

Woodland and Mountain Caribou Strategy

June 18, 2019 - Mistissini
Ministère des Forêts, de la Faune et des Parcs

Outline of Presentation

- Context and background
- Strategy currently being prepared
 - Identification of areas under consideration for the Strategy
 - Types of areas under consideration
 - Potential impacts
- Complementary initiatives
 - Interim measures aimed at forest management
 - Population monitoring
 - Population management
 - Knowledge acquisition
- Next steps and timeframe

Background: The Different Caribou Ecotypes

- There are different “types” of caribou, known as **ecotypes**.
- An **ecotype** is composed of populations with specific characteristics, ecological preferences and behaviours that differentiate them from other caribou ecotypes.

Migratory caribou



Woodland caribou



Mountain caribou



Peary caribou



Background: The Different Caribou Ecotypes

Four ecotypes in Canada:

Migratory, Woodland, Mountain and Peary

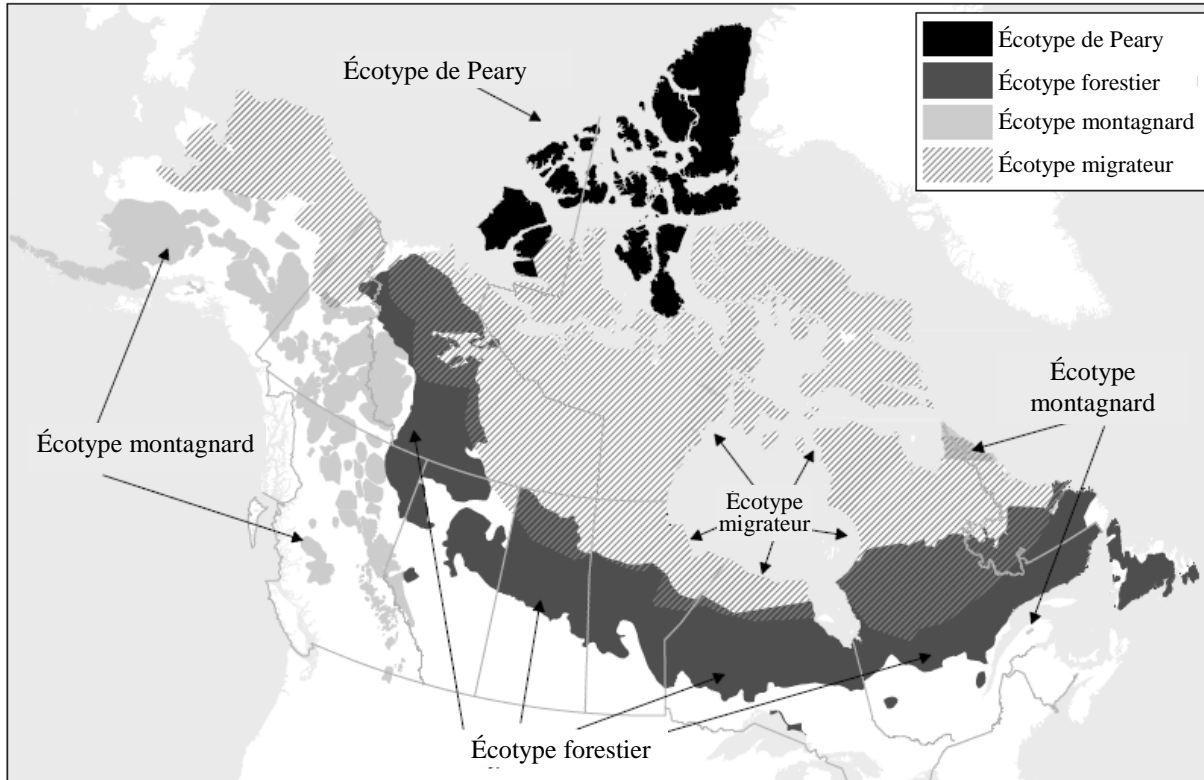
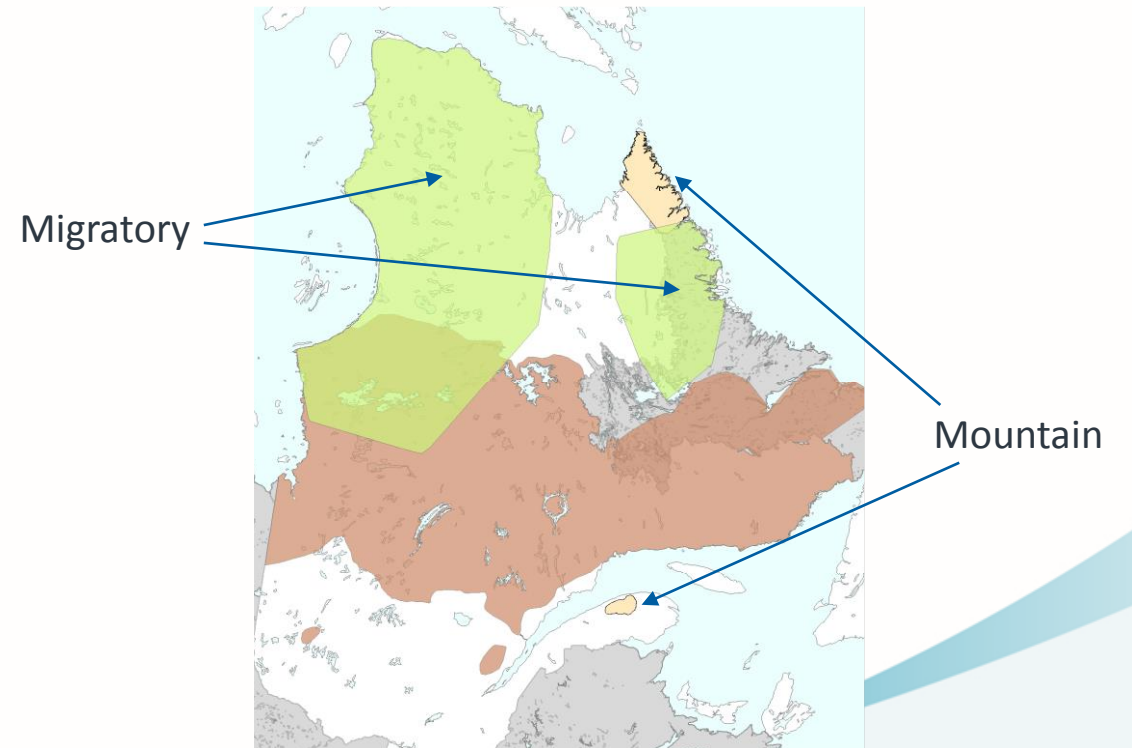


Figure tirée de Festa-Bianchet et coll. (2011) et adaptée de Hummel et Ray (2008) par Gillian Woolmer, Wildlife Conservation Society Canada.

In Québec: All caribou belong to the woodland caribou subspecies (*Rangifer tarandus caribou*)

Three ecotypes: Woodland, Mountain and Peary



Background: A Story of Regression and Subsequent Decline

- Following colonization by the Europeans:
 - Northward regression of the range
 - Disappearance of herds in the south
 - Decline in population size

Issues at play:

- Habitat alteration
- Sport hunting
- Predation



Figure 1. Aire de répartition (c.-à-d., zone d'occurrence) du caribou boréal au Canada. L'aire de répartition actuelle du caribou boréal est indiquée en brun. L'extrémité sud estimée de l'aire de répartition historique du caribou des bois est marquée par la ligne pointillée.

ECCC, 2011



Plan de rétablissement du caribou forestier au Québec (2013-2023)

Background: A Story of Regression and Subsequent Decline

- À la suite de la colonisation par les Européens :
 - Régression de l'aire de répartition vers le nord
 - Disparition des hardes au sud
 - Déclin de la taille des populations

Facteurs en jeu :

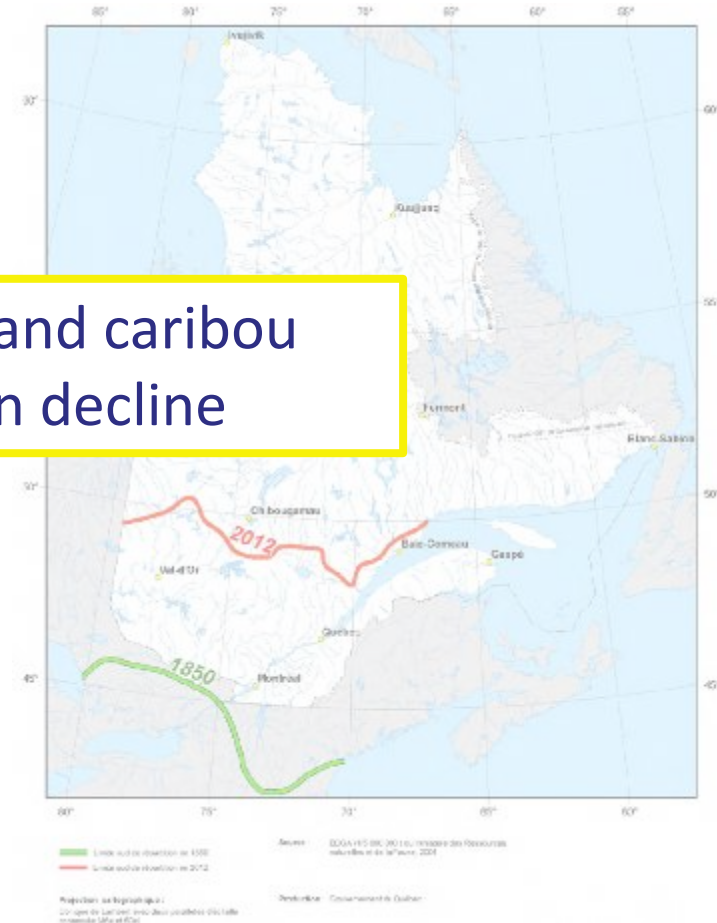
- altération de l'habitat
- chasse sportive
- prédation

At the present time, in North America, most woodland caribou populations are considered to be precarious or in decline



Figure 1. Aire de répartition (c.-à-d. zone d'occurrence) du caribou boréal au Canada. L'aire de répartition actuelle du caribou boréal est indiquée en brun. L'extrémité sud estimée de l'aire de répartition historique du caribou des bois est marquée par la ligne pointillée.

ECCC, 2011



Plan de rétablissement du caribou forestier au Québec (2013-2023)

Current Knowledge of Québec's Populations

The woodland caribou is one of the **most extensively studied mammals in Canada and in Québec** and has been the subject of **many scientific studies in Québec** since the 1990s:

- Nearly 60 scientific papers published in recognized and specialized journals
 - Approximately 30 reports, summaries and chapters in books
 - Roughly 30 Master's dissertations and Doctoral theses

Impacts of forest management and human disturbance

Imbeau *et al.* 2015
Beauchesne *et al.* 2014
Lesmerises *et al.* 2013
Courbin *et al.* 2009 [...]

Habitat use and selection

Lafontaine *et al.* 2017
Leblond *et al.* 2014
Bastille-Rousseau 2012
Leclerc *et al.* 2012 [...]



Population dynamics

Rudolph *et al.* 2017
Losier *et al.* 2015
Leclerc *et al.* 2014
Courtois *et al.* 2008 [...]

Impacts of predation

Lesmerises & St-Laurent 2017
Fortin *et al.* 2017
Leblond *et al.* 2016
Fortin *et al.* 2015 [...]

Concerns, Limiting Factors and Threats

A number of mortality factors can affect woodland caribou population dynamics

Habitat loss and alteration

Human activities, mainly forest management Natural disturbances (e.g. forest fires, insect infestations)

Predation – Fostered by habitat alteration

Harvesting by Aboriginal nations for subsistence, ritual or social purposes



Human disturbance

- Industrial activities
- Recreation and tourism activities

Illegal harvesting

Road accidents

Diseases and parasites

Specific Characteristics of the Woodland Caribou

- Associated with **undisturbed mature softwood stands** containing **terrestrial lichen**, which forms the basis of the caribou's winter diet
- **Considered to be sedentary:** Seasonal travel over moderate distances within the boreal forest
- **Lowest reproduction potential of all cervids in Québec:**
 - Female caribou **begin to reproduce at a later age**
 - Birth of **only one calf per female per year**, while other cervids often have twins
- **Calving:**
 - Seek isolation in order to give birth away from predators
 - **Interannual fidelity to calving sites**



Plan de rétablissement du caribou forestier au Québec (2013-2023)

Background

- Closure of sport hunting in 2001
- Designated as a threatened species by the federal government in 2003
- Designated as a vulnerable species in 2005
- Creation of a woodland caribou recovery team in 2003
- First woodland caribou recovery plan for 2005-2012
- Second woodland caribou recovery plan for 2013-2023

Background

Government Action Plan (April 2016)



“A weighted approach in which the bulk of the protection effort would be focused on the key elements of caribou habitat, in places where the chances of success are the greatest.”

1 st phase	Starting now, take real steps to maintain the essential components of caribou habitat
2 nd phase	<ul style="list-style-type: none">• Perform a detailed analysis of the socio-economic consequences• Consult the actors concerned• Identify other sources of wood supplies• Prepare a long-term strategy for caribou habitat development

Background

Minister's Announcement (April 3, 2019)

- The aim of the Strategy will be to meet the needs of woodland and mountain caribou in order to ensure their long-term survival and the vitality of Québec and its regions, without impacting the forestry industry and its workers.
- Next steps in the preparation of the Strategy.
- Proposal that covers 80% of preferred woodland caribou habitats.
- A collaborative process with key partners.
- <https://mffp.gouv.qc.ca/la-faune/especes/habitats-et-biodiversite/amenagement-habitat-caribou-forestier/>

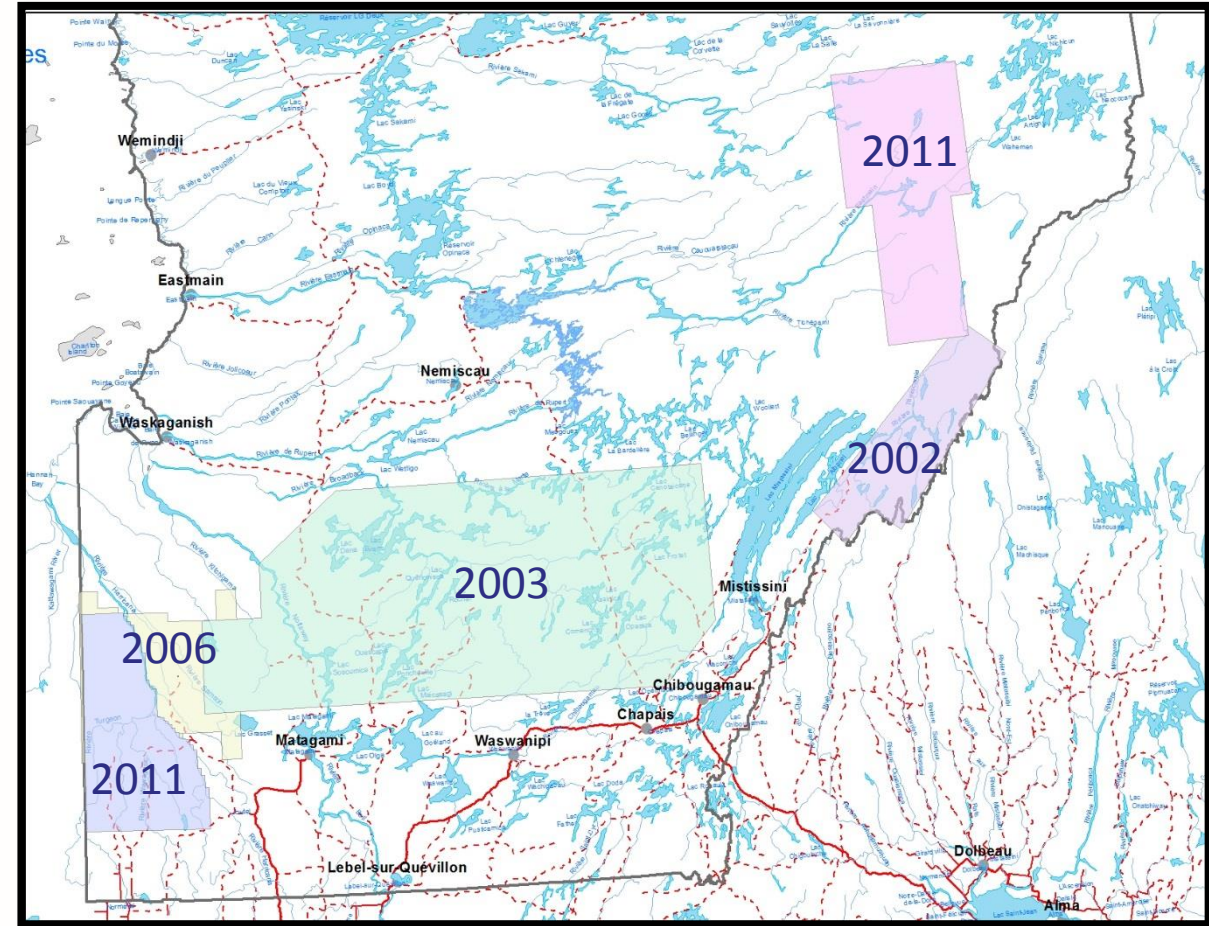


Background:

Caribou Population Status and Trends

Initial surveys (2001 to 2011)

- Distribution of woodland caribou over the territory of Nord-du-Québec
- Deployment of telemetric collars

