Photo 13. Intertwining water and forests (M.-A. Bouchard, MDDEP)

4.3 Réserve de biodiversité projetée du lac Saint-Cyr

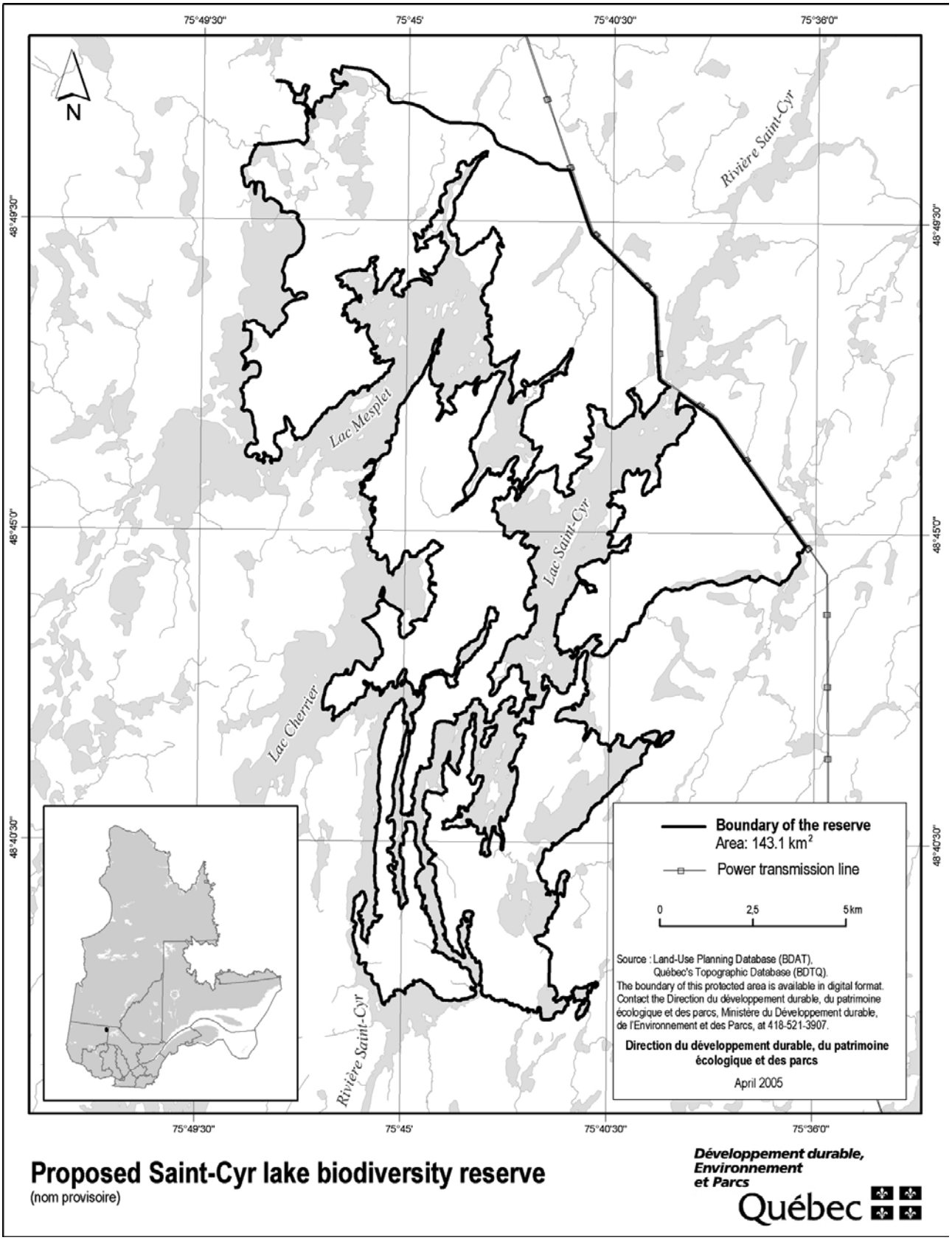
4.3.1 Location, boundaries and dimensions of the proposed reserve

The Réserve de biodiversité projetée du marais du lac Saint-Cyr is located in the territory of the Ville de Senneterre in the MRC de La Vallée-de-l'Or. It is roughly 95 km northeast of the Senneterre city core, approximately 90 km southeast of Lebel-sur-Quévillon and roughly 50 km west of the village of Obedjiwan, i.e. between 48° 37′ and 48° 52′ north latitude and 75° 36′ and 75° 49′ west longitude. It occupies a geographic area of 143.1 km^2. The boundaries of the reserve lie along the 391 -m mean water level elevation of Lac Mesplet, Lac Saint-Cyr and Lac Cherrier and the Rivière Saint-Cyr, which are excluded from the protected area. The reserve is also partially limited to the east by a power transmission right-of-way.

4.3.2 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.

Figure 79. Geographical location and boundaries of the Réserve de biodiversité projetée du lac Saint-Cyr, as presented in the summary conservation plan



4.3.3 Place name

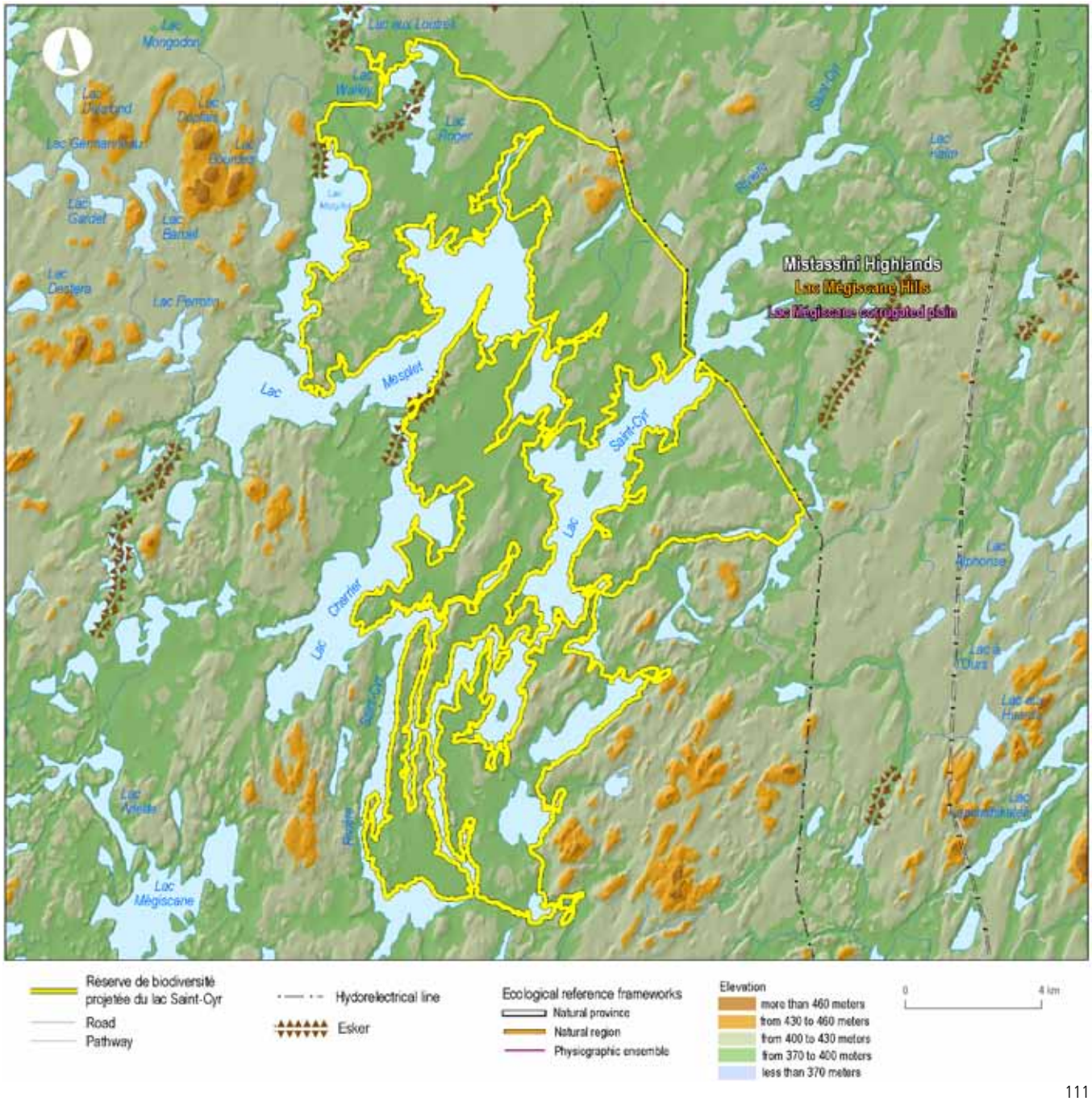
The provisional place name is the Réserve de biodiversité projetée du lac Saint-Cyr. Since Lac Saint-Cyr and all of the other important water bodies and watercourses are not included in the protected area, the place name proposed for the granting of permanent protection status is different. The proposed place name of the permanent protected area is the Réserve de biodiversité Saint-Cyr. This denomination refers to the passage of the Rivière Saint-Cyr, an important river, and thus pinpoints the sector while avoiding reference to watercourses and water bodies that are not part of the protected area.

