area could be improved. However, in the specific case of this protected area, the profile of anthropogenic disturbances that affect most of the surrounding territory means that priority has been given to the potential addition of large tracts of mature peripheral forests (see the section entitled "Potential expansions"), which would, moreover, better protect Lac Wetetnagami.

4.2.6 Conservation issues

The resilience of disturbed ecosystems is the key challenge in this territory, which consists in determining whether or not active management must be adopted to foster the resilience of the natural environments. Apart from this question, since the territory is representative, the application of a standard regime of activities should, generally speaking, allow for the attainment of long-term protection objectives. From the standpoint of the preservation of the quality of the water in Lac Wetetnagami and the Rivière Wetetnagami, failure to protect the northern and western shores poses a risk concerning the maintenance of the quality of lake water. The lands to the west drain directly towards the Rivière Wetetnagami and much of the area has already sustained logging. A forest fire occurred on the north shore and a large part of the lands drain towards Lac Wetetnagami (see Figure 70). Logging and prescribed burning have caused an appreciable increase in sediments in watercourses and water bodies. In short, the current boundaries of the protected area do not allow for adequate protection of Lac Wetetnagami and the Rivière Wetetnagami.

[13] Quigley *et al.*, 2001

What is more, forestry work has been carried out and could still take place on the potential expansions to resume harvesting, e.g. precommercial thinning operations, and foster its productivity. Given that numerous anglers frequent Lac Wetetnagami and Lac Achepabanca, whose shores constitute the boundaries of the protected area, and that outfitting operations offer accommodation there, there is good reason to consider the protection of visual landscapes around the lakes. The configuration of the proposed protected area is especially deficient in this regard.

An analysis of drainage units conducted for the territory revealed the best changes to make to the boundaries of the protected area to maximize the protection of the main water bodies and watercourses (see Figure 70), bearing in mind the context of use of the territory, in particular peripheral forestry operations. Consequently, the ideal theoretical configuration has not been adopted.

4.2.7 Potential expansions

Potential expansions have been studied (Figure 77) to better protect Lac Wetetnagami and visual landscapes surrounding the lake and to add large mature forest tracts, bearing in mind the forest context that limits the addition of protected areas. The criterion respecting mature forests did not apply to Lac Achepabanca, since the entire territory visible located on the eastern shore of the lake was recently harvested. Efforts have thus focused on the Lac Wetetnagami area. The areas are mainly covered with generally mature black spruce stands (80 to 110 years old and 110 years old or over), which, what is more, corresponds to the type of potential vegetation. To the MDDEP's knowledge, most of the geographic area in the territories has not been subject to recent logging and should display the same characteristics as ecoforestry mapping reveals.

As was the case for the Réserve de biodiversité projetée des marais du lac Parent and for the other six reserves, the expansions presented at the workshops (polygons Nos. 1 to 3) were revised in order to more accurately map the territory covered by the objective of protecting the environment of Lac Wetetnagami and the addition of large mature forest tracts. In the context of the enhanced protection of Lac Wetetnagami, a polygon (no. 4) has been added, thus making the expansion scenario more coherent. It should be noted that at the time of the workshops, the objective was to ascertain both the participants' stance on the principle of expansion toward an approximate sector and the level of constraint to such protection.

Figure 77. Potential expansions and vegetation – Réserve de biodiversité projetée du lac Wetetnagami