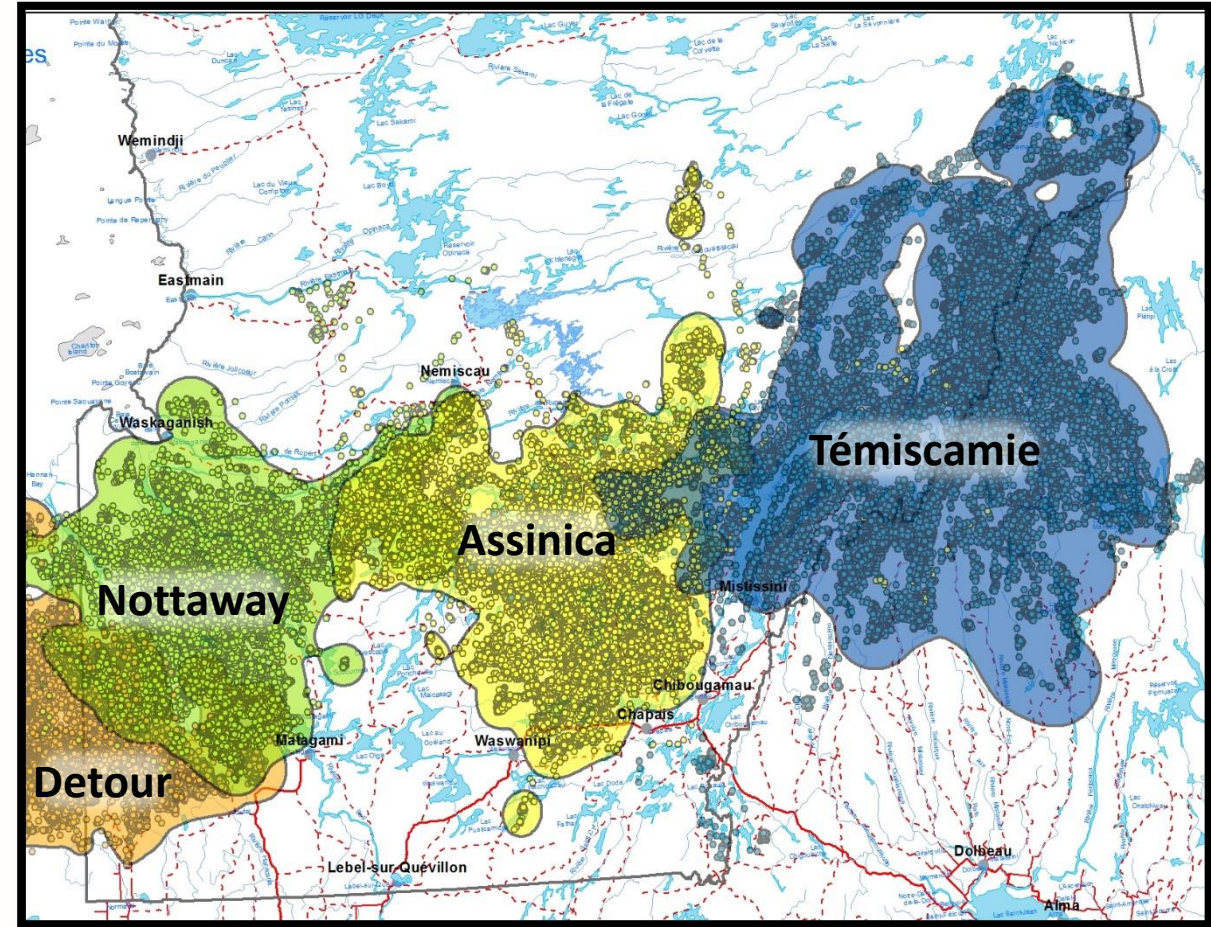


Background:

Caribou Population Status and Trends

Telemetric localization (2003 à 2019)

- Movement patterns, habitat use
- Identification of four relatively separate populations within the territory

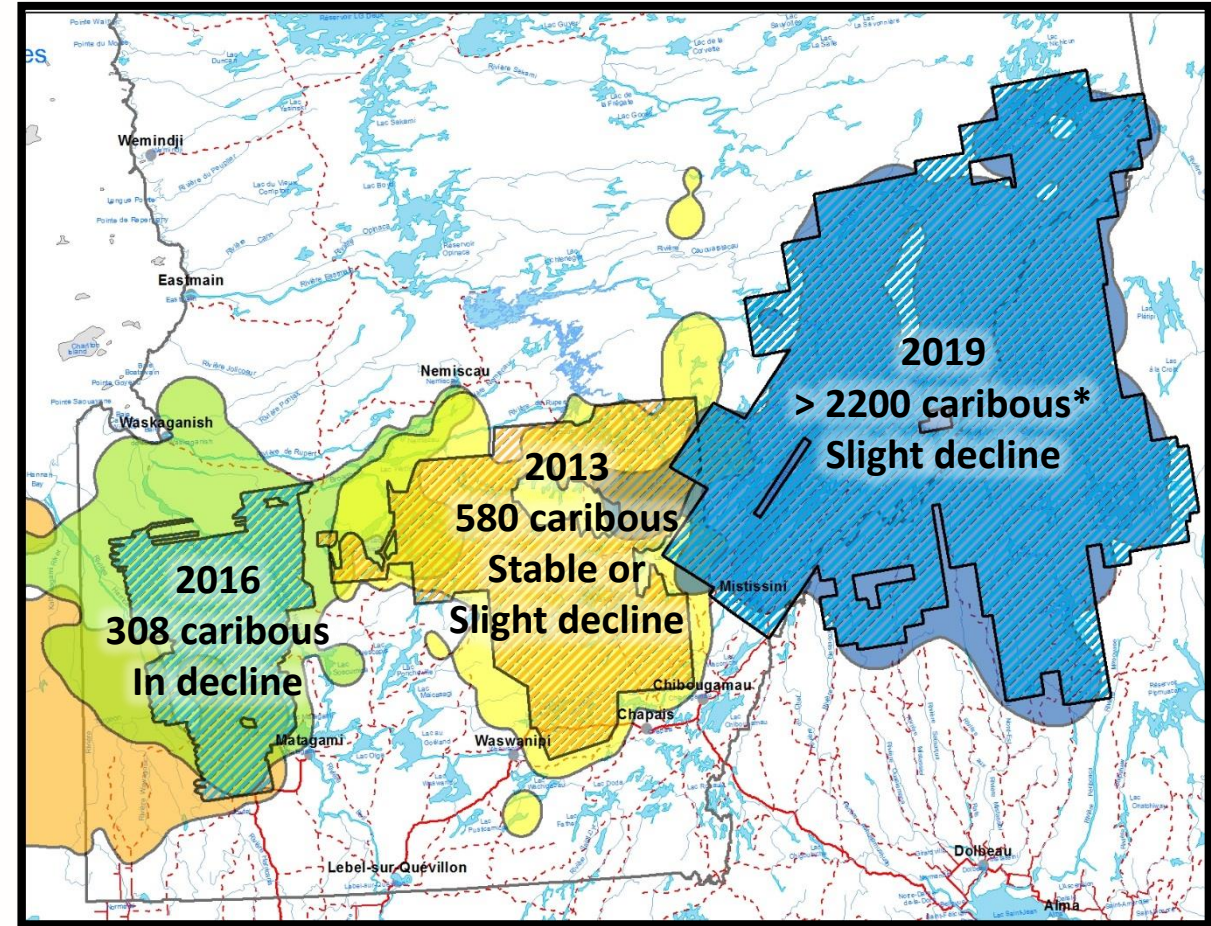


Background:

Caribou Population Status and Trends

Population monitoring

- Population surveys (population size and structure)
- Monitoring of demographic parameters (adult survival rate, recruitment rate)
- Population trend assessment



Background:

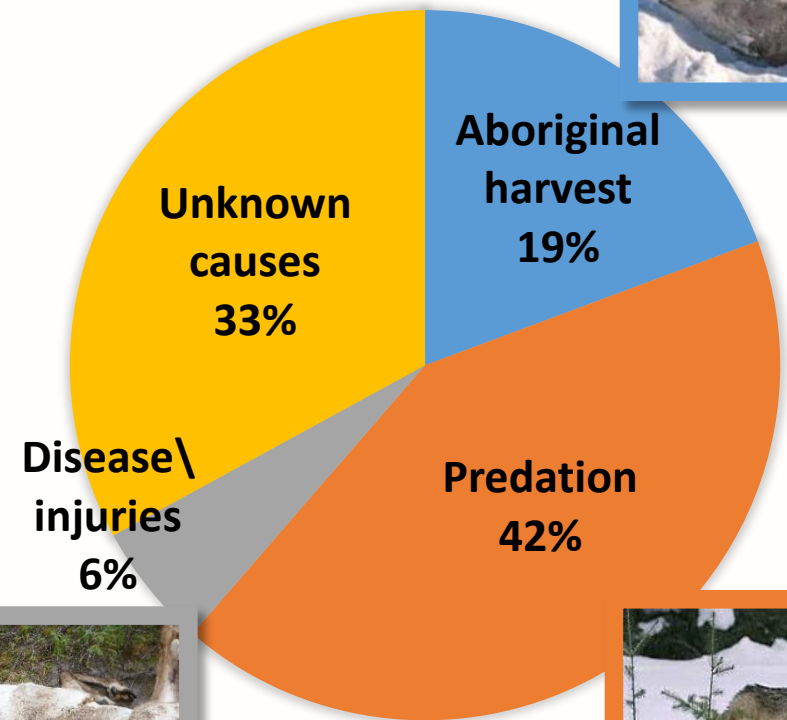
Caribou Population Status and Trends

Monitoring of causes of mortality

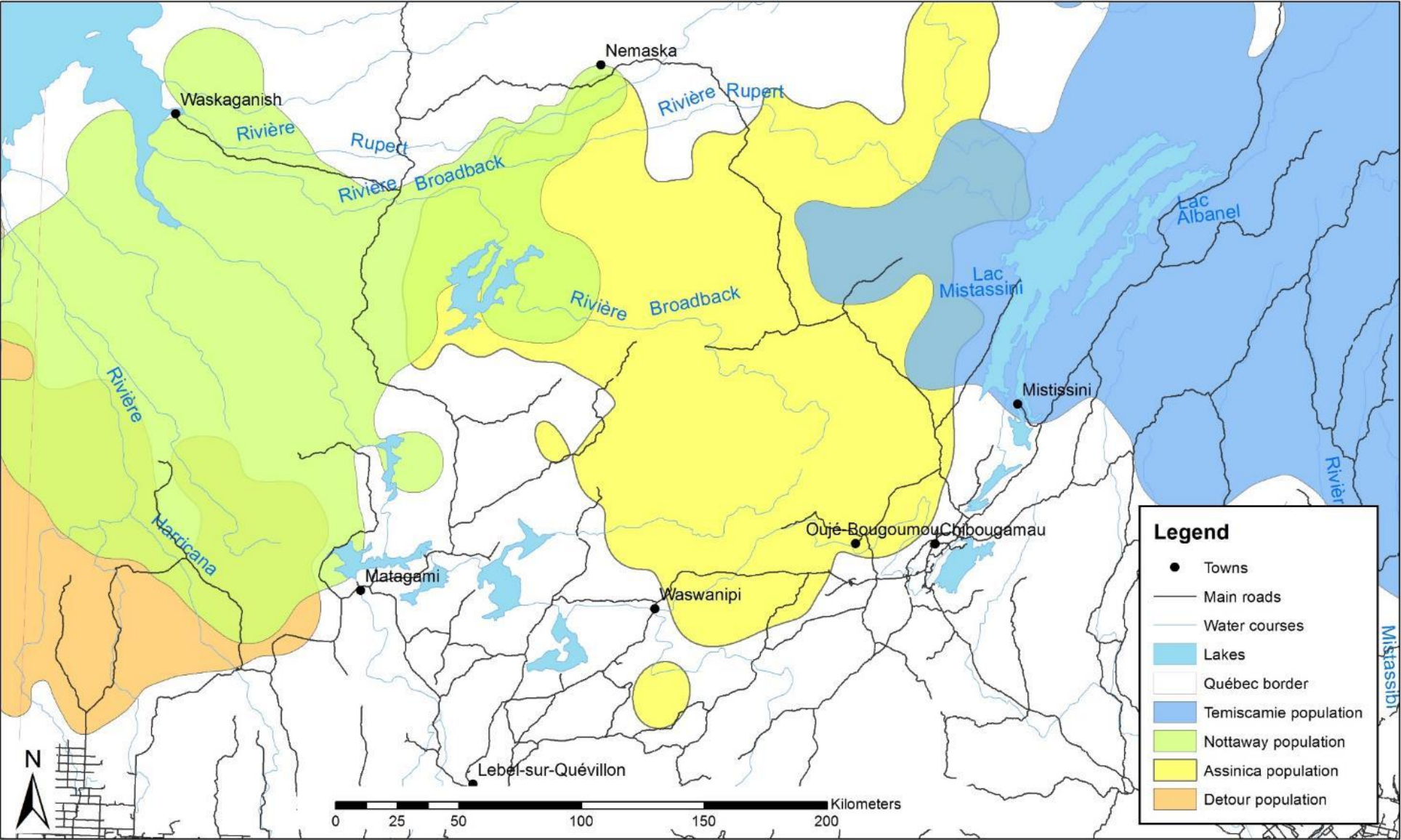
- 84 mortalities out of 163 caribous monitored between 2003 and 2019

Monitoring of population health

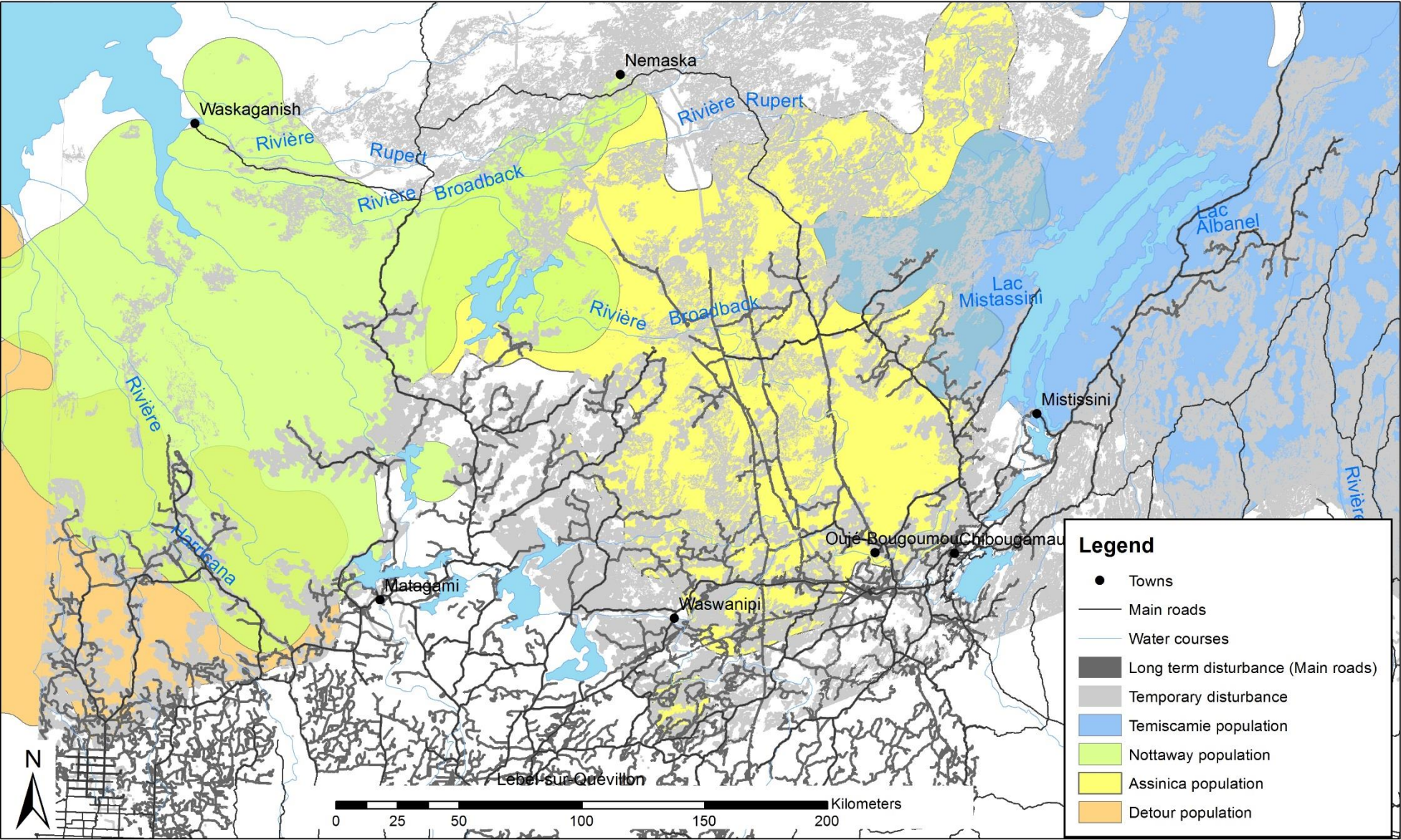
- Prevalence of besnoitiosis
- Presence of ticks
- Pregnancy rate among females



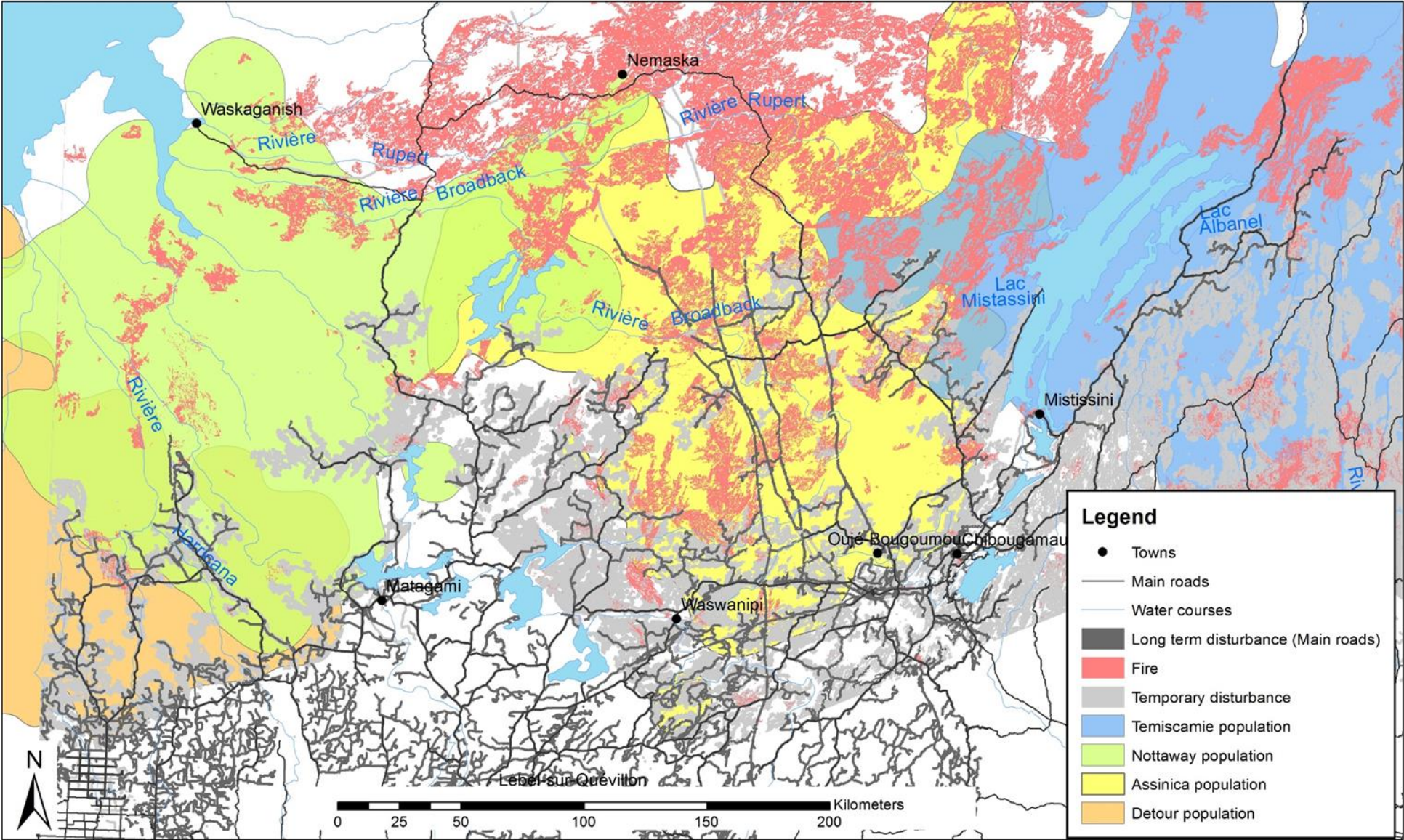
Current Condition of Habitat – Local Range