4.3.4 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 granitic rock, Archean-age intrusive rock. The topography varies from 391 m to 463 m, with an average altitude of 397 m (Figure 80).

Figure 80. Topography of the Réserve de biodiversité projetée du lac Saint-Cyr



The Réserve de biodiversité projetée du lac Saint-Cyr is located in the Mégiscane Lake Hills natural region (Mistassini Highlands natural province), more precisely in the Lac Wetetnagami hummocks physiographic unit. At the time of deglaciation, large segments of glaciers appear to have detached themselves and left organic deposits, drumlin and till. Runoff from downwasting glaciers also left sandy deposits on the outwash plains (Figure 81). The reserve's undulating terrain has little topographic variation in which mounds of drumlinized till are punctuated with hollows and depressions occupied by peat bogs. To the north of Lac Mesplet, the terrain is generally flat and covered with sandy glaciolacustrine deposits, peat bogs or sand and gravel of glaciofluvial origin.

The Saint-Cyr physiographic sere illustrates the characteristics of various environments presented earlier and their link with the forest environment (Figure 82).

Figure 81. Geomorphology of the Réserve de biodiversité projetée du lac Saint-Cyr

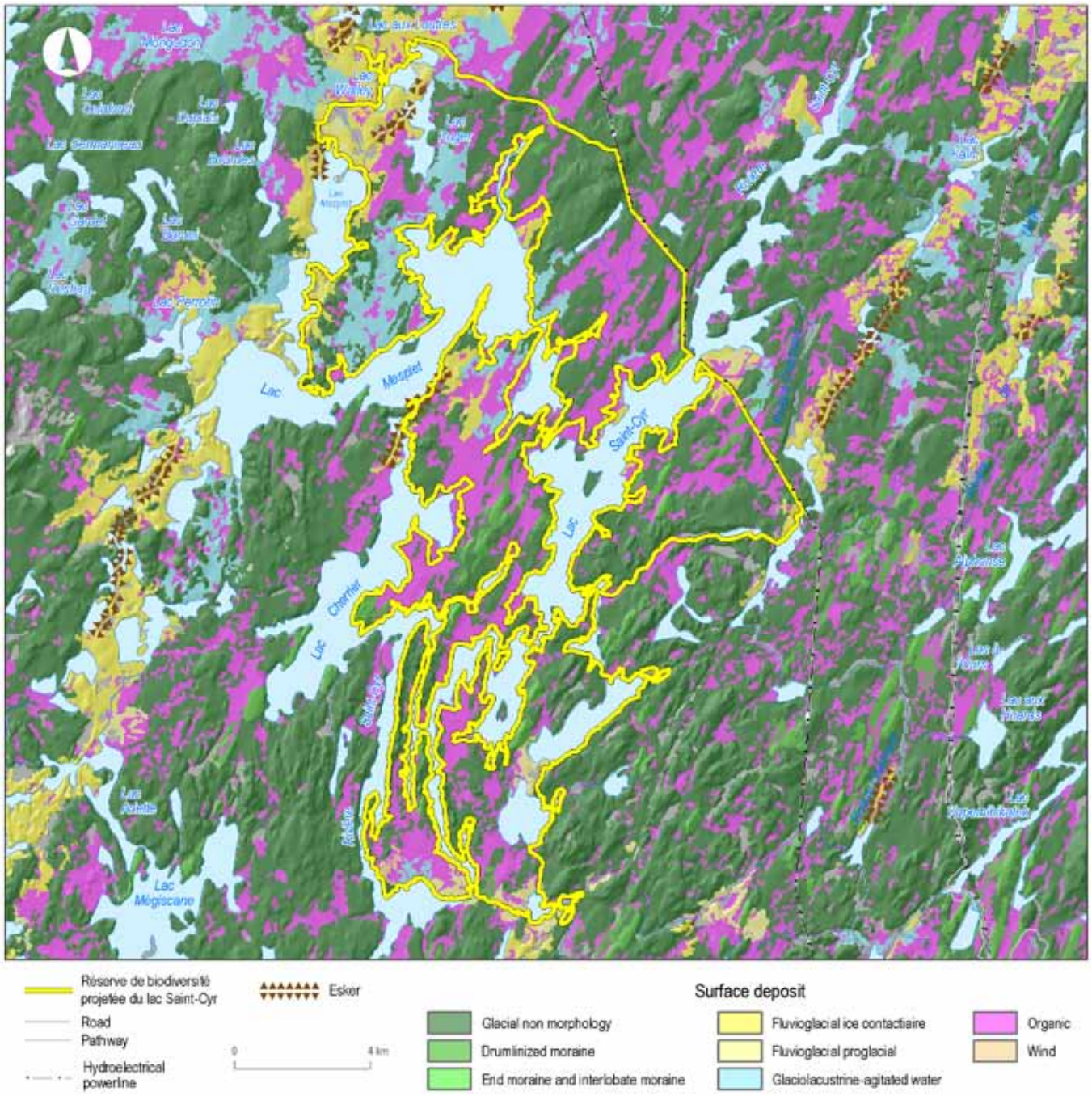
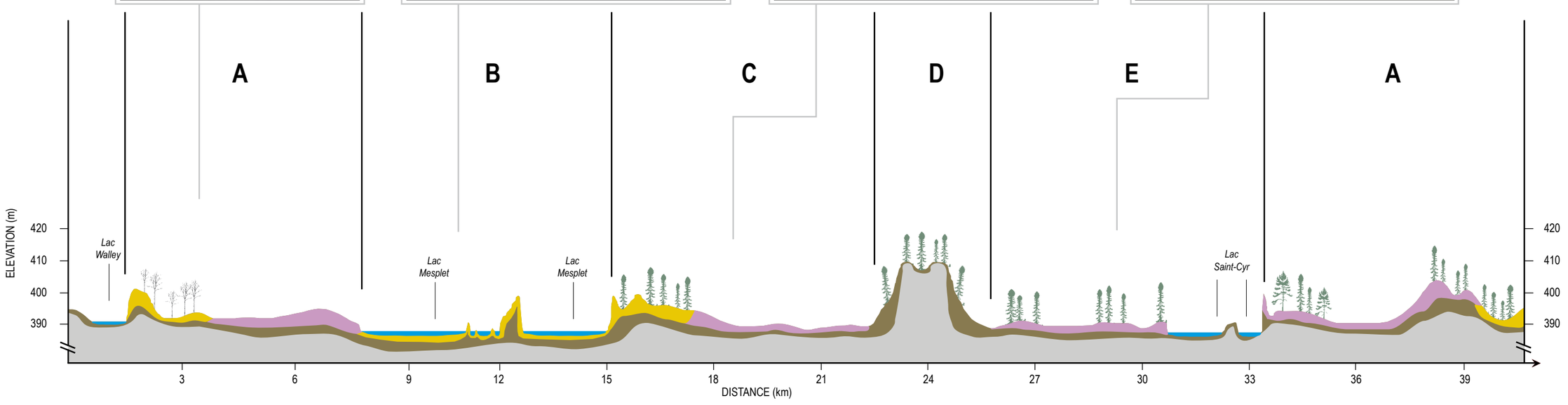