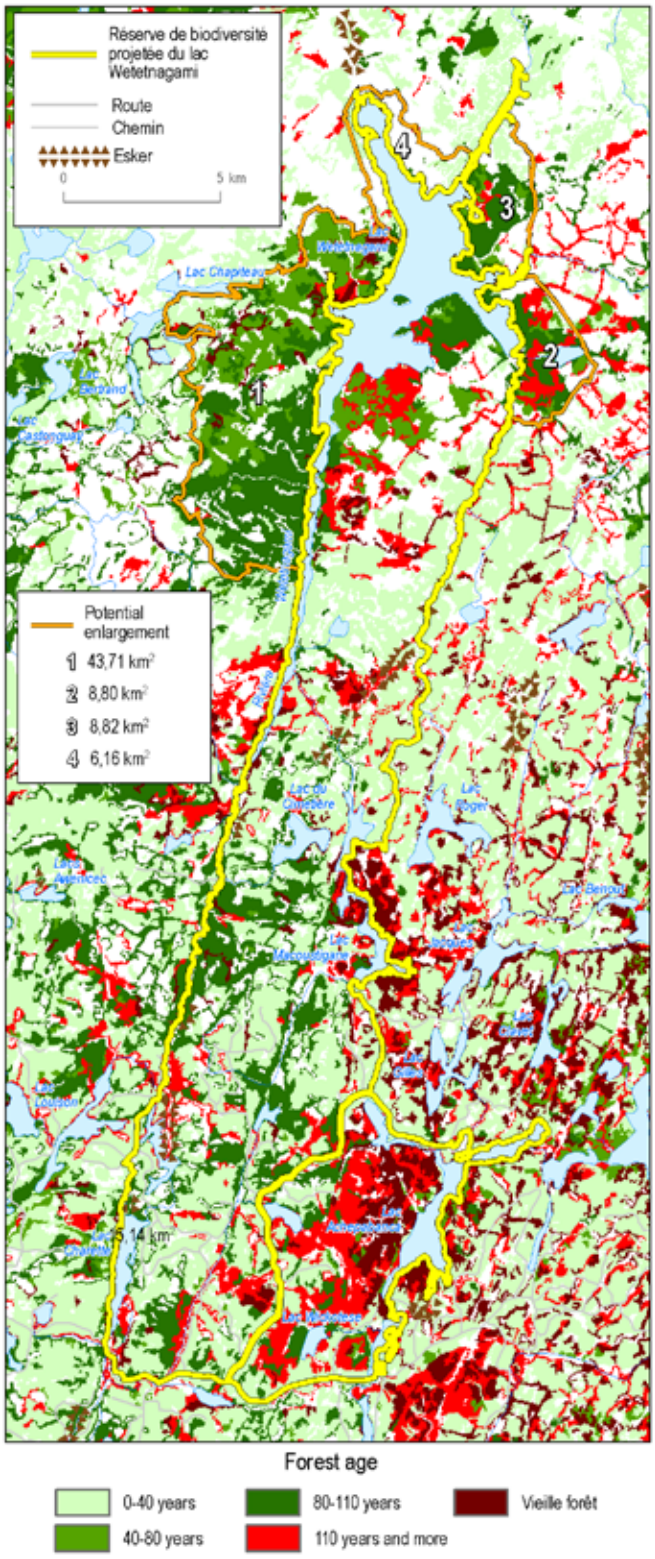
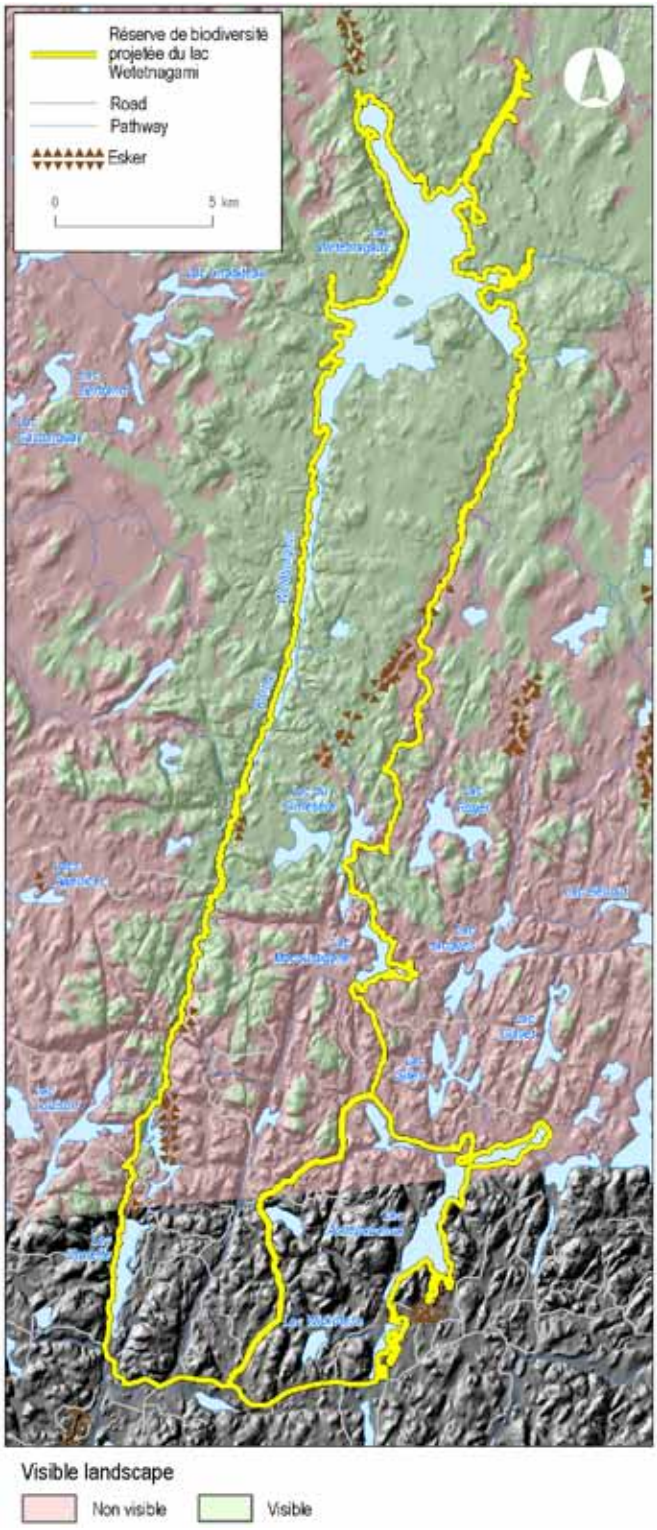