Current Condition of Habitat - Disturbances

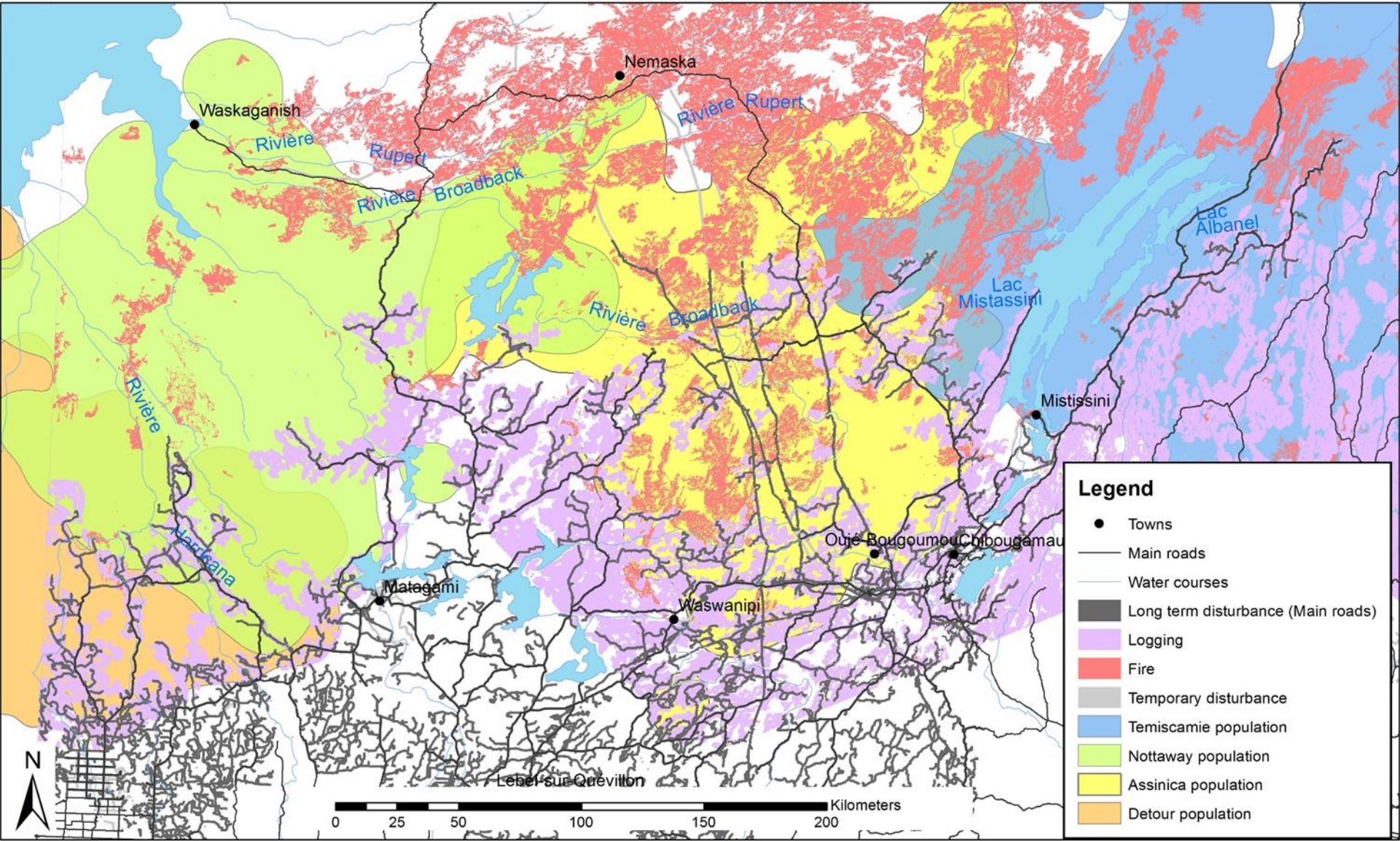


Current Condition of Habitat - Disturbances



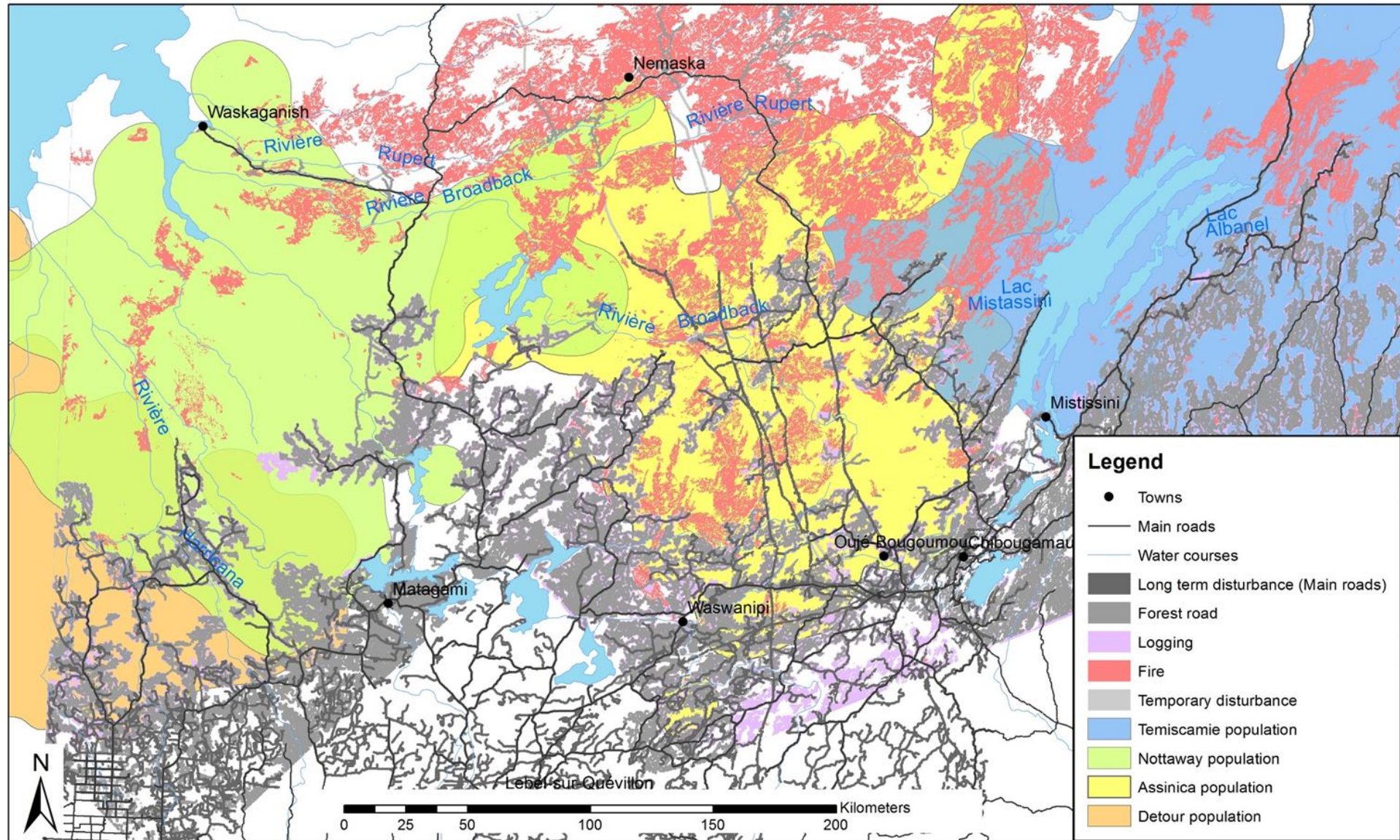
Disturbance by fire is widespread in our region.

Current Condition of Habitat - Disturbance



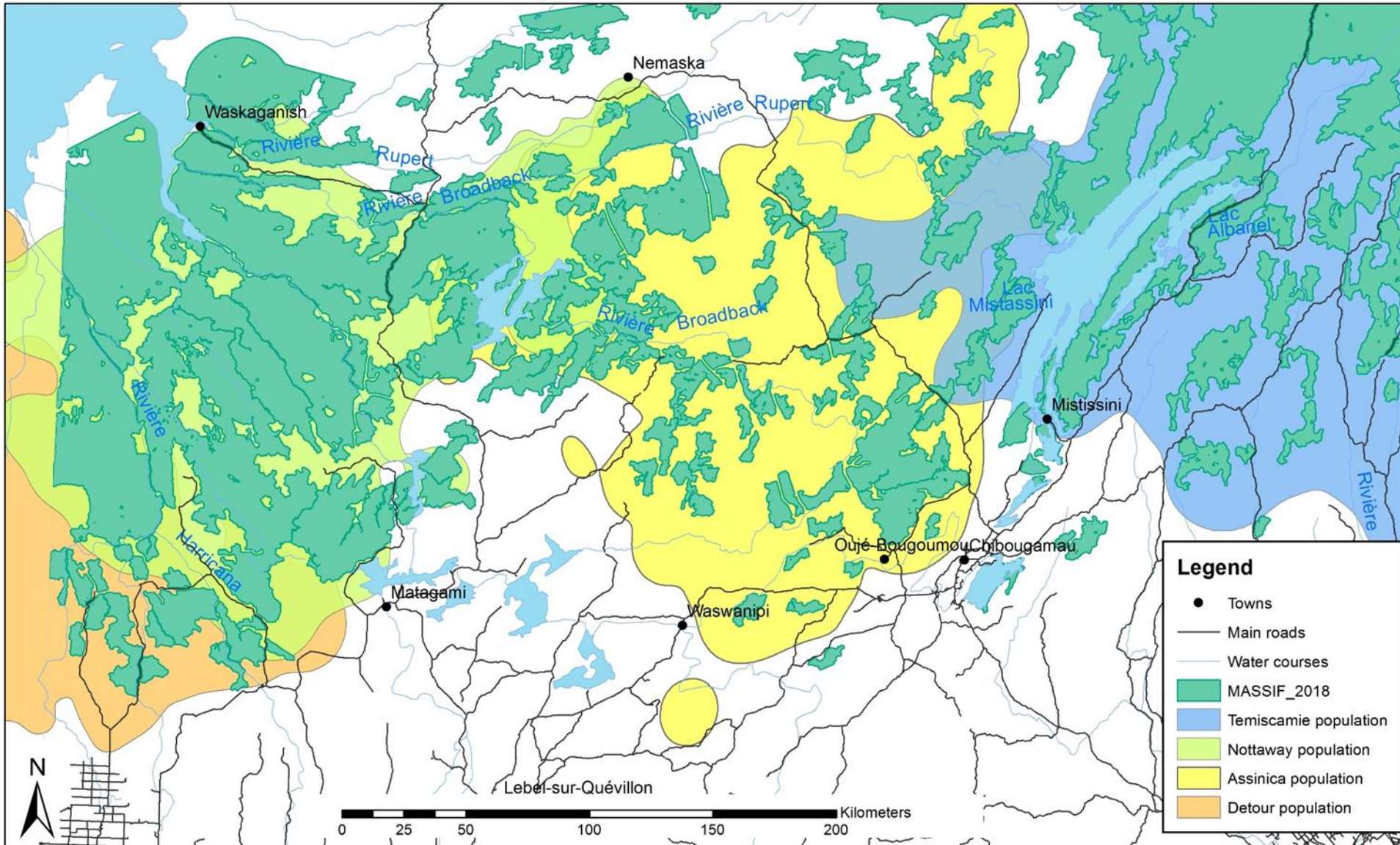
Timber harvesting is widespread as a cause of disturbance in our region.

Current Condition of Habitat - Disturbance



Harvests are covered almost entirely by forest roads. Although the forest grows back after a few years, the disturbance rate will be almost as high as if no roads were closed.

Current Condition of Habitat – Forest Blocks

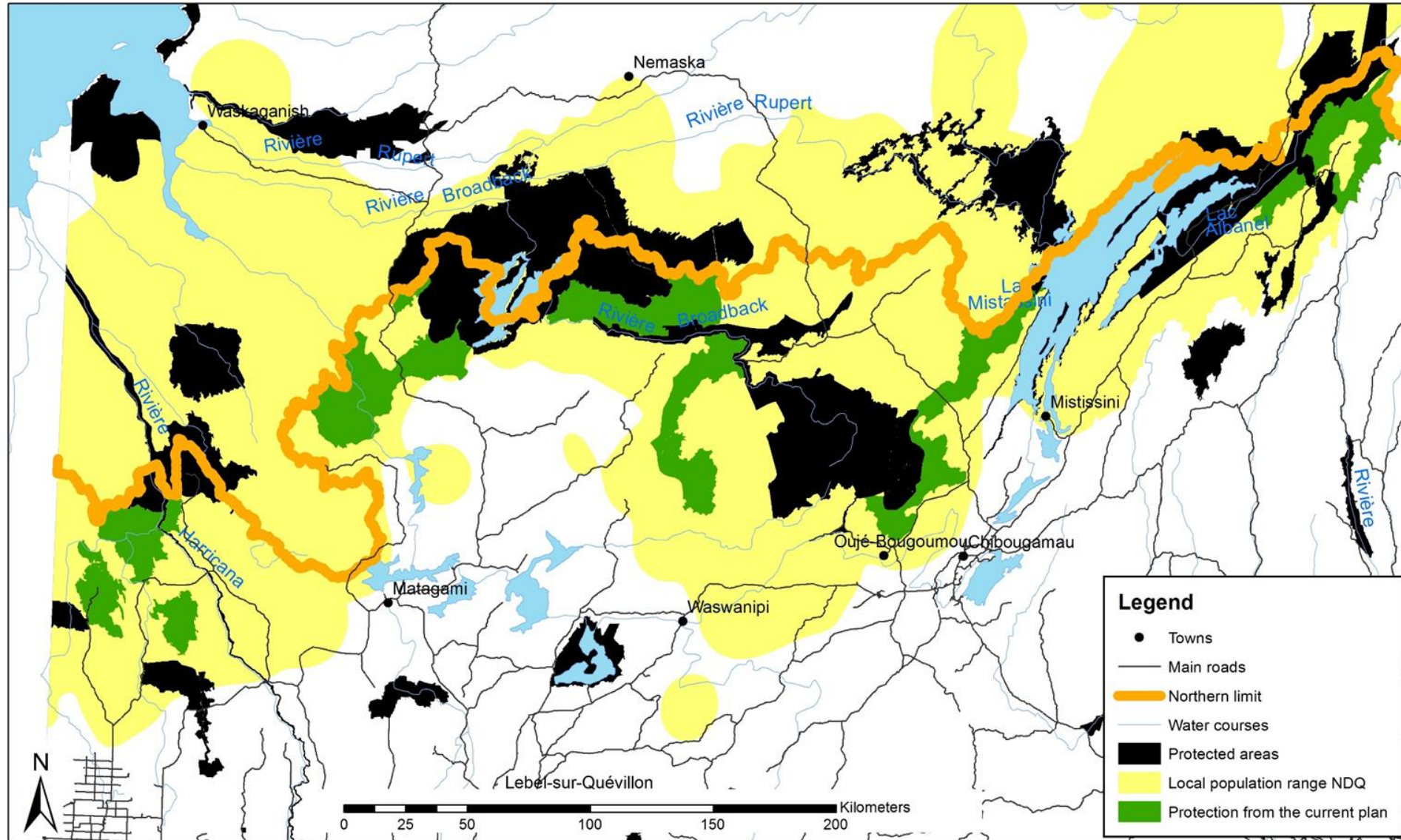


There are many forest blocks in our region's woodland caribou range.

History of Management Plans

- 2007-2015: Woodland caribou habitat management plan north of La Sarre (Detour population)
 - ✓ Collaboration between RYAM (Tembec), the Algonquin community of Abitibiwinni and the MFFP
- 2013: Introduction of the precautionary approach (Nottaway, Assinica and Témiscamie populations)
- 2015: Addendum to the Woodland caribou habitat management plan north of La Sarre (Detour population)
 - ✓ Collaboration between RYAM (Tembec), the Algonquin community of Abitibiwinni, the Québec section of the Canadian Parks and Wilderness Society (CPAWS) and the MFFP

Location of the precautionary approach and the Woodland caribou habitat management plan north of La Sarre



Harvesting was delayed by 25 to 150 years in the Detour plan and by 70 years for the precautionary approach.