Figure 82.
The Saint-Cyr physiographic sere

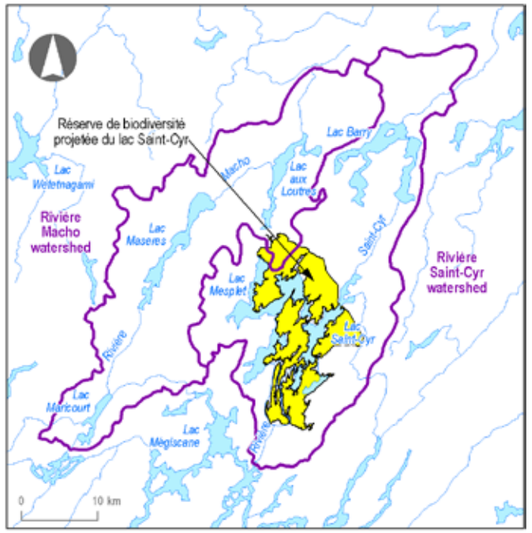
Réserve de biodiversité projetée du lac Saint-Cyr

- Mistassini Highlands natural province
- Lac Mégiscane Hills natural region
- Lac Mégiscane corrugated Plain physiographic ensemble



A. Peated lowlands and black spruce-moss
B. Lac Mesplet
C. Lowlands and peats
D. Black spruce on till knolls
E. Lowlands and peats

Figure 83. Drainage basins of the Rivière Saint-Cyr and the Rivière Macho



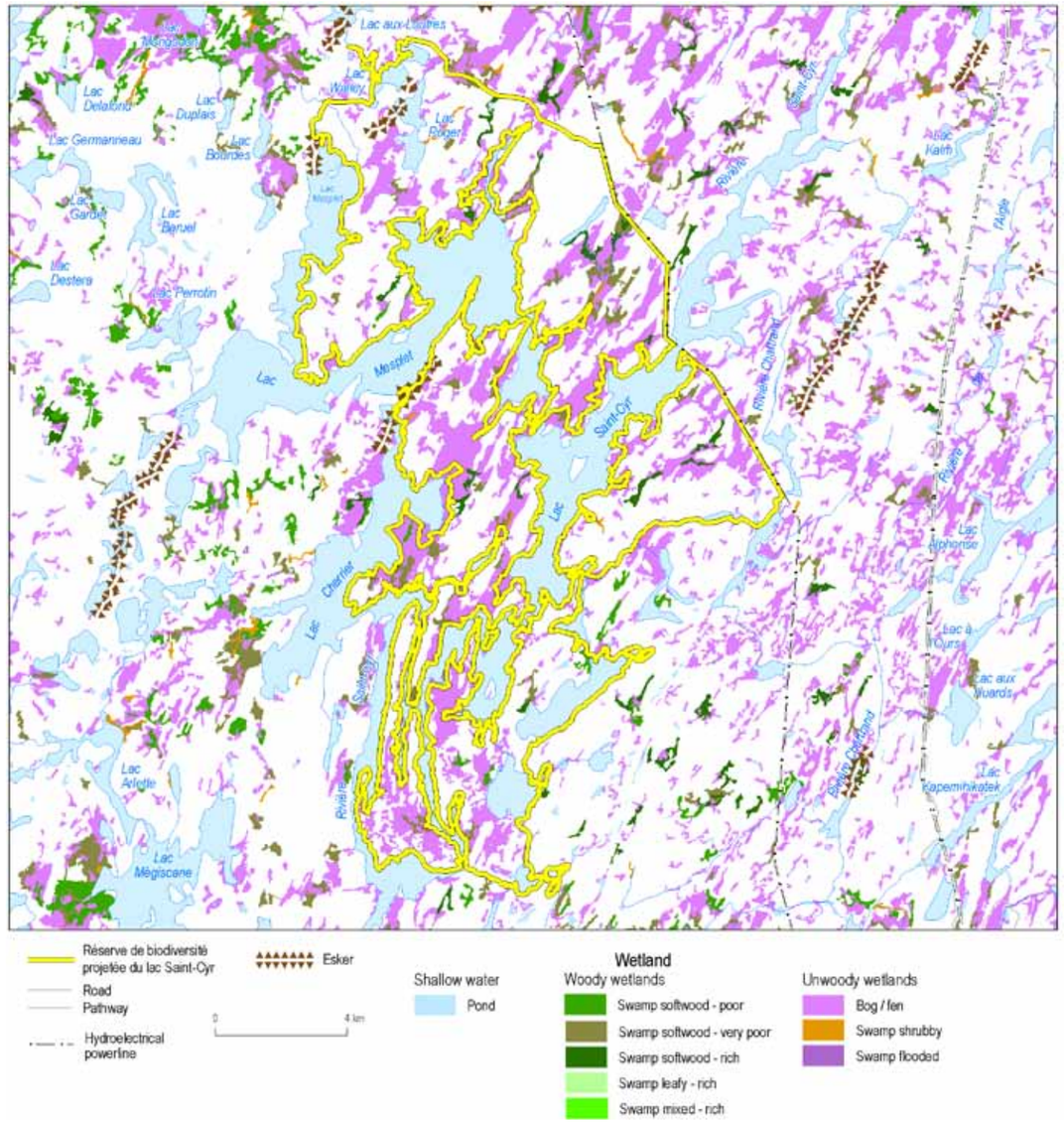
The proposed biodiversity reserve protects a territory in which almost all of the lands feed Lac Mesplet, Lac Cherrier and Lac Saint-Cyr as well as the Rivière Saint-Cyr. A small portion of the territory to the north drains into the Rivière Macho. The proposed biodiversity reserve is part of the large drainage basin of the Rivière Nottaway. Water from the Rivière Saint-Cyr reaches the Rivière Nottaway through the Rivière Mégiscane and the Rivière Bell (Figure 83).