Photo 12. Landscape visible from Lac Wetetnagami

Figure 78. Landscapes visible from Lac Wetetnagami and the Rivière Wetetnagami



The expansions analyzed have a total area of 67.5 km^2. The biodiversity reserve would have an overall area of approximately 301 km^2 and the perimeter-area ratio would improve, from 0.92 to 0.68. Moreover, the determination of the landscape visible from Lac Wetetnagami has further heightened the relevance of the expansions studied. A cursory analysis of visibility concerning Lac Wetetnagami and the Rivière Wetetnagami (Photo 12) revealed that approximately 575 km^2 should be visible from the shores and different places on the lake and the river (Figure 78). The expansions would allow for the protection of the most important portions, i.e. those that are more than 90% in the visible territory.

The MDDEP presented the potential expansions of ecological interest, except for the small portion to the north, to the members of the Table GIRT MRC-VO during the workshops that preceded the public consultations. The reactions to the potential expansions are presented in detail in the companion document entitled "Summary of the preparatory workshops for the public consultation and meetings: Granting of permanent biodiversity reserve or aquatic reserve status to eight territories in the Abitibi-Témiscamingue region" submitted to the BAPE Commission within the framework of this consultation. In short, forest stakeholders and municipal stakeholders expressed a position similar to the one concerning potential expansions in the Réserve de biodiversité projetée des marais du lac Parent because of the same, forest-related concerns.

The potential expansions affect two FMUs (084-62 and 087-62), which account, respectively, for roughly 6.7% and 0.9% of the protected areas. The 68 km^2-odd addition in protected area would, according to the MRNF, represent the loss of 1% of the allowable annual cut calculation in FMU 084-62 and approximately 0.2% of FMU 087-62. All in all, a more thorough analysis should be

conducted of constraints and ecological interests pertaining to the expansions, in particular in the context of government policy directions concerning protected areas and regarding forest potential and Peace of the Braves agreement.

4.2.8 Management of the permanent reserve

Once the biodiversity reserve obtains permanent status, it will be managed in such a way as to ensure the attainment of conservation objectives. Accordingly, the MDDEP's decisions pertaining to management will prioritize conservation. As for regulations, when the biodiversity reserve obtains permanent status, it will have a conservation plan in which a regime of activities will regulate all activities or initiatives in the protected area. The regime of activities will draw inspiration, by and large, from the regime of activities in the conservation plan of the proposed reserve. However, in the case of permanent status, the new conservation plan could make provision, as the case may be, for specific features to better structure activities and initiatives in order to ensure better protection of the territory, ecosystems and biodiversity.

The conservation plan will stipulate that certain activities are allowed in the protected area, that others are strictly prohibited, and that a number of activities or initiatives whose compatibility with the protected area and its conservation objectives varies will be subject to authorization by the MDDEP. For more information, see the section entitled "The regime of activities explained" or the document entitled "Régime d'activités dans les réserves de biodiversité et les réserves aquatiques." When the MDDEP evaluates requests for authorization, it will take into consideration the objectives concerning the resilience of the forest ecosystems disturbed and those regarding the preservation of water quality in Lac Wetetnagami and Lac et Achepabanca and the Rivière Wetetnagami.

As for the operational management that the MDDEP carries out in the territory of the permanent reserve, the department will ensure minimum management through the installation of basic signage and occasional surveillance of the protected area. However, a management committee comprising the stakeholders concerned could be established to participate in the drafting of an action plan that defines the management priorities pertaining to the protected area, then collaborate on the action plan's implementation.