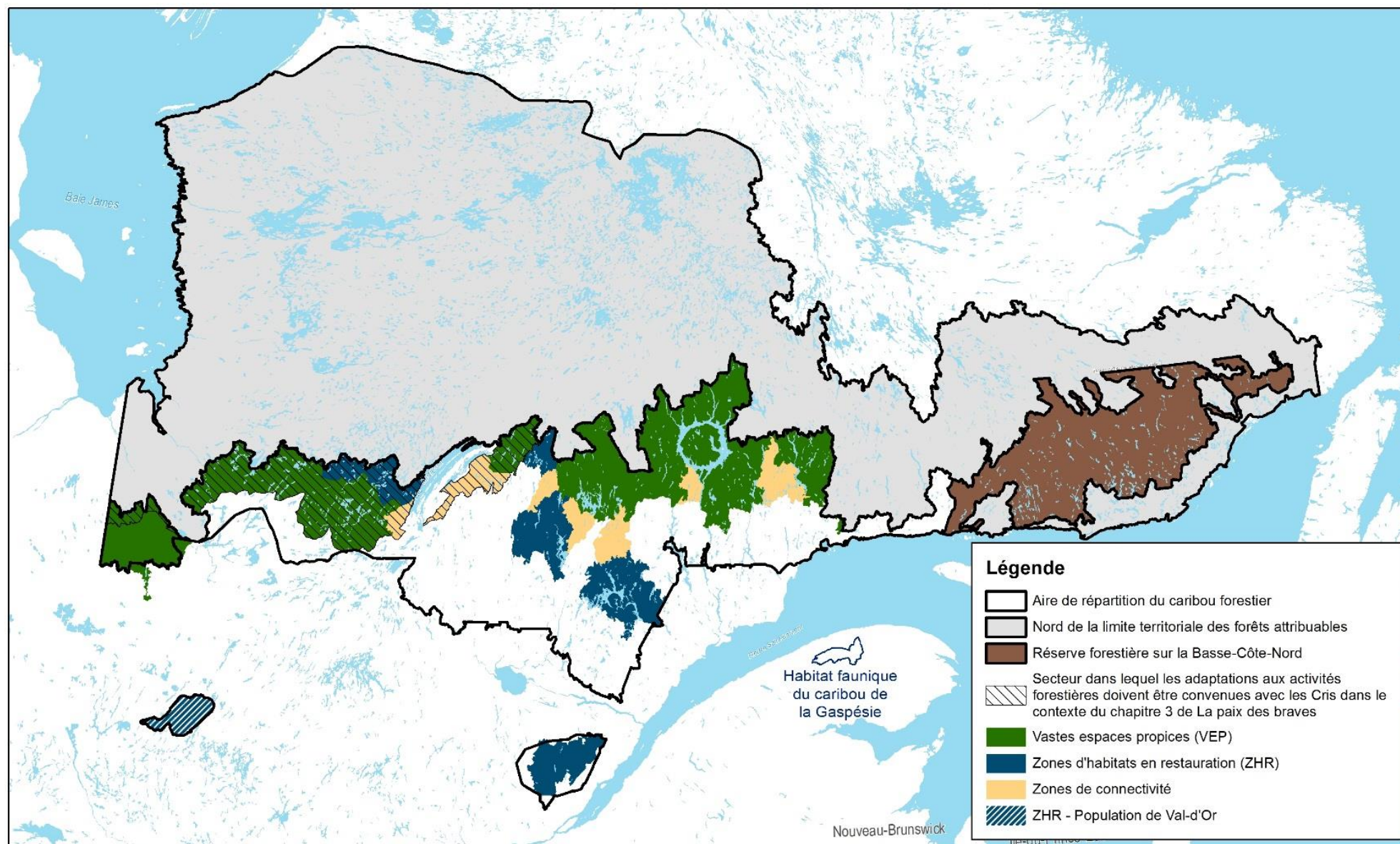
Impact of Existing Measures on the Allowable Cut

- Impact of introducing the precautionary approach in 2013
 - ❑ Harvesting delayed by 70 years: 163,000 m³/year
- Impact of introducing the addendum to the Woodland caribou habitat management plan north of La Sarre in 2015
 - ❑ Harvesting delayed by 70 years: 30,600 m³/year



The Strategy currently being prepared

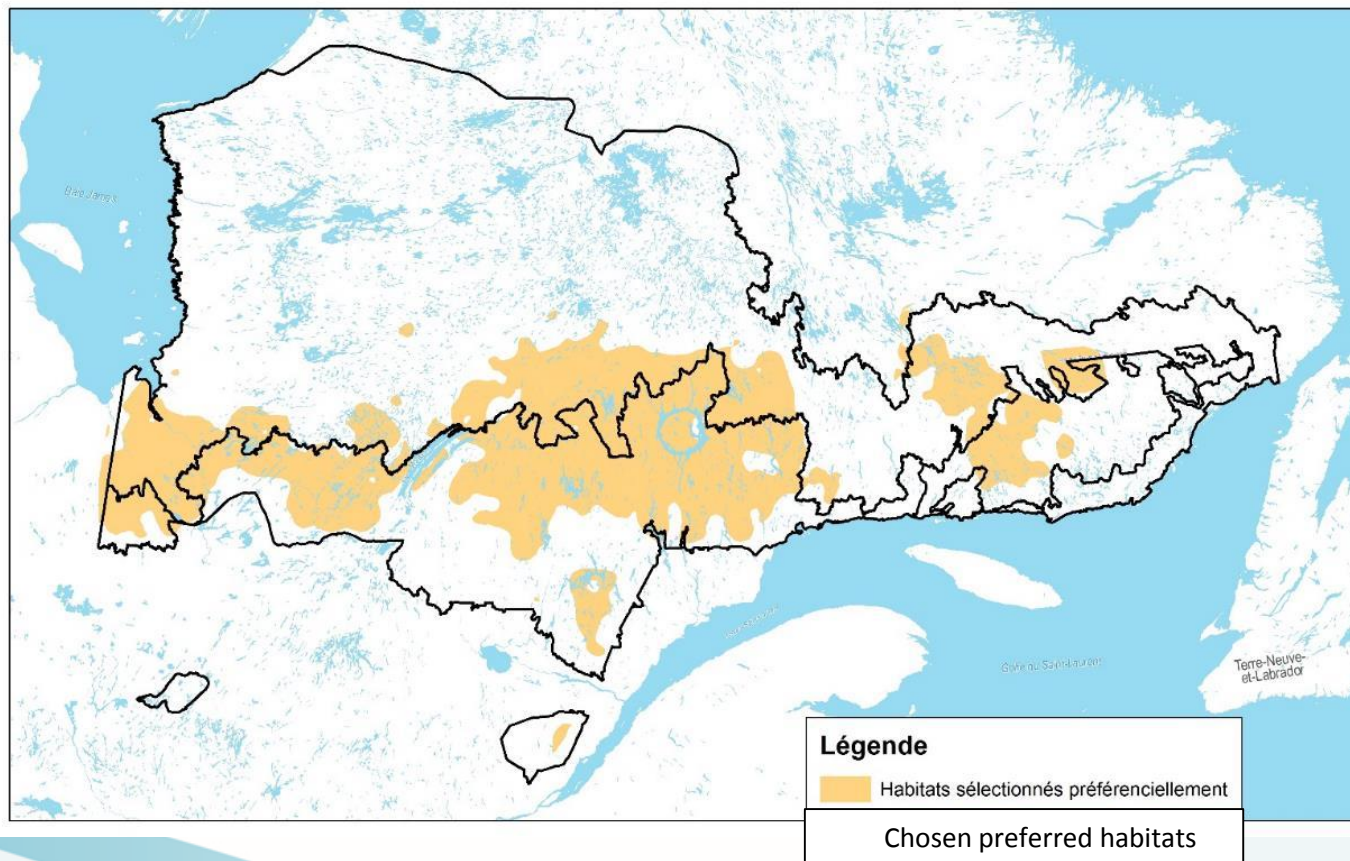
Areas of the range under consideration for the Strategy currently being prepared



Process

Habitat Characterization Tools

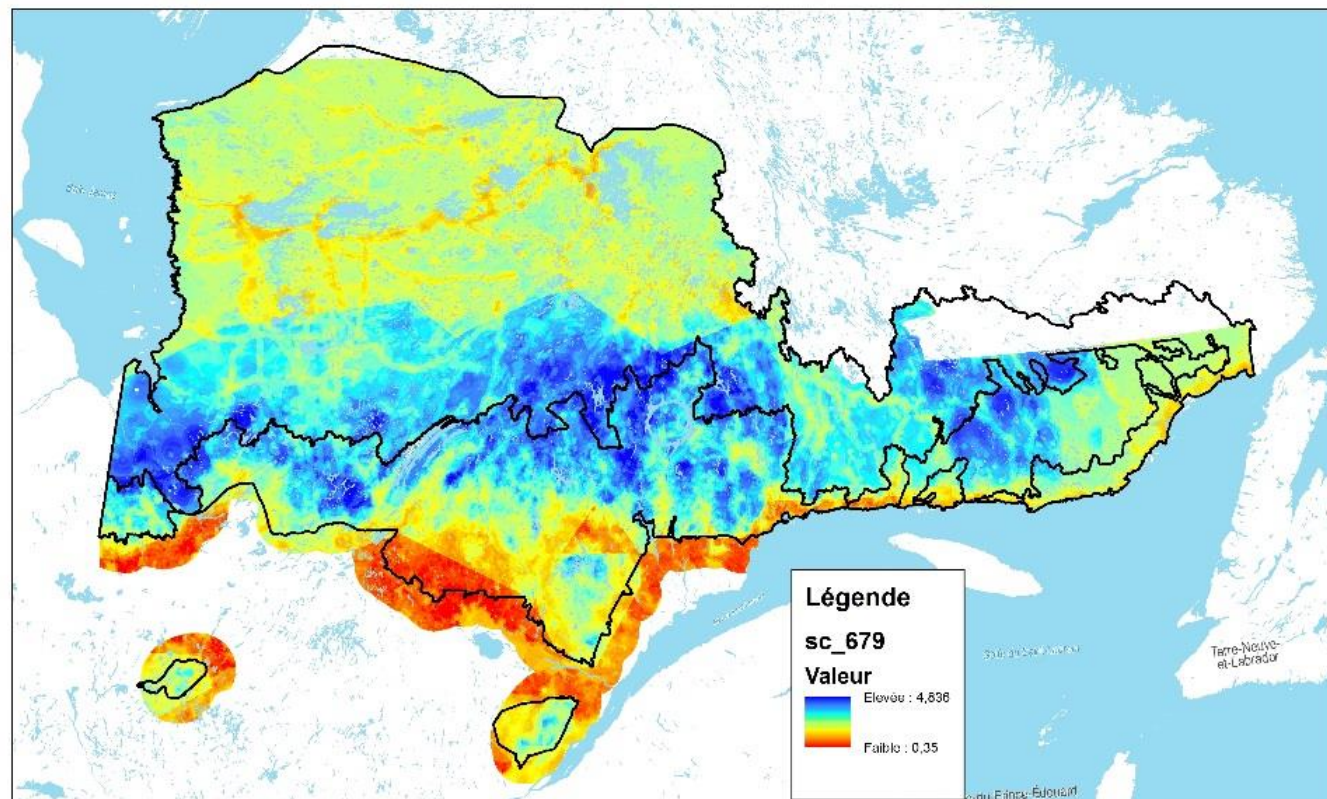
- Preferred habitats
 - Use
 - Habitat quality



Process

Habitat Characterization Tools

- **Multivariate analysis**
 - Use and demographic trends
 - Habitat quality
 - Land rights
 - Value for forestry
 - Synergy with major protected areas
- **Diagnosis of restoration in HURs**



Process

Protection and Habitat Management Solutions

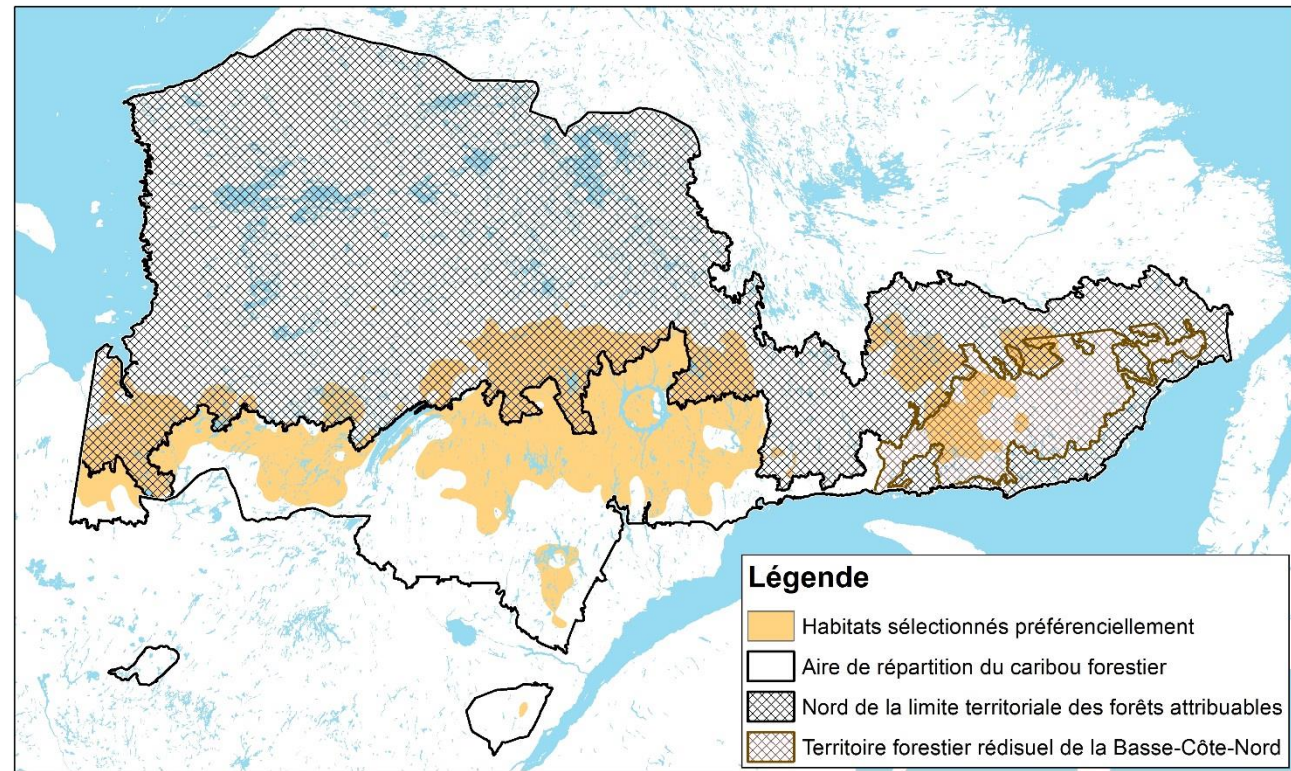
- Northern limit for timber allocations and residual forest land
- Major protected areas
- Extensive favourable areas (EFAs)
- Habitats undergoing restoration (HURs)
- Connectivity zones



Process

Northern limit for timber allocations and residual forest land

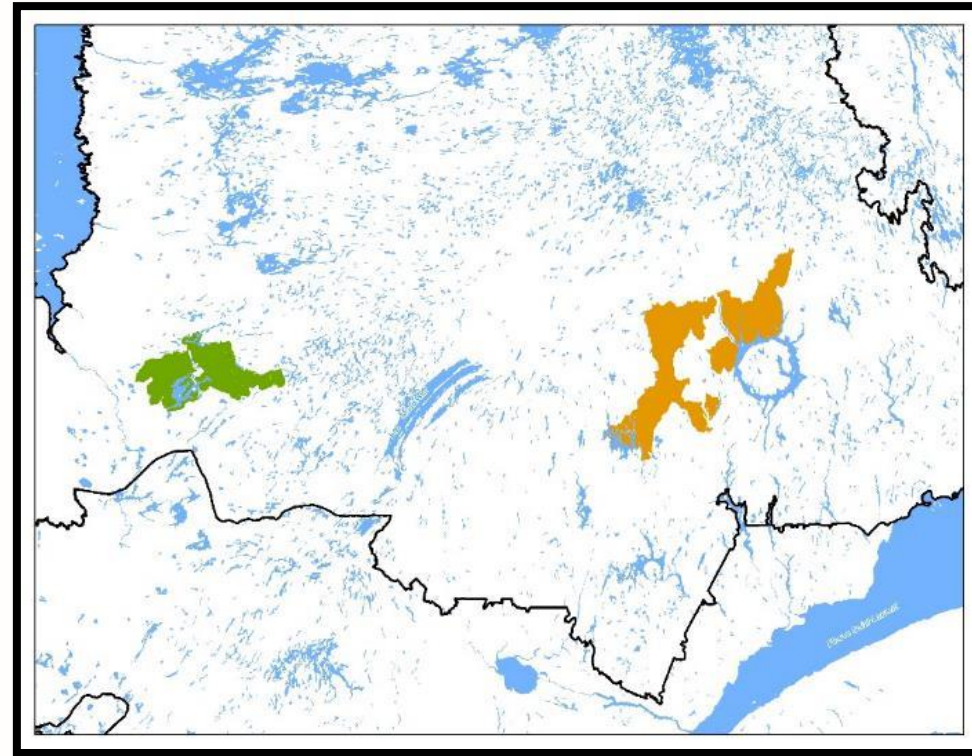
- 72 % of the range
- 45 % of preferred habitats



Process

Proposed Major Protected Areas

- Broadback River Valley Biodiversity Reserve (9,134 km²)
- Manouane-Manicouagan Woodland Caribou Biodiversity Reserve (10,194 km²)