Some 60 small lakes are found in the area, of which the three biggest ones are Lac Walley (1.2 km^2), Lac Frank (0.26 km^2) and Lac Bud (0.28 km^2). Aquatic environments in the reserve have a total area of 12 km^2, equivalent to roughly 8% of the protected area.

Mapping of the wetlands indicates that such environments account for nearly 42 km^2 of the reserve, equivalent to approximately 29% of the protected area. The wetlands are made up almost exclusively of ombrotrophic peatlands (Photo 14 et Figure 84).

Photo 14. Ombrotrophic peatland

Figure 84. Wetlands in the Réserve de biodiversité projetée du lac Saint-Cyr



Unfold

Biological environment

Vegetation

The reserve is at the junction of the balsam fir-white birch stand domain and the black spruce-moss stand domain. It protects territories whose potential vegetation is dominated by black spruce stands (75% of the forest cover) and, on several silt mounds and hillocks, by balsam fir-black spruce stands (Figure 85).

In certain specific areas, forest fires appear to favour jack pine in environments where black spruce prevails (Photo 15) but that are also made up of sand, making them favourable to jack pine (Figure 86). Because of the extensive wetlands and logging conducted in the northern portion prior to the establishment of the protected area, only 60% of the territory is now under forest cover.

Figure 85. Potential vegetation – Réserve de biodiversité projetée du lac Saint-Cyr

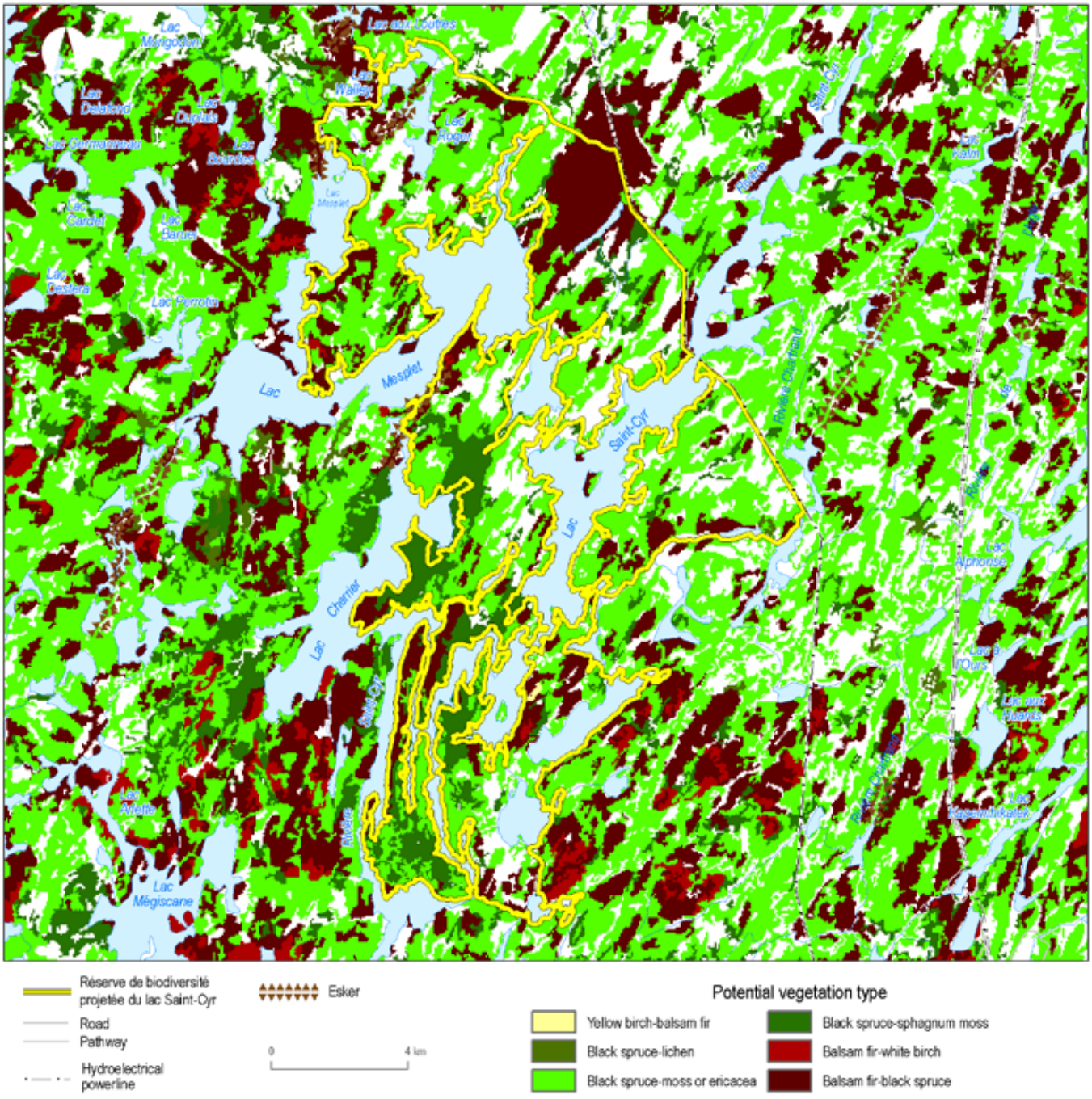
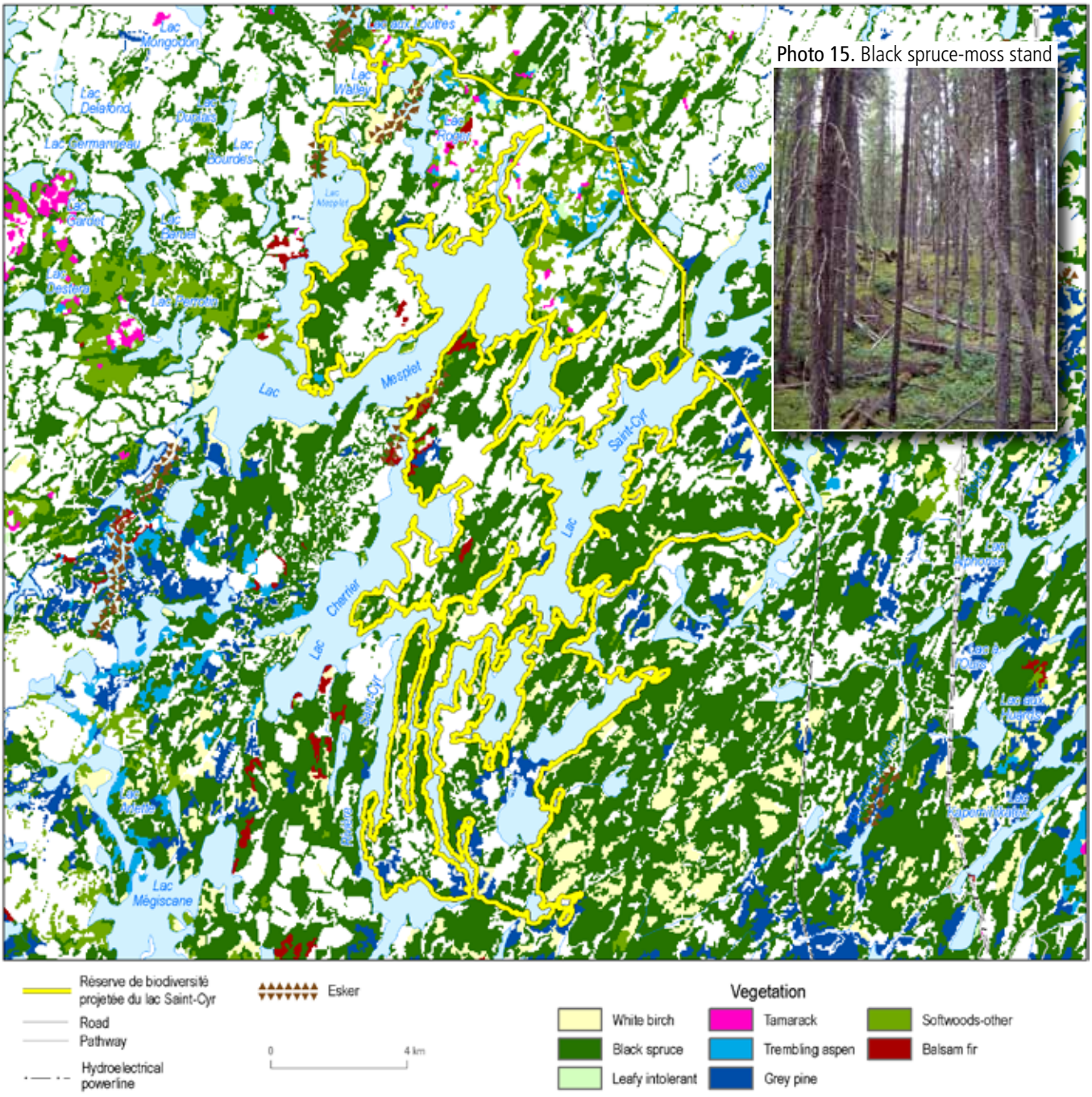
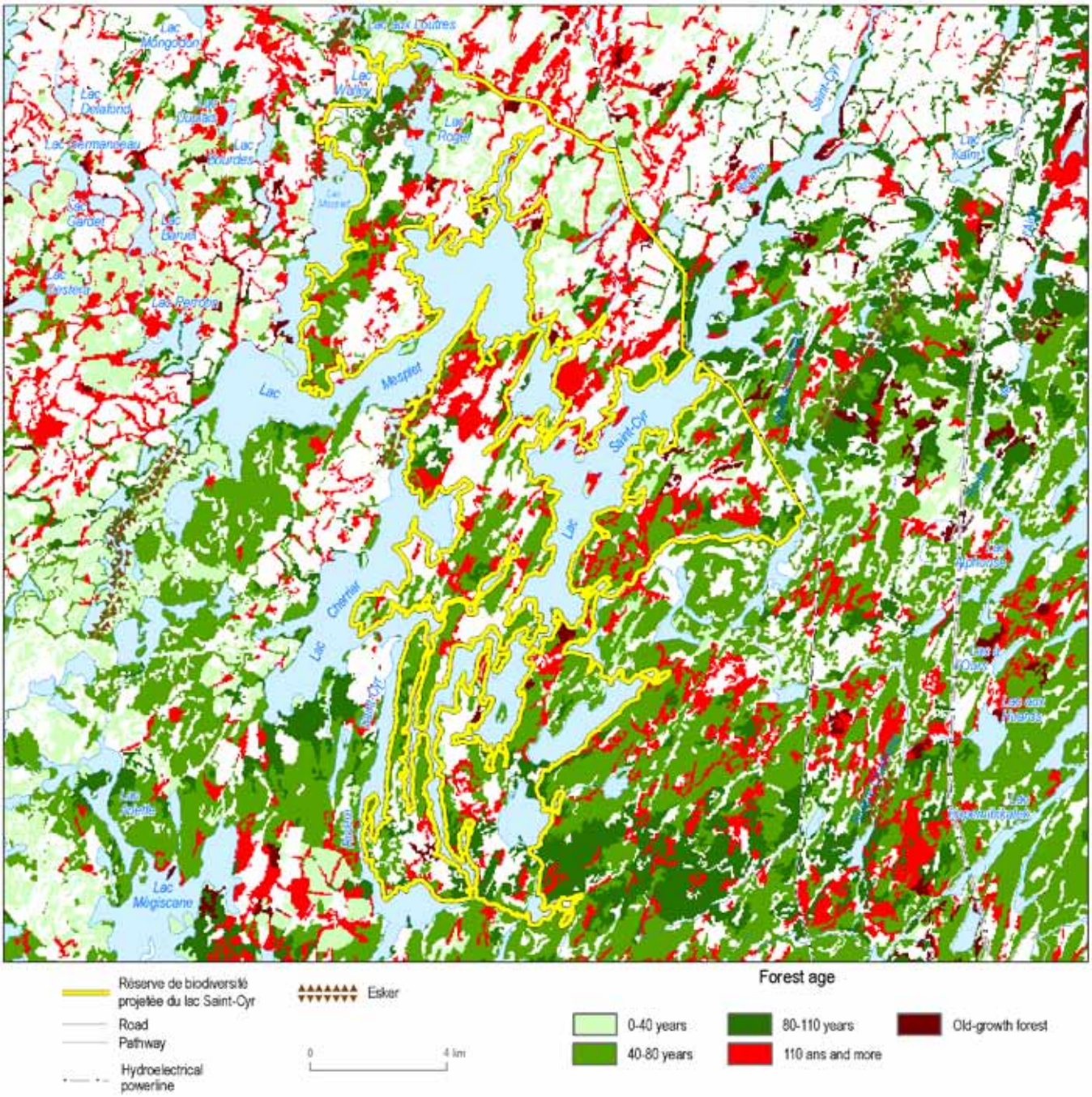


Figure 86. Vegetation – Réserve de biodiversité projetée du lac Saint-Cyr



The breakdown of forest stands by age class group reveals that 45% of the forest cover comprises mature stands (80 years or over), that middle-aged forest stands (between 40 and 80 years) cover 40% of the area under forest cover, and that young forest stands account for roughly 15% of the forest cover (Figure 87). The mature forest stands are located in islands of woodland enclosed between lakes and wetlands.

Figure 87. Age of forest stands – Réserve de biodiversité projetée du lac Saint-Cyr



The proposed biodiversity reserve borders on an ecological subregion where forest fires between 100 km^2 and 500 km^2 are the most frequent under the forest fire regime (see Figure 44). The reserve has an area of 143 km^2, which ranks it below average as regards the forest fire regime.