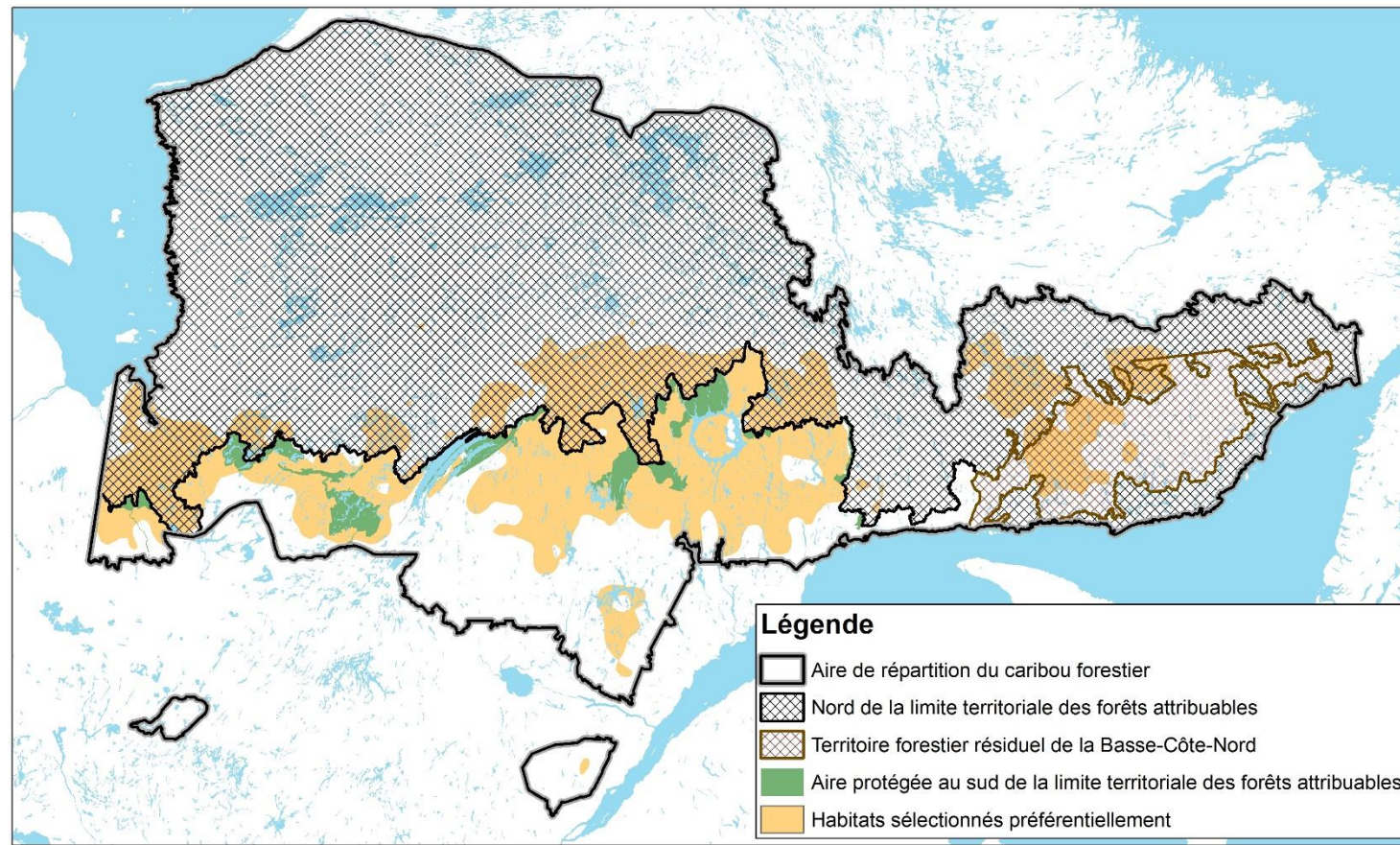


Process

Major Protected Areas

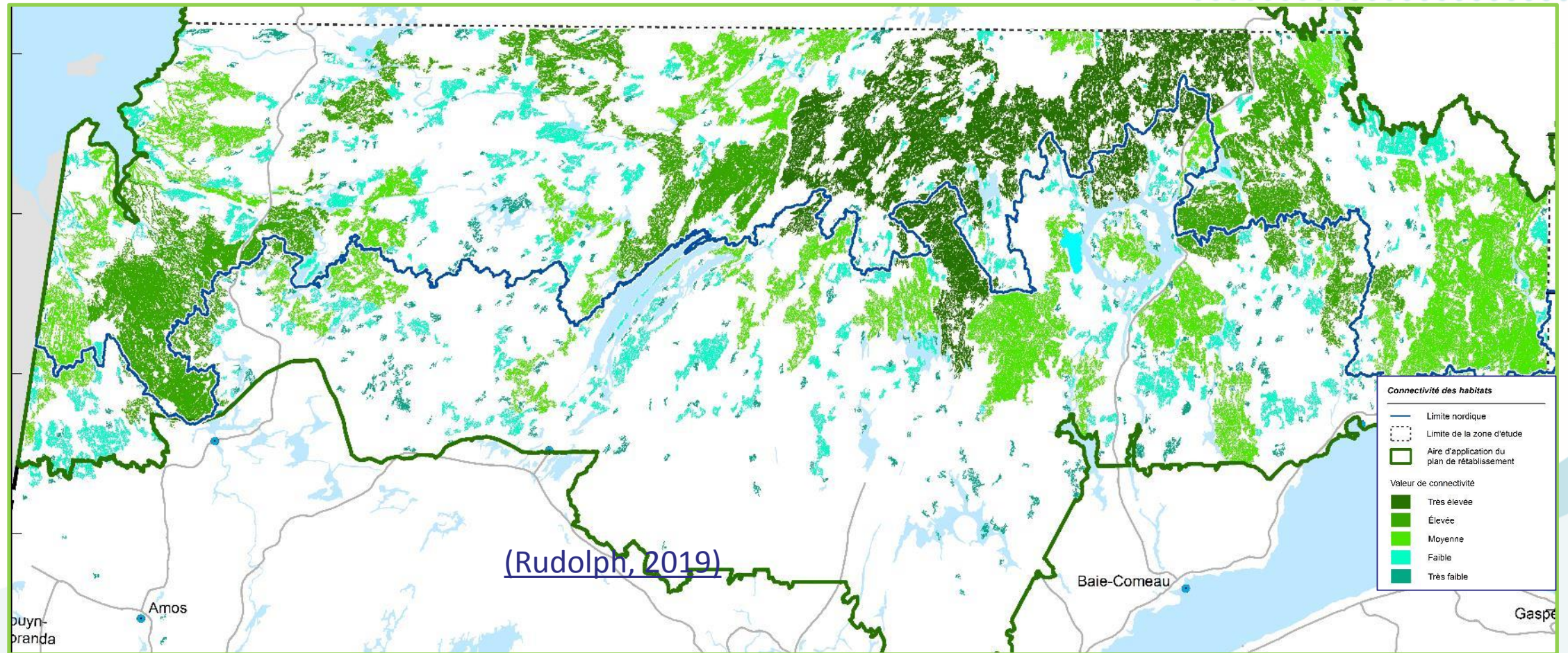
Cumulative: 53 % of preferred habitats

- 2.2 % of the range
- 7.6 % of preferred habitats



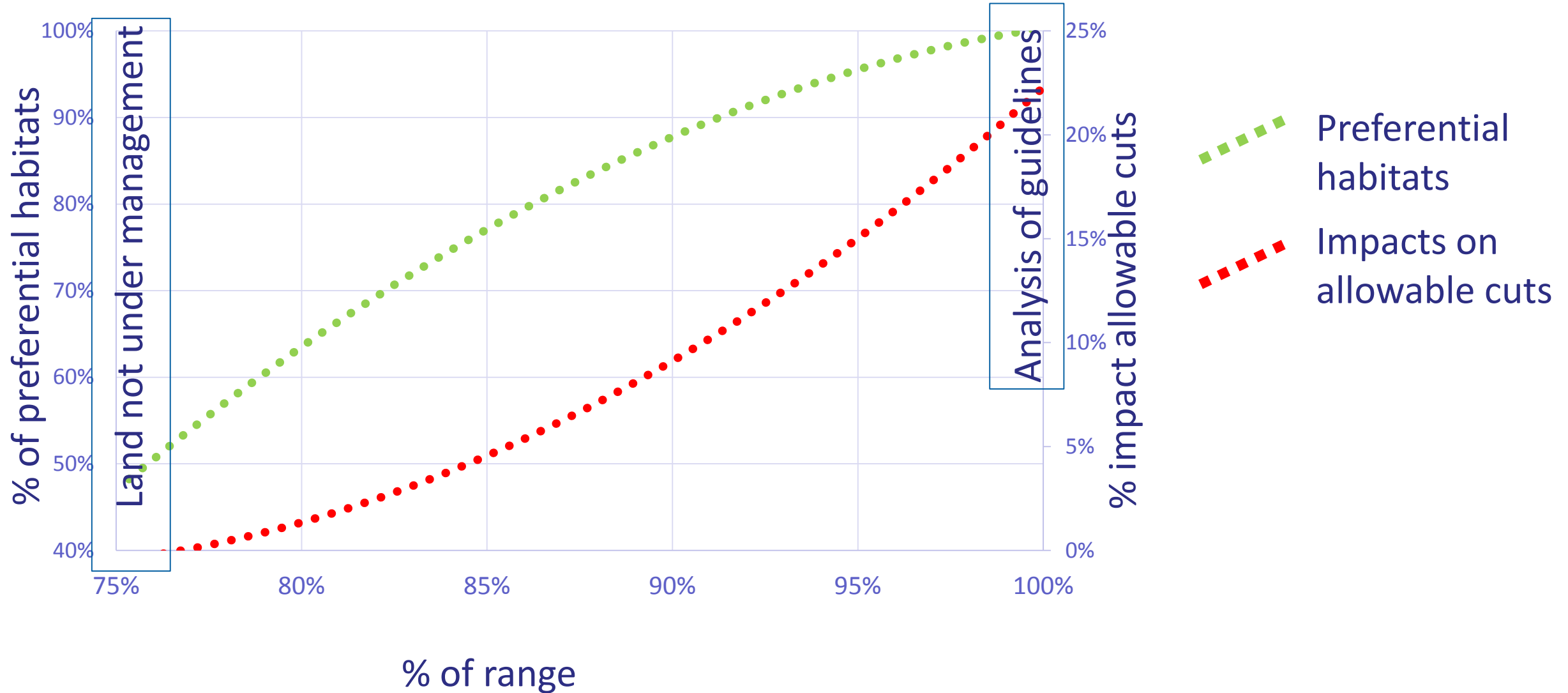
Process

Connectivity Profile

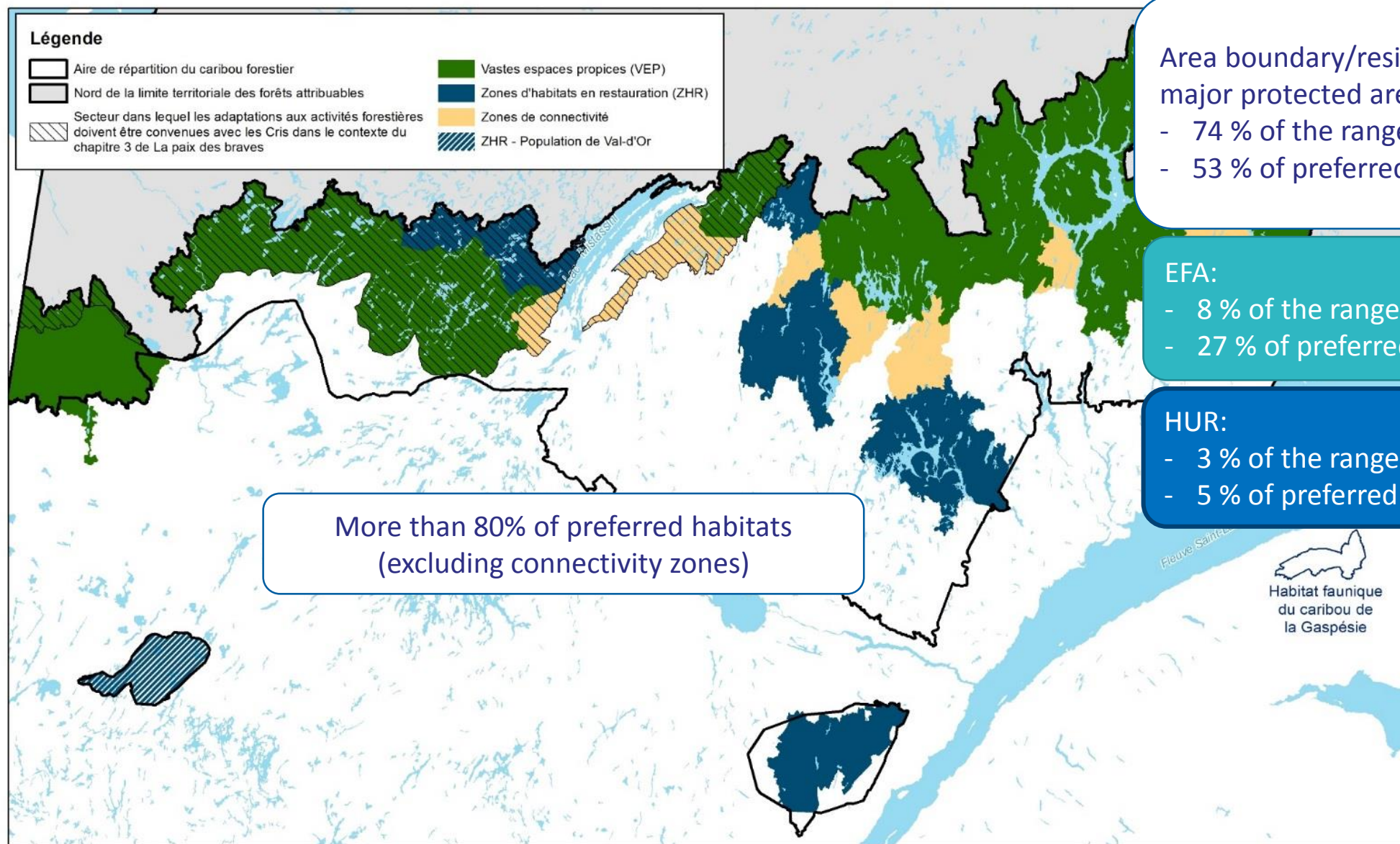


Process

Systematic Assessment of Impacts



Areas Under Consideration for the Strategy



Area boundary/residual forest area/
major protected areas:

- 74 % of the range
- 53 % of preferred habitats

EFA:

- 8 % of the range
- 27 % of preferred habitats

HUR:

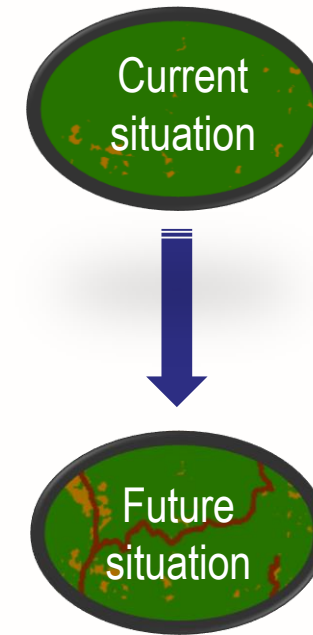
- 3 % of the range
- 5 % of preferred habitats

Types of Areas Targeted

Extensive Favourable Areas (EFAs)

Development conditions (strategic planning)

- Maintenance of a low disturbance rate to promote population self-sufficiency ($\approx 35\%$)
- Protection of large tracts of forest for as long as they fulfill their functions
- Spatial distribution of logging areas to maintain sufficient connectivity between tracts of forest throughout the EFA
- Deployment of new logging sites in accordance with conditions adapted to caribou habitat maintenance, including dismantling of most new forest roads

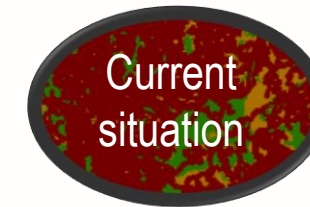


Types of Areas Targeted

Habitats Undergoing Restoration (HURs)

Definition

- Disturbed areas of roughly 5,000 km², used by woodland caribou
- Special land development conditions, including restoration work, with a view to ensuring caribou population self-sufficiency
- Context favourable to exchanges between caribou populations

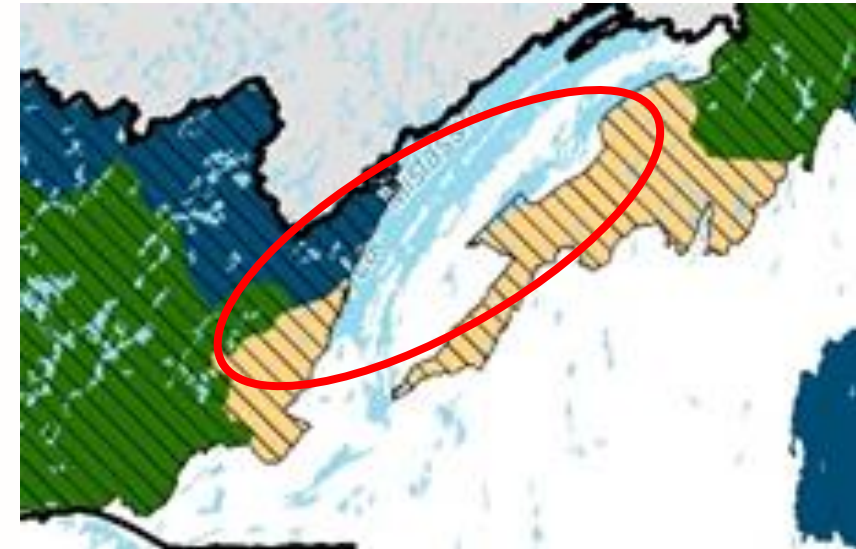


Types of Areas Targeted

Connectivity Zones

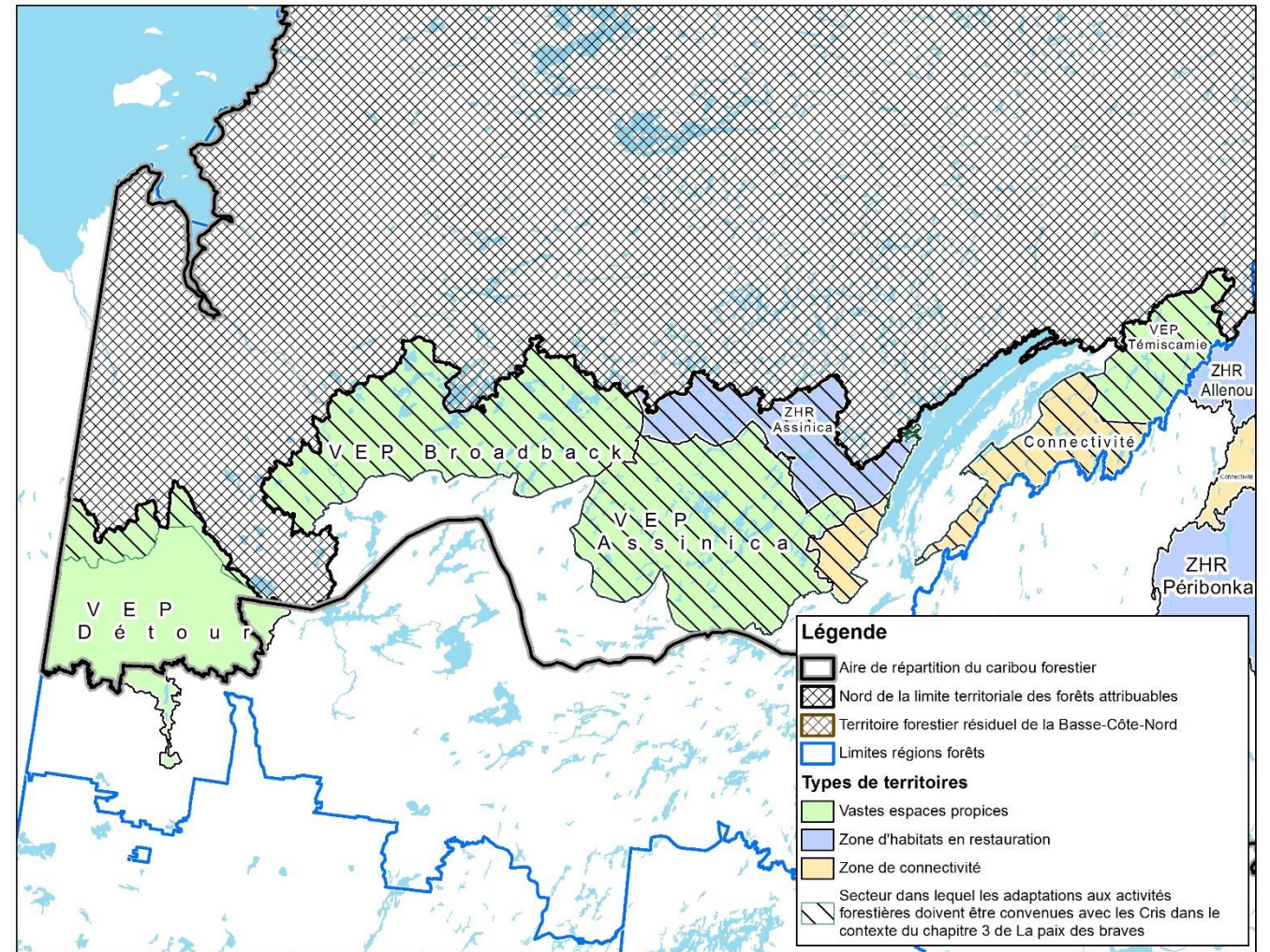
Definition

- Disturbed areas used sporadically by caribou
- Special forest management modalities with a view to maintaining or restoring habitat features that will allow for exchanges between caribou populations