Wildlife

No occurrence has been mapped of rare, vulnerable or threatened species. No inventory has been conducted to ascertain the fish species that inhabit the numerous small lakes in the reserve. However, yellow walleye, suckers, yellow perch and Northern pike are likely to be found there.

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 common fur-bearing animals in the territory.

Social environment

The Lac-Simon Algonquin community appears 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 proposed biodiversity reserve is almost entirely located in the Abitibi beaver reserve, where the Attikamek community of Obedjiwan 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 potential for archaeological research since it allows for travel from the Rivière Mégiscane to the Rivière Saint-Cyr, which gives access to the northeastern territories.

Aboriginal trappers and Aboriginal and non-Aboriginal hunters frequent the reserve, 90% of which lies within two outfitting operations with exclusive rights, i.e. the Club Kabitacouhan and the Pourvoirie Saint-Cyr Royal (Figure 88). The territory is suited to bear and moose hunting. Two shelter leases and a vacation lot lease have been granted in the territory. Since the territory is located in a beaver reserve, the monitoring of trapping is made by band council of native communities. The Rivière Saint-Cyr is recognized for its canoeable route.

From the standpoint of accessibility, few logging roads facilitate access to and travel in the territory. The roads total less than 21 linear km. Logging that occurred in the decade preceding the establishment of the reserve affected approximately 5 km^2 of the protected area, which is located in FMU 087-51.

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.

4.3.5 Contributions of the protected area

Representativeness

From the standpoint of the representativeness of the physical elements, the area was originally targeted because of the arrangement of environments in which hillocks of glacial origin are interspersed with depressions filled with peat bogs, sand and gravel, vestiges of the passage of rivers carrying glacial meltwater, and clayey earth. The three big lakes were initially part of the proposed protected area since they are closely linked to the ecosystemic protection objective and the territory in question. The reserve is contributing greatly to the protection of ecosystems in physiographic unit G0102 (see Figure 80 and Figure 81). However, because of forestry constraints, the territory to be protected was revised repeatedly during the negotiations. Because of the potential impacts on hydroelectric and forestry, the biodiversity reserve can't include the lakes and the south-east area. So the actual proposed biodiversity reserve is limited in its representativeness of aquatic ecosystems.

From a biological standpoint, the reserve is protecting numerous environments corresponding to the key types of potential vegetation, i.e. black spruce stands and balsam fir-black spruce stands (see Figure 85).

In this physiographic unit, the proposed biodiversity reserve protects large areas associated with the key components of the most widespread ecosystems but mainly terrain with organic deposits. Despite the limited forest cover and its poor configuration because of the exclusion of the big lakes, the reserve's contribution is relevant as regards representativeness, in particular because it is the only protected area in the physiographic unit. The reserve is also contributing appreciably to the protection of old-growth forests (see Figure 12) even though the forest stands in question are generally isolated and small in area.

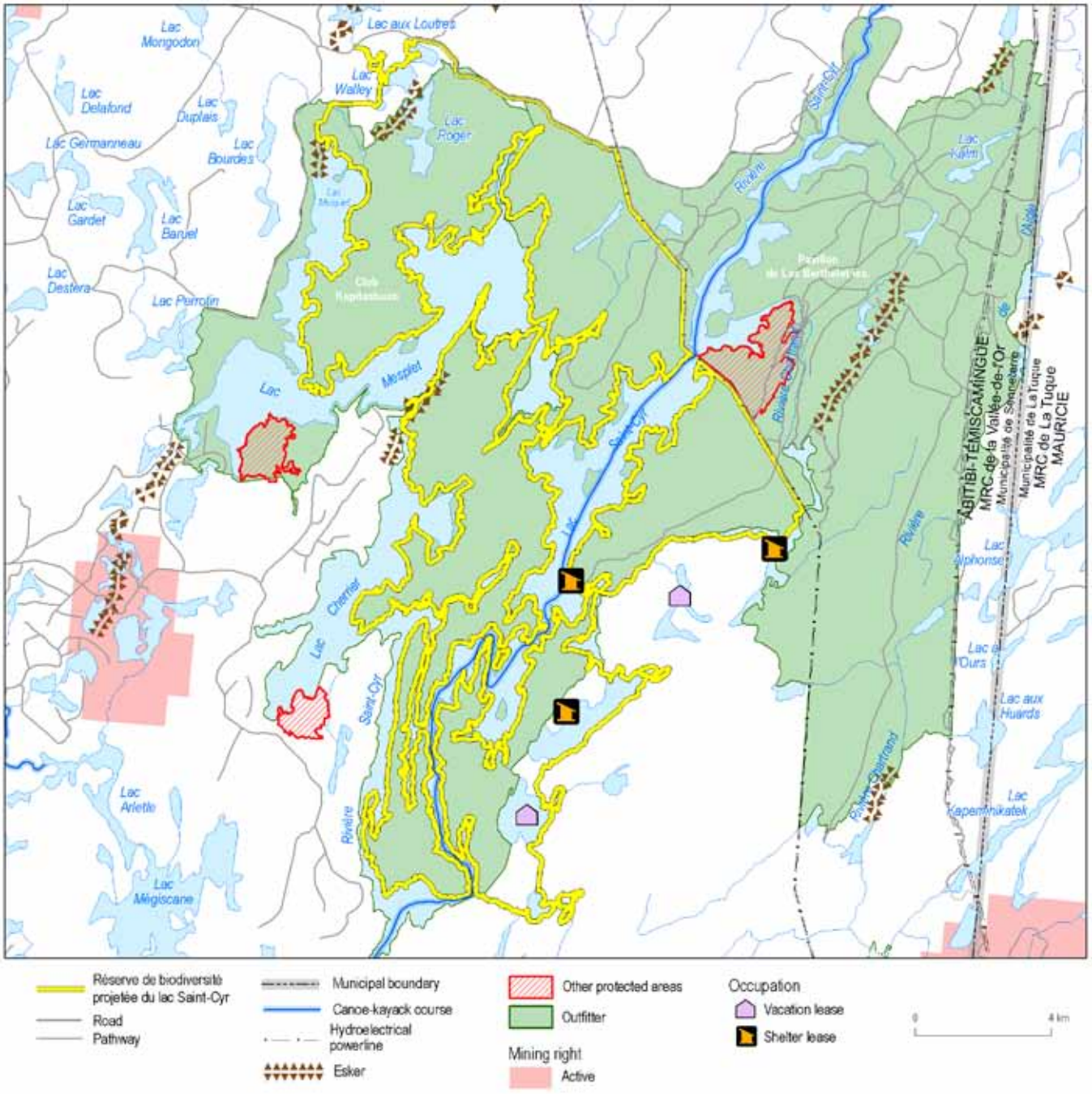
Efficacy

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. The general level of naturality of the protected area is high. Aside from some outfitters' buildings, forestry operations in the northern portion are the only human footprint and have affected only 6% of the forest cover. The protected area has only 21 linear km of roads, equivalent to a ratio of 0.15 km of road per km^2, a low density (0.06 to 0.43 km/km^2)[14].

From the standpoint of configuration, the protected area does not have a sufficient area (143.1 km^2) to encompass all of the successional stages of forest ecosystems. The perimeter-area ratio is

[14] Quigley *et al.*, 2001.