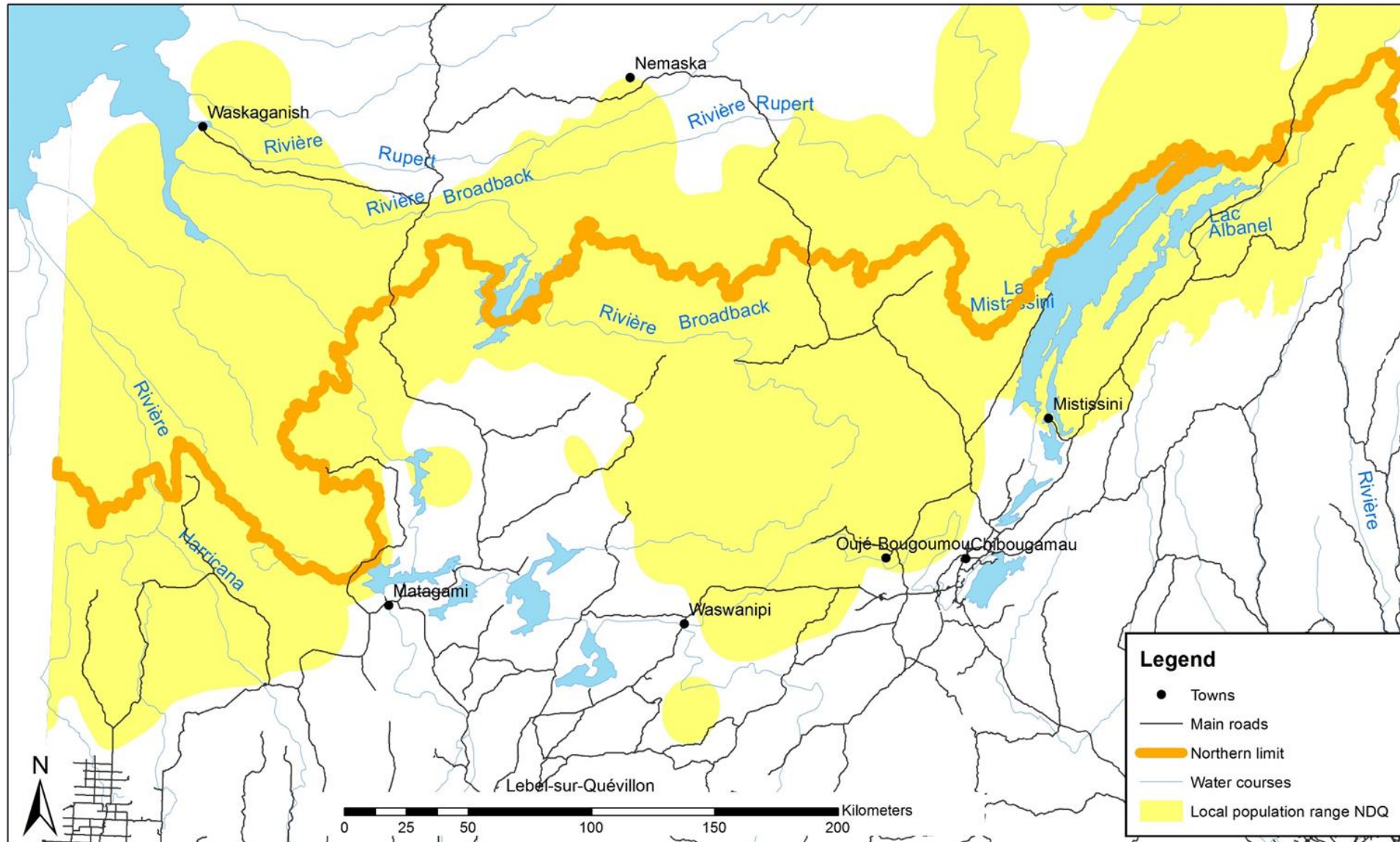
Areas Targeted in the Region

- Extensive favourable areas:
 - Détour
 - Broadback
 - Assinica
 - Témiscamie
- Habitats undergoing restoration:
 - Assinica
- Connectivity zones:
 - Between Assinica HUR and EFA and Témiscamie EFA



Contribution of the Northern Limit

56 %



There is no industrial forestry north of the limit.

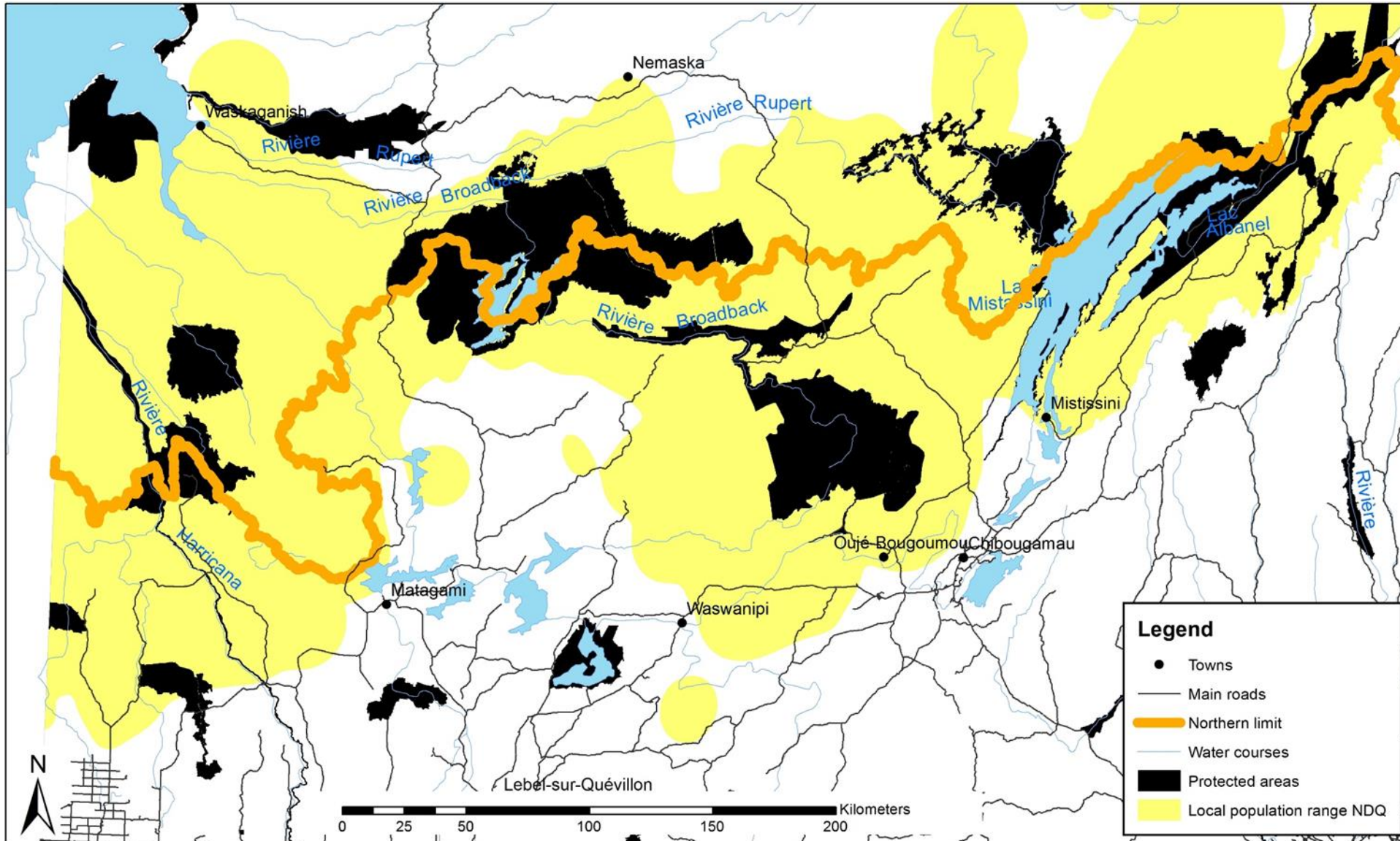
The northern limit covers 56 % of the area covered by local ranges in the Nord-du-Québec region.

Contribution of Protected Areas

64 %

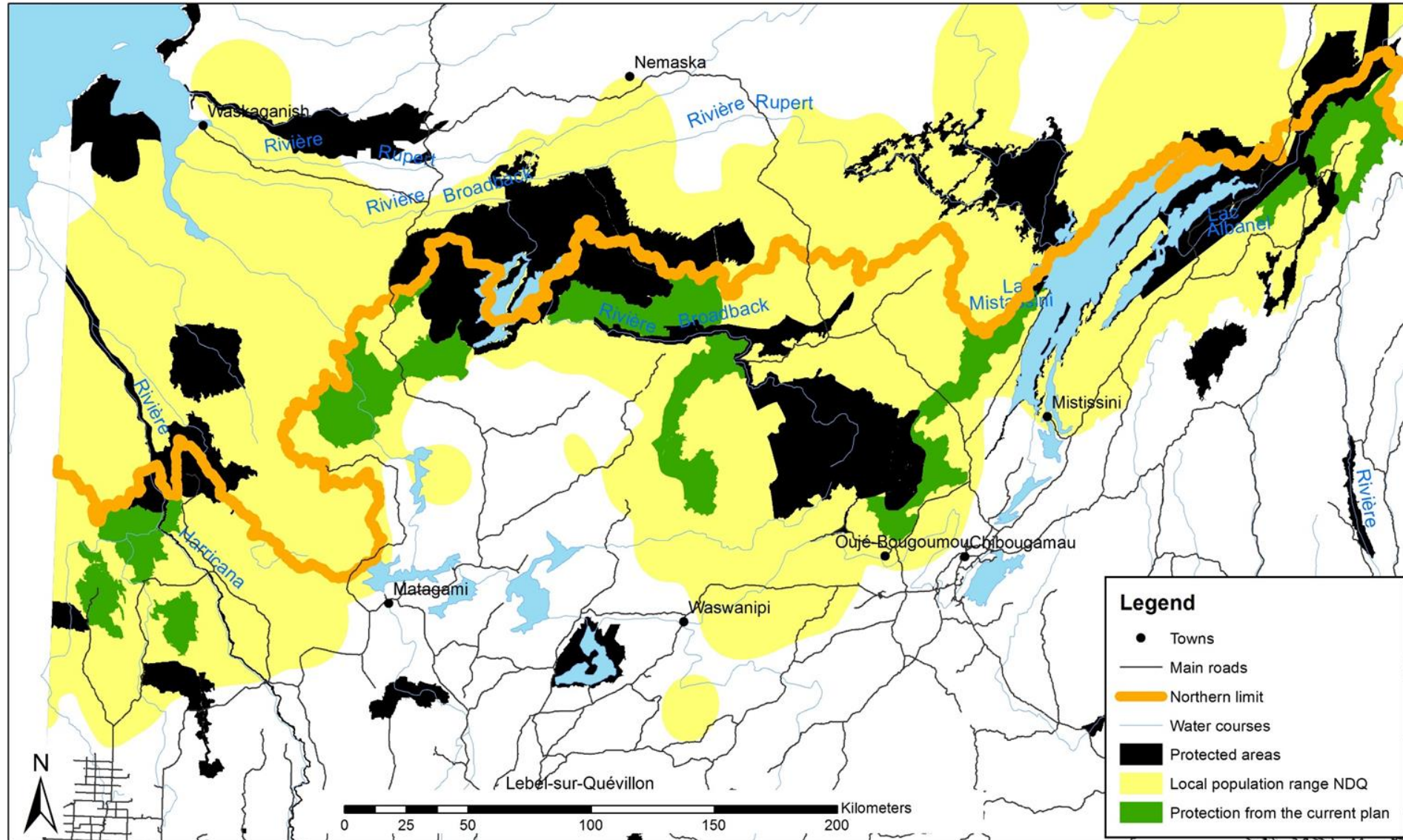
There is no industrial development in the protected areas.

The protected areas to the south of the northern limit cover 8 % of the area covered by local ranges in the Nord-du-Québec region.



Location of the Woodland Caribou Habitat Management Plan North of La Sarre and the Precautionary Approach

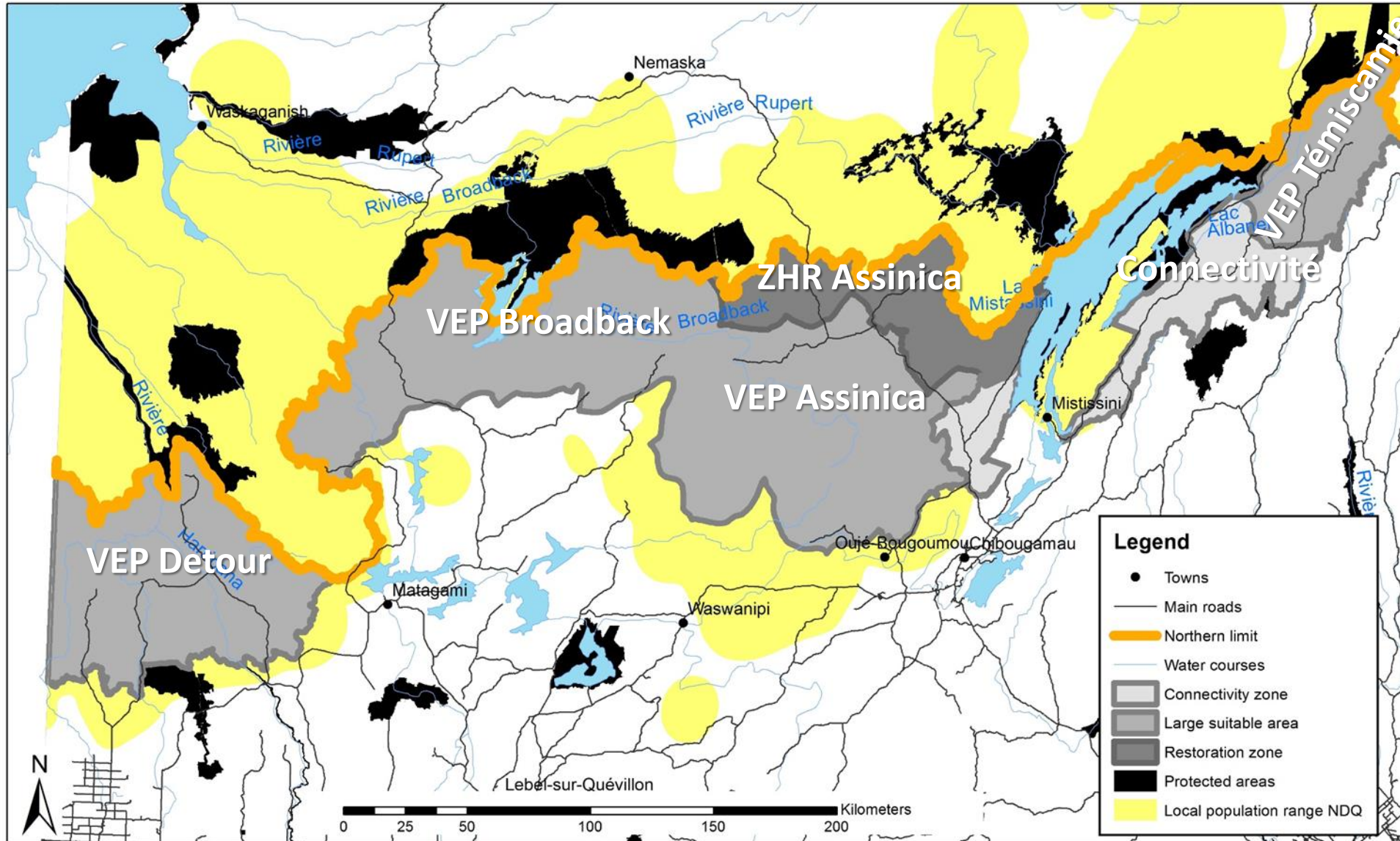
71 %



Harvesting is postponed by 25 to 150 years in the Detour plan and harvesting is postponed by 70 years for the precautionary approach.

The plans cover 7 % of the area covered by local ranges in the Nord-du-Québec region.

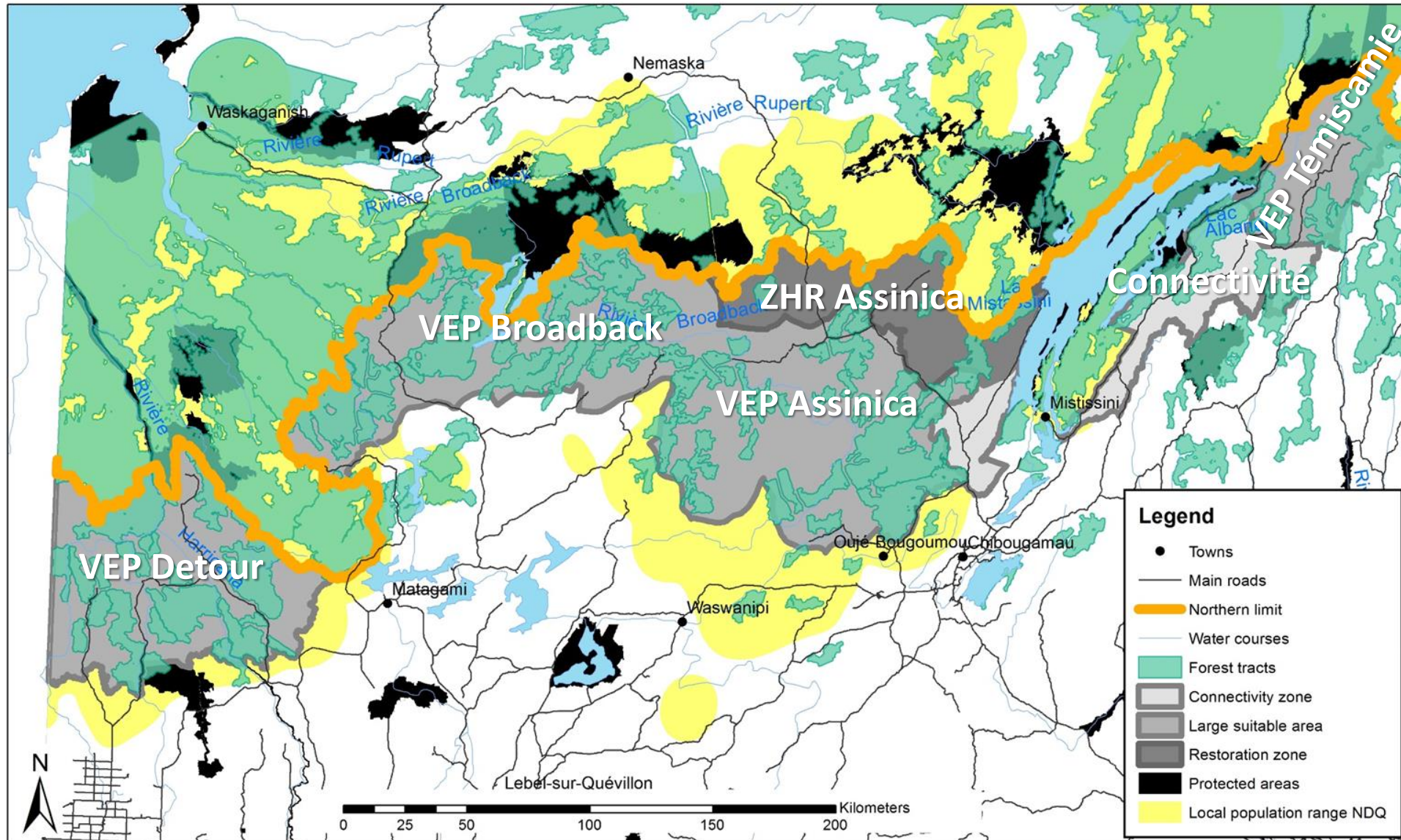
Areas Considered for the Strategy in the Region



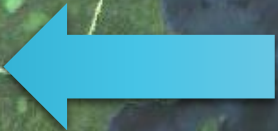
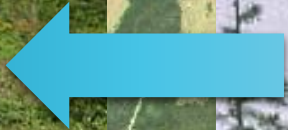
The areas considered cover 33 % of the area covered by local ranges in the Nord-du-Québec region.

Including these areas under consideration, 85 % of the region's local ranges would be covered by a special measure.

Areas Considered for the Strategy in the Region



The areas considered for the Caribou Strategy cover a significant percentage of existing forest blocks in the territory.



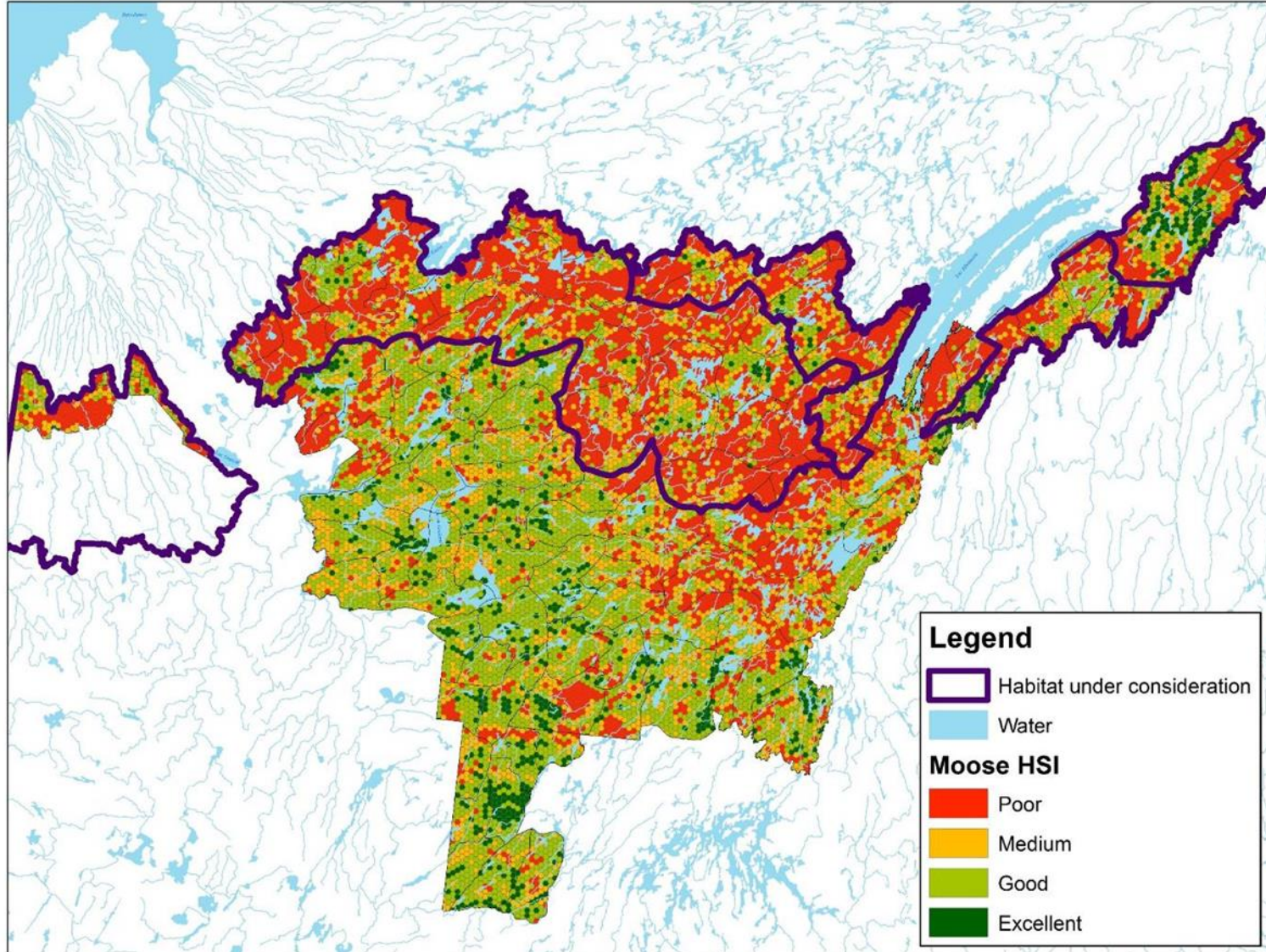
Areas Under Consideration and Block Cutting

- Mosaic cutting can cause fragmentation of woodland caribou habitats.
- Fragmentation benefits moose, wolves and bears.
- There is more pressure from predators in fragmented habitats, which explains the woodland caribou's precarious situation.

Our Challenge

Find an alternative to mosaic cutting that meets the woodland caribou's habitat needs and allows traditional Cree activities and regional economic development to continue.

Areas Under Consideration and Moose



The areas under consideration cover the northern portion of the area where moose habitat quality is poor.

There is still time to take action in order to maintain low densities and limit pressure from predators by changing logging distribution patterns.

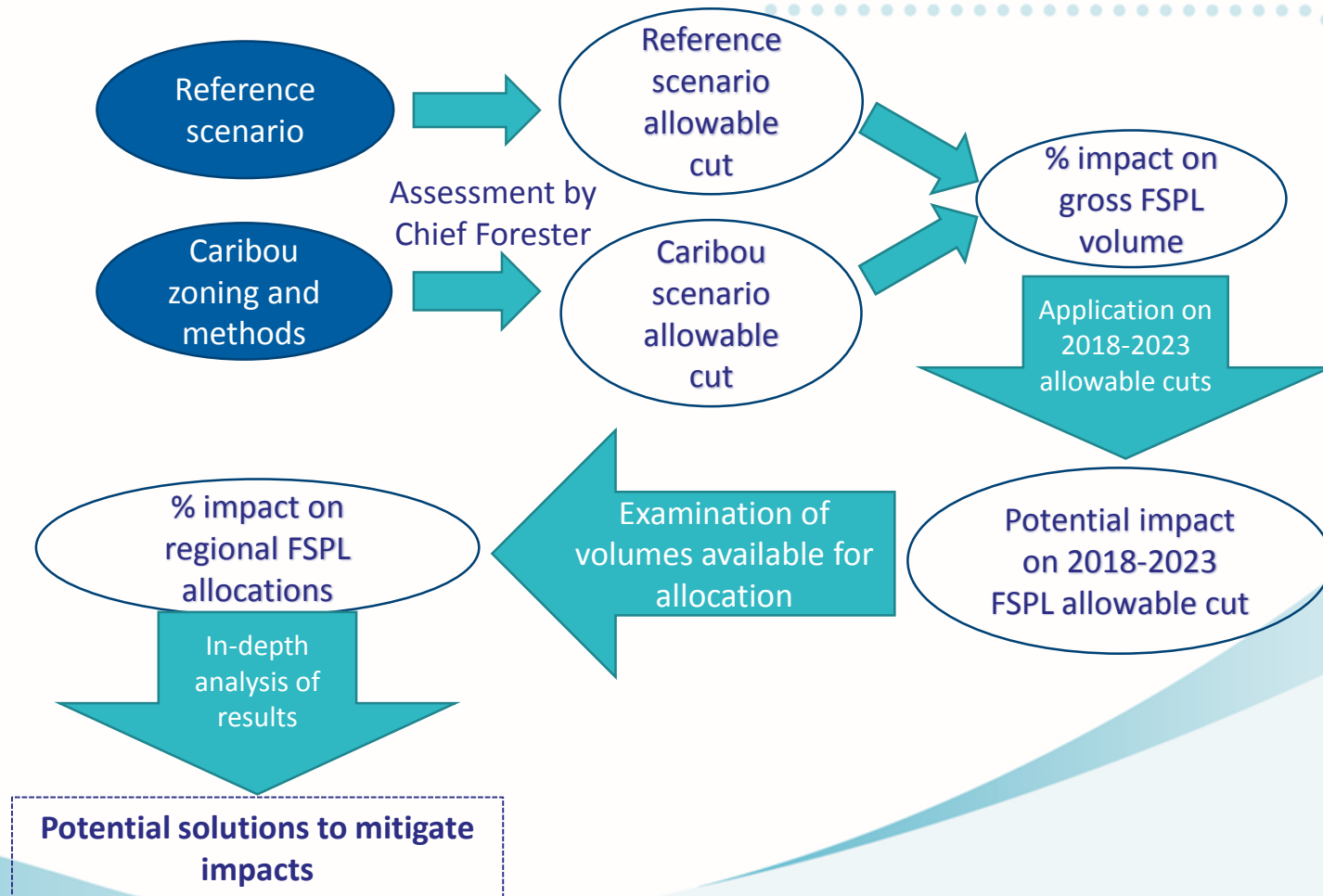
Potential Impacts of the Strategy Being Prepared

Allowable cut sensitivity analysis:

- Preparation of a reference scenario
- Inclusion of caribou zoning and methods
- Assessment of difference

Two levels:

- Potential impacts on allowable cuts
- Potential impacts on regional allocations



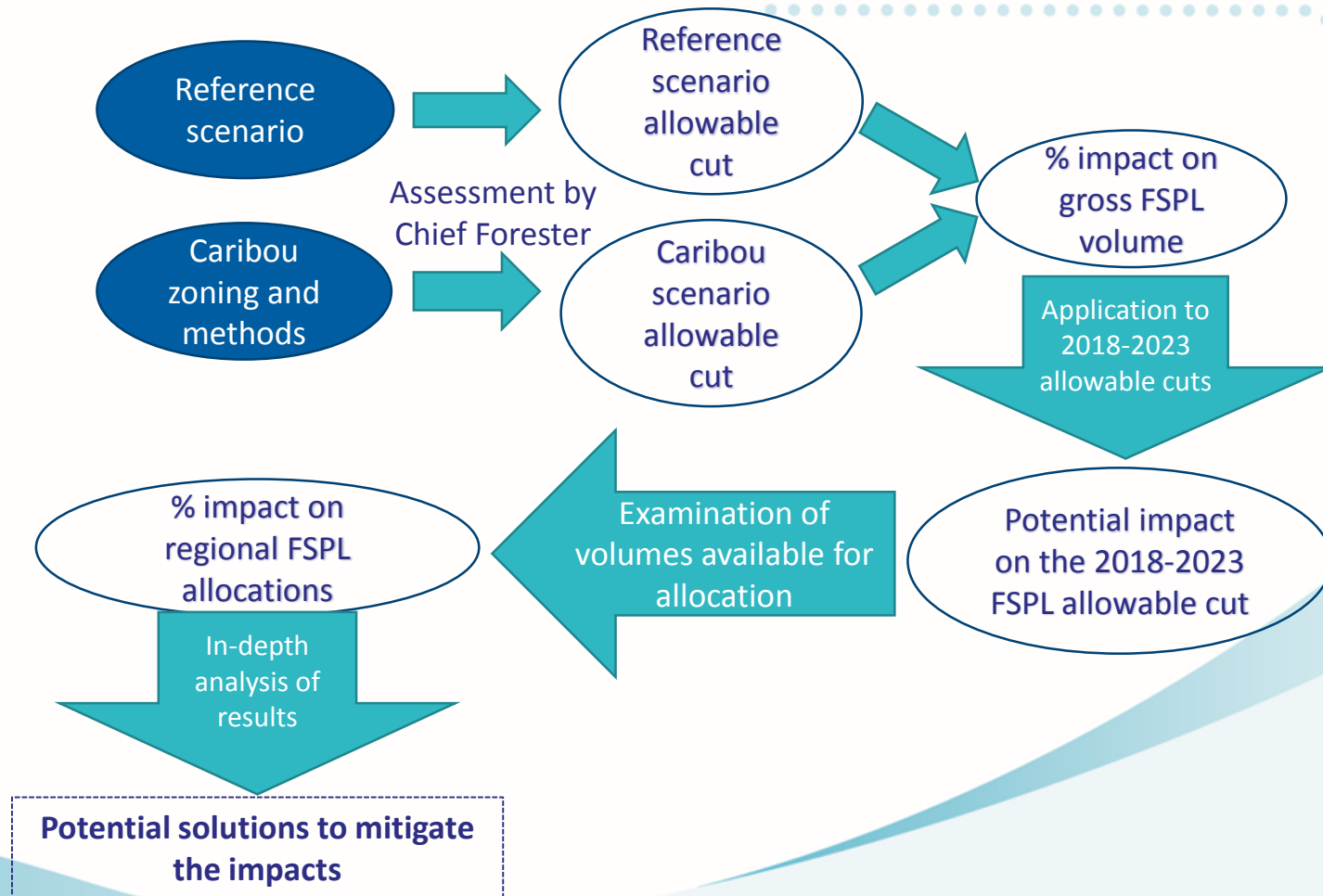
Potential Impacts of the Strategy Being Prepared

Estimate of impacts:

- Net coniferous volumes $\approx -10\%$

Potential solutions to further mitigate the results:

- Adjustment of certain parameters
- Incorporation of new information on the condition and development of the forest



Complementary initiatives

Interim measures in force between now and implementation of the Strategy

Because certain areas have been targeted for subsequent work, **habitat condition must be stabilized before the Strategy is implemented.**

- Protect certain key areas
 - **Maintain protective measures** for caribou habitat provided for in the current integrated forest management plans
 - Forest harvesting in less sensible areas for the caribou
 - **Adapt current forest management plans** (assess the possibility of compensating for investments already made)



Complementary initiatives

Interim measures in force between now and implementation of the Strategy

Because certain areas have been targeted for subsequent work, **habitat condition must be stabilized before the Strategy is implemented.**

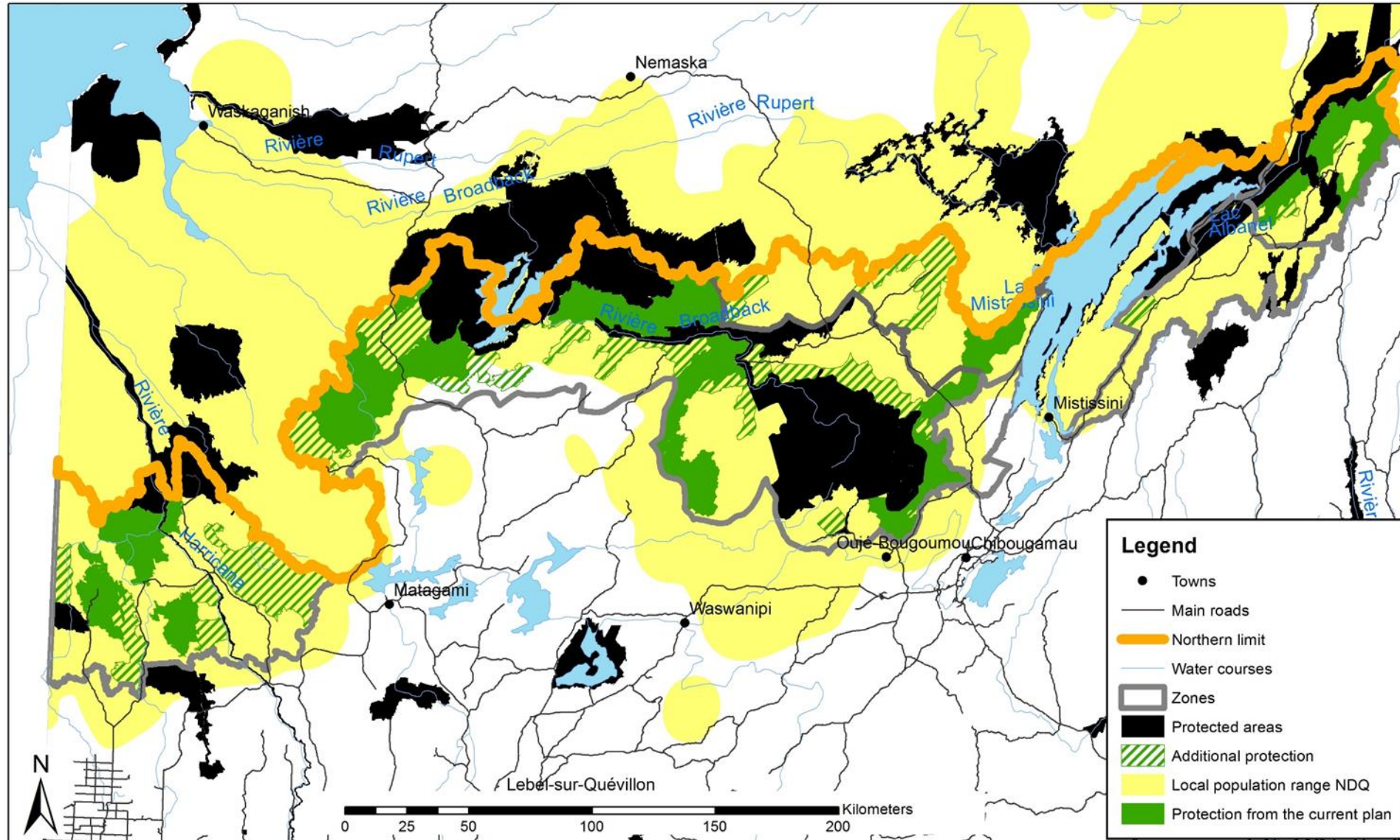
- Reduce the long-term footprint of logging sites
 - Continue pilot projects
 - Gradually adapt **management methods in future sites** in accordance with the new operational approach
 - Plan to **dismantle and reforest** current forest roads



Interim Measures for 2019-2023

76 %

No logging sites in current and additional protections until March 31, 2023.