Figure 88. Occupancy and use of the Réserve de biodiversité projetée du lac Saint-Cyr



2.2, over seven times the ideal ratio (a perfect circle) and is deemed to have a hardly efficacious shape, which is attributable, however, to the need to bypass the lakes. Given the reserve's irregular 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 impossibility of including in the long run Lac Cherrier, Lac Saint-Cyr and Lac Mesplet means that avenues for expansion are limited (see the section entitled "Potential expansions"). The forest context in the sector accordingly reduces the options that could have restored ecological coherence to the protected area since, generally speaking, the protected area displays numerous shortcomings.

4.3.6 Conservation issues

The key conservation issues in the territory are the potential impact of the diversion of the Rivière Mégiscane on riparian habitats, and the resilience of the disturbed ecosystems in the northern portion. Apart from the two questions, 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. In this context, the protection and management of a territory with limited ecological coherence poses a major challenge. It is a matter of ascertaining whether the ecosystems that we wish to protect are really being properly protected and, if not, how we can move closer to the original objective and evaluate the feasibility of the remedial measures to be adopted.

Given that numerous anglers frequent the two outfitting operations and that the shores of the big lakes occasionally constitute the boundaries of the protected area, 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 was conducted for the territory to determine the best changes to make to the boundaries of the protected area to maximize the protection of the main water bodies and watercourses (see the following section), bearing in mind the context of use of the territory, in particular peripheral forestry operations.

4.3.7 Theoretical expansions under study

Theoretical expansions have been studied (Figure 89) in order to maximize the coherence of the territory and promote the maintenance of its ecological integrity. It should be noted that during previous deliberations aimed at establishing new protected areas, a territory of interest named G-16 was analyzed. The latter included adjacent territory to the south of the proposed biodiversity reserve and extended in a southwesterly direction. However, this territory of interest has not been adopted here for the analysis of the expansions since it was identified as displaying significant constraints from the standpoint of forests and, given its considerable geographic area, it is in itself an entirely new territory that has not been subject to the same level of analysis. Accordingly, the territory known as territory of interest G-16 must, if need be, be subject to the full process respecting the establishment of new protected areas for the period 2012-2015 according to government policy directions in this respect. What is more, fairly stiff opposition to the protection of the territory was expressed during the workshops of the Table GIRT de la MRC-VO.

The potential expansions studied can be divided into three classes: (1) the addition of aquatic environments (polygon No. 2); (2) the addition of terrestrial portions to the south and southeast of the current reserve (polygons Nos. 1 and 3); and (3) an addition to the west of the current reserve (polygons Nos. 4 and 5). Accordingly, priority should, theoretically, be given to the protection of Lac Mesplet, Lac Cherrier and Lac Saint-Cyr. Moreover, the protection of visual landscapes (lands to the west of Lac Mesplet and Lac Cherrier) and the addition of large mature forest tracts (lands to the southeast of Lac Saint-Cyr), bearing in mind the forest context, are the other two orientations to enhance the protected area.

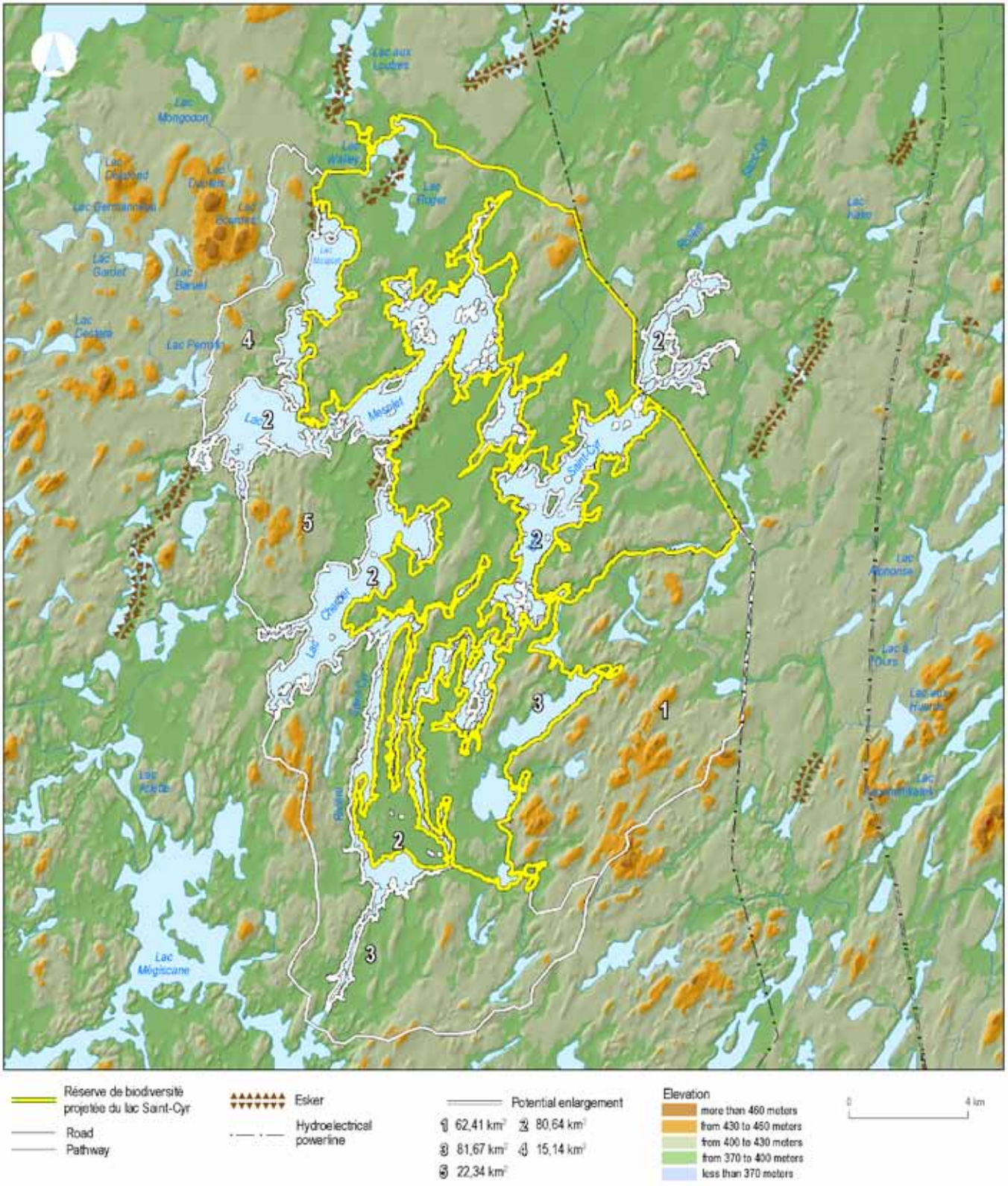
While it impossible at this time to include the lakes in the protected area, their inclusion has been analyzed since, in the event that the Rivière Mégiscane is diverted, a version of such a project is likely to have no impact on the drawdown of the lakes in question. If such were the case, the lakes could be included subsequently in the protected area. However, it should be noted that the MDDEP does not possess any information or data in this respect and is unable to determine, at the moment, whether such scenarios are conceivable.