Complementary initiatives - Wildlife

Population monitoring

- In 2017, the MFFP introduced an extensive **telemetric monitoring program for caribou populations** and planned **aerial inventories** throughout the continuous range
- **Main objective of this work:** To determine the abundance and evolution of populations in the different sectors of the woodland caribou range



Range – Woodland Caribou




<http://www3.mffp.gouv.qc.ca/faune/especes/menacees/fiche.asp?noEsp=53>

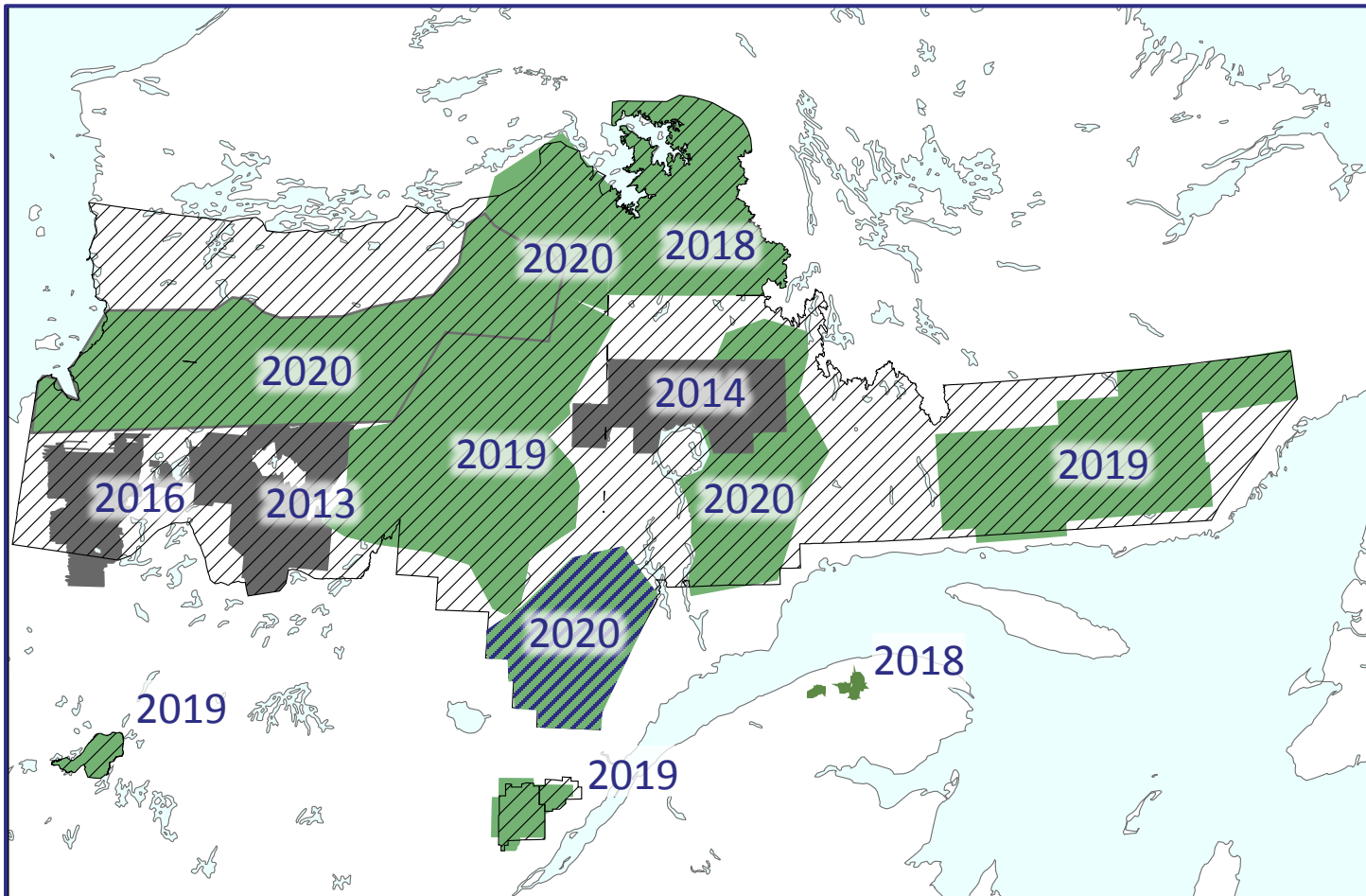


Complementary initiatives - Wildlife

Population monitoring

Planning of aerial inventories

-  Zone to be covered by inventories in the medium term
-  Inventories to be done in the short term  Recent inventories



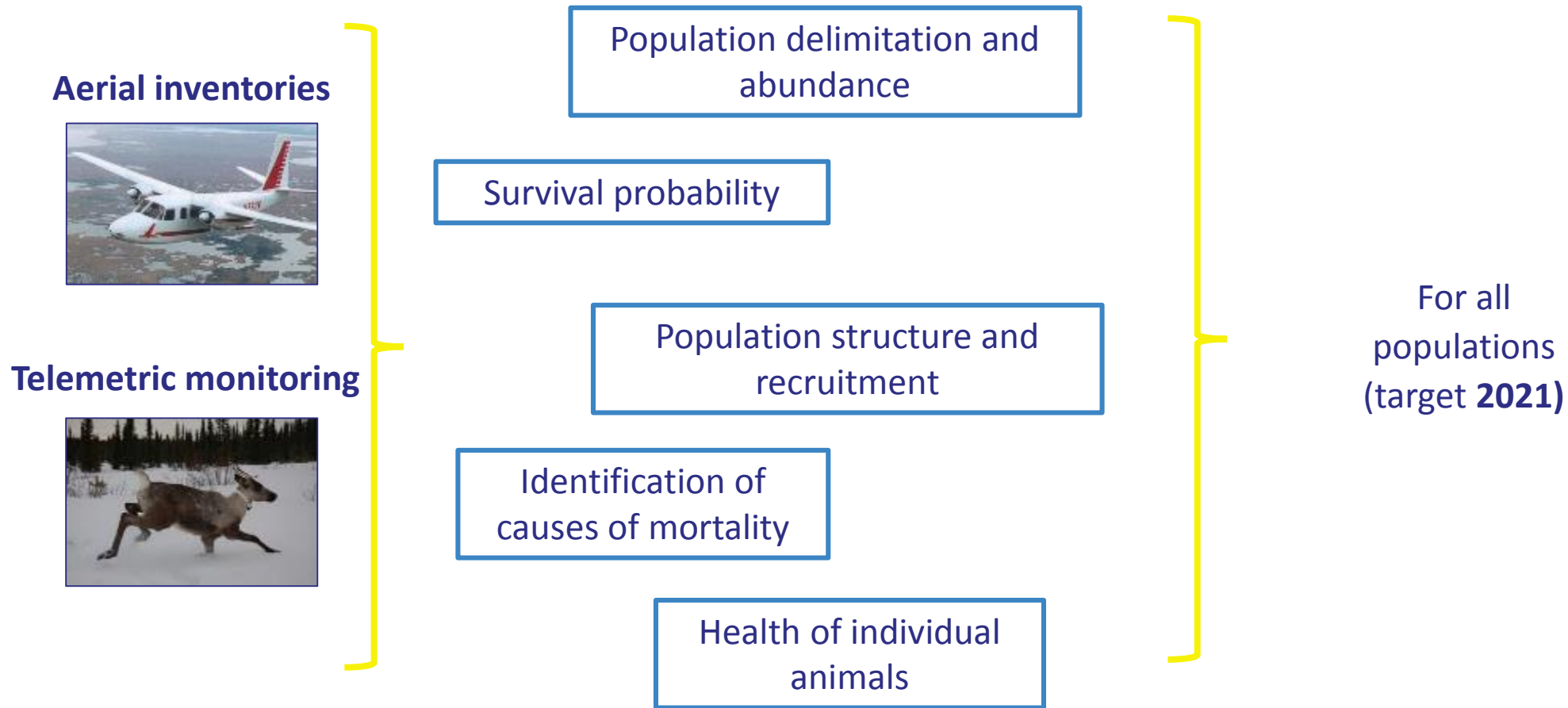
The continuous range (~644,000 km²) will be covered properly by aerial inventories in the coming years



Complementary initiatives - Wildlife

Population monitoring

- Main **biological indicators** targeted by population monitoring



Complementary initiatives — Wildlife

Population Management

Analysis of various existing options, including:

- Reintroduction, relocation, supplementation
- Maternity
- Control of predators (lethal and non-lethal methods) and management of alternative prey
- Predator-free enclosures

- Management measures must be paired with habitat protection and restoration measures
- A large-scale spatial conservation approach (i.e. caribou population) is required
- Evaluation of complementarity of the various available management actions is required
- Management measures must be implemented by level of priority (critical, necessary, etc.) to ensure the survival or restoration of a sector's populations
- An adaptive management framework is essential: effectiveness must be assessed, among other things by means of extensive population monitoring

Complementary initiatives

Knowledge Acquisition - Many ongoing research projects

E.g.

- Evaluation of caribou population disturbance thresholds in Québec, based on productivity and forest dynamics (Centre d'étude de la forêt)
- Characterization of the use of old roads by woodland caribou, moose, wolves and bears (coll. UQAR).
- New ten-year forest inventory
- Profile of multipurpose roads from the standpoint of dismantling potential



Complementary initiatives — Wildlife

Regional population management measures

Collaboration with the Cree Nation Government (CNG) to raise community awareness of woodland caribou status and limit Aboriginal harvesting

- Awareness campaign carried out by the CNG and the Cree Trappers' Association (CTA) initiated in 2012
- Participation of CNG and Cree communities representatives in the aerial surveys



For more information you can contact:

Cree Trappers' Association

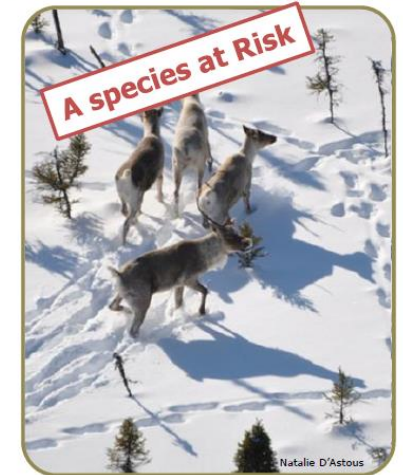
PO Box 250
Eastmain, QC J0M1W0
Phone: 819 977-2165
jeanbaptistecta@tlb.sympatico.ca



Cree Regional Authority

277 Duke
Suite 100
Montréal, Qc
Phone: 514-861-5738
Fax: 514.861.0145
ablemieux@gcc.ca
nsaganash@gcc.ca

Woodland Caribou in
Eeyou Istchee

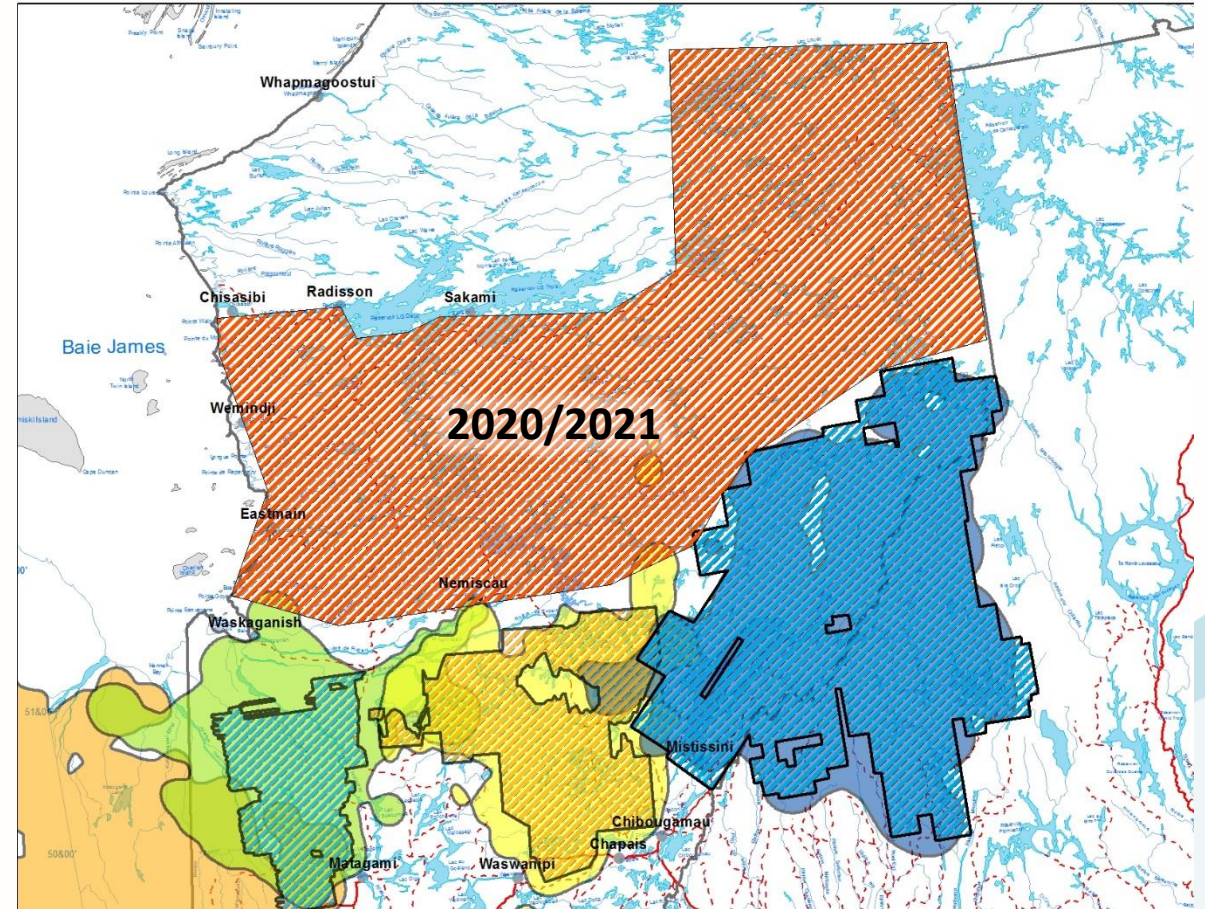


Let's care
for them!

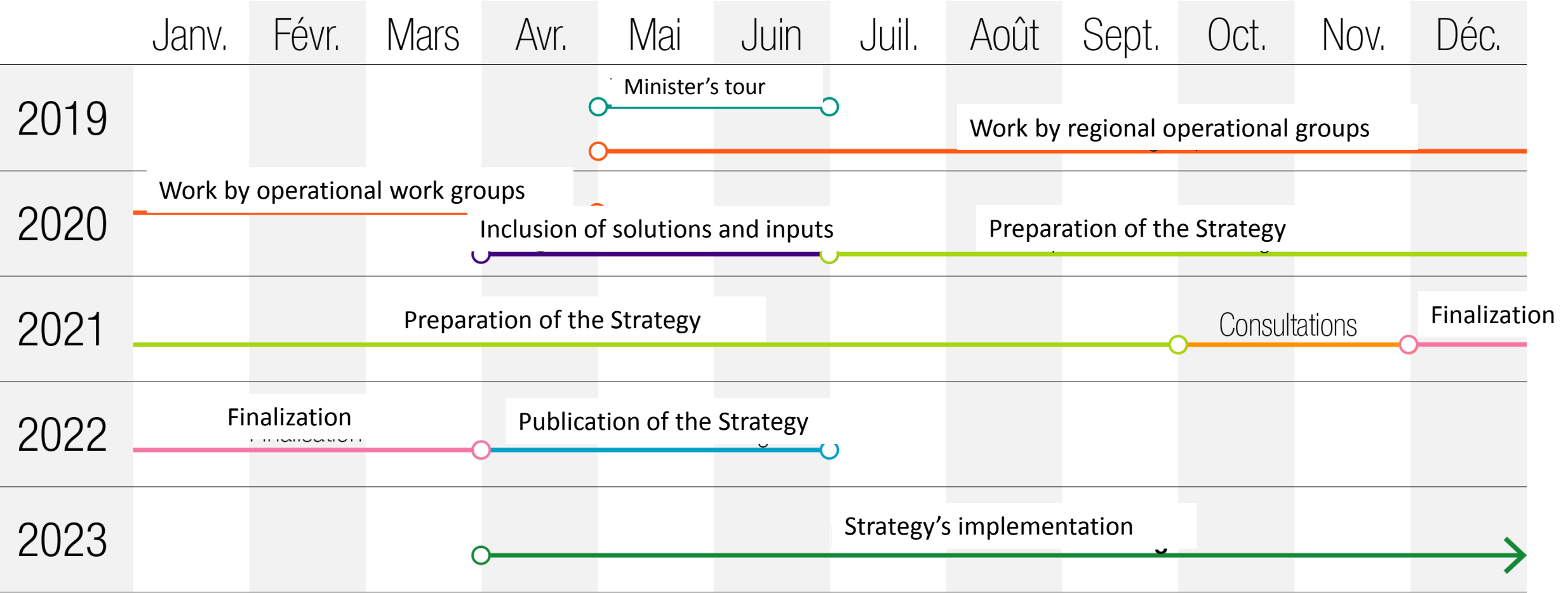
Complementary initiatives — Strategy

Knowledge Acquisition — Regional Projects

- Reconnaissance survey of an extensive sector north of known populations in 2020/2021



Next Steps and Timeframe



Next Steps and Timeframe

Minister's Tour of the Regions Concerned

May 10	Québec
May 13	Sainte-Anne-des-Monts
May 17	Baie-Comeau
June 3	La Malbaie
June 10	Val-d'Or
June 17	Mistissini
June 18	Chibougamau
June 19	Roberval

Next Steps and Timeframe

Regional Operations Groups

(April 2019 to May 2020)



Mandate:

- **To hold in-depth discussions** on the area under consideration for the Strategy that is currently being prepared and on the measures that may apply.

Objectives:

- To establish and rank in priority order the local **issues, concerns and information**, including those relating to **operations** and **potential socioeconomic repercussions**.
- Propose **potential solutions** for consideration.

Budget Measure: \$61.5 Million

- Continue **the implementation of the extensive long-term monitoring program** for Caribou populations in Québec
- **Support the stakeholders with implementation of interim measures**
- Continue to establish **pilot project** for deployment of the operational approach
- Undertake **habitat restoration** through dismantling and reforestation of forest roads

**Thank you,
Meegwetch!**