Logging occurred recently on the lands to the west of the protected area. Their interest resides in the scenario in which the three big lakes are protected and proper protection is sought for the lakes and their immediate visual environment. It should be noted that during the workshops of the Table GIRT de la MRC-VO, the expansions had not been contemplated and were not presented since at that time. However, the additions to the west are relevant even without the protection of the lakes insofar as water quality in the landlocked lakes in the protected area and the protection of the visual landscape continue to be of interest, since they are linked ecosystem components, regardless of the administrative or legal boundaries of a protected area.

In short, the impossibility observed of protecting the lakes and harvesting on almost the entire peripheral area suggest that this territory has important gaps. Without its being possible to improve the protected area, the latter seems, from a theoretical conservation standpoint, to be hardly relevant and the MDDEP will have to think about what kind of conservation project could relevant.

The expansions analyzed (see Figure 89) represent a total area of roughly 226 km^2, i.e. 71 km^2 for the three lakes and 155 km^2 for the peripheral terrestrial environments. The biodiversity reserve's total area would increase to approximately 369 km^2. If the lakes alone were added, the perimeter-area ratio would considerably improve, from 2.19 to 0.92. If all of the expansions under study were added, the ratio would stand at 0.37, very close the ratio of a perfect circle (0.3). Furthermore, the determination of the landscapes visible from Lac Cherrier and Lac Mesplet based on a cursory analysis confined to a maximum radius of visibility of roughly 25 km revealed that visibility is very important (Figure 90). This is true because the surrounding territory is fairly flat and because logging occurred recently, which creates important scenic views. However, what is important is to protect the visible foreground in a landscape.

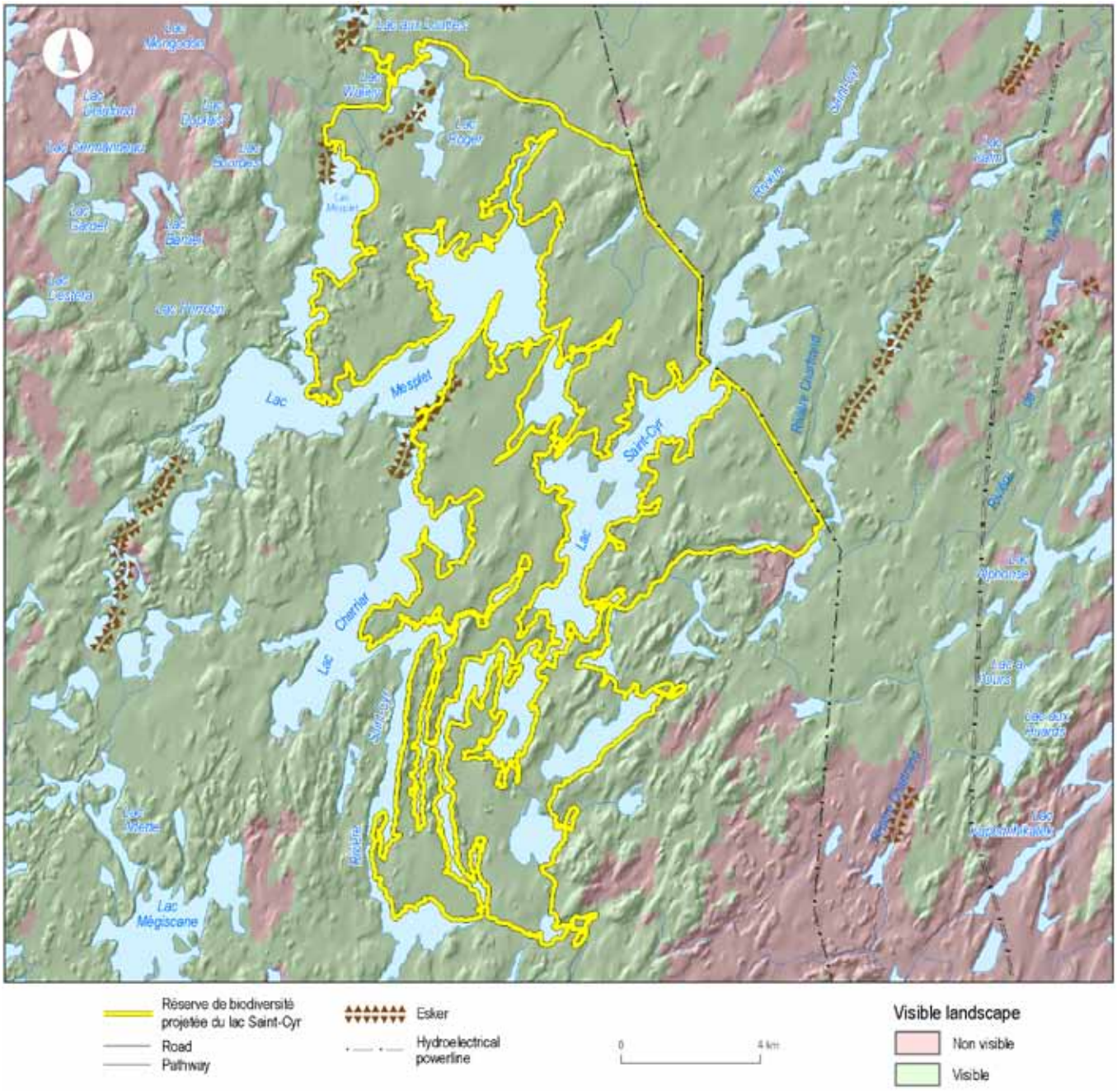
Figure 89. Potential expansions of the Réserve de biodiversité projetée du lac Saint-Cyr



Accordingly, the expansions to the west would allow for the protection of the most important portions of visibility, i.e. those that are more than 90% in the visible territory.

The MDDEP presented certain potential expansions of ecological interest to the members of the Table GIRT MRC-VO during the workshops that preceded the public consultations. The expansions to the west of Lac Mesplet and Lac Cherrier had not yet been considered at that time. 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 and the Réserve de biodiversité projetée du lac Wetetnagami because of the same, forest-related concerns. The topic that aroused the most interest among participants and was most discussed by them was the inclusion or non-inclusion of the

Figure 90. Landscapes visible from Lac Mesplet, Lac Cherrier and Lac Saint-Cyr and the Rivière Saint-Cyr



three lakes in the protected area. The management representative of the FMU concerned (087- 51) is in the process of obtaining forest certification from the FSC. The FMU, divided into two blocks, one near the Rivière Saint-Cyr and the other one north of Lac Parent, encompass approximately 10.2% protected areas, almost all of it from the Réserve de biodiversité projetée du lac Saint-Cyr, which explains the level of constraint to the expansion of the reserve by means of terrestrial environments. What is more, the periphery of the reserve was covered by 2008-2013 forest planning and operations are still under way there.

4.3.8 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 any request for authorization, it will take into account the resilience objectives of disturbed forest ecosystems, in particular those in the northern portion. Moreover, it will take into consideration the potential impact on biodiversity and ecosystems stemming from peripheral activities and any project that may affect the riparian habitats and environments adjoining Lac Cherrier, Lac Mesplet and Lac Saint-Cyr, if the impact risks affecting the terrestrial environments protected.

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.