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Decolonizing Science One Experiment at a Time: The Example of a Multidisciplinary Team From the Laurentian Forestry Centre at the *Uauilatau Atik' Parlons caribou!* Exhibition in Pessamit

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Résumé en français

Comment être, en tant que fonctionnaires fédéraux, des acteurs et actrices de la réconciliation? Ce rapport témoigne d'une expérience de partage des connaissances entre une équipe de recherche multidisciplinaire de Ressources naturelles Canada (RNCa) et des Innus de Pessamit. Lors du salon *Uauilatau Atik^u Parlons caribou!* tenu le 21 mars 2024 à Pessamit, des équipes du Centre de foresterie des Laurentides (CFL) ont présenté des kiosques pour expliquer leurs recherches sur l'habitat du caribou menées dans le cadre d'un projet collaboratif. Le transfert des connaissances fut toutefois bidirectionnel. En effet, les participantes et participants du CFL ont appris des réalités autochtones, par exemple sur l'importance culturelle du caribou, sur les liens au territoire et sur les douleurs liées à l'histoire coloniale. Cette expérience pourrait modifier leurs pratiques professionnelles et leurs façons de faire de la science à l'avenir. Elle offre aussi un exemple permettant d'inspirer les changements nécessaires à mettre en œuvre dans les manières de faire de la recherche scientifique pour faire écho aux démarches vers la réconciliation, la décolonisation et la co-crédation du gouvernement du Canada.

Abstract in English

How can we, as federal public servants, be actors in reconciliation? This report describes a knowledge-sharing experience between a multidisciplinary research team from Natural Resources Canada (NRCa) and the Innu of Pessamit. At the *Uauilatau Atik^u Parlons caribou!* Exhibition held in Pessamit on March 21, 2024, teams from the Laurentian Forestry Centre (LFC) set up booths to explain their research on caribou habitat conducted as part of a collaborative project; however, knowledge transfer was bidirectional. The LFC participants learned about Indigenous realities, such as the cultural importance of caribou, relationships to the land and the suffering associated with colonial history. This experience could change their professional practices and ways of doing science in the future. It also provides an example that may inspire the changes needed in the way scientific research is carried out, in line with the Government of Canada's journey towards reconciliation, decolonization and co-creation.

Abstract in Innu-Aimun

Tan tshipa aitananu, tshilanu Utauau-ka-tshishe-utshimau atusseht, tshe uitshiueshku e milu-uitsheutinanut? Ume atusseun ka mamushtakanit ka ishi-uluipalit nite aishi-nishtuapatakanit katshi natshishkatitau mitshetuaht ka ishi-nanatuapatitsheht nite Ressources naturelles Canada mak ilnuat nite Pessamit. Nana ka uapataliuanut « Uauilatau atiku. Parlons Caribou! nana 21 uinashku-pishimu 2024 nite Pessamit, ka uitshi-atussemitiht nite Laurentian Forestry Centre mitshetuaht aishi-uauapataliuepanat ka ishi-nanatuapatamuat aishi-talit atiku, mamu ka nishtutatit tshetshi atusseshtakau. Apu muku peikuaht ut ishpalit e ashu-patshitinakanihk tshisselitamuna. Eka tapue, anitshenat ka taht nite CFL utinamashuat nite e ailitit ilnua, miam pate, eshpish tshitshue mishta-ishpitelimalit atikua, eshi-tapishinlit nite unatuussilit kie ka ishi-alimikulit e tipelimakanitau. Nelu katshi natshishkuatau ilnua uitshikut tshetshi mishkutshipalutau utatusseunuat kie tshetshi ait aitaun nite e atusseshtakau tep-ilnishunlu. Tshika uitshiku tshetshi mamishkutshipalit aishi-atusset Utauau tshishe-utshimau nite e milupalit e milu-uitsheutinanut, tshetshi punipalit e tipelimakanit ilnu kie tshetshi uitshi-atussemat ilnua.

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Tshinashkumitinau to Adélar Benjamin, Éric Kanapé and Louis De Grandpré of the Pessamit Innu Council Land and Resources Sector for proofreading this document and Louise Canapé of the Language and Culture Sector for translating the summary into Innu-Aimun (the Innu language), as well as to Evelyne Dufault, Director of the Forest Sustainability Division at the Laurentian Forestry Centre.

The presence of a multidisciplinary research team from the LFC at the *Uauilatau Atikʷ Parlons caribou!* Exhibition would not have been possible without the support of several people who work directly with members of Indigenous communities. The names of these people, federal government employees, appear throughout the document in acknowledgement of their involvement. In the Indigenous context, it is appropriate to highlight them, because they are the ones at the forefront of reconciliation. Given that the situations arising are sometimes delicate, these people must demonstrate flexibility, ingenuity and interpersonal skills.

Table of Contents

Résumé en français	4
Abstract in English	4
Abstract in Innu-Aimun	4
Acknowledgements	5
Introduction	7
Context	9
Planning	11
1st LFC Team Booth – Using Science and Indigenous Knowledge to Forecast Changes in Caribou Habitat – Social Science Component	11
2nd Booth – Caribou Food Sources	12
3rd Booth – Modelling Ground Lichens	12
4th Booth – The Caribou Diet From a Genomic Perspective	12
5th Booth – Caribou as an Umbrella Species	13
LFC Participant Testimonials	14
Findings	15
Attendance at the Exhibition: Encouraging Discussion and Demonstrating Commitment	15
Together for the Caribou	16
Emotions and Suffering Associated With Colonial History	16
Co-creation of Knowledge and Changes in Professional Practices	16
What to Take Away From This Experience	19
References	22
Appendix 1: Poster: Overall Project	24
Appendix 2: Project Timeline	25
Appendix 3: Poster: Abundance of Caribou Food Sources	26
Appendix 4: Projections of Ground Lichen Cover	27

Introduction

The *Uauilatau Atikʷ Parlons caribou!* Exhibition was held in Pessamit on March 21, 2024. This event was entirely organized by the Pessamit Innu Council Land and Resources Sector and provided a multidisciplinary LFC research team with the opportunity to present their work on caribou habitat and to forge relationships with the community. Conducted jointly with the community of Pessamit, this work was carried out as part of the “Science and Indigenous Knowledge to Predict Caribou Habitat—LFC-Pessamit Co-creation Research Project.” This project is rooted in reconciliation with Indigenous peoples, the decolonization of research and the co-creation of knowledge.

Throughout Canadian history, research practices have been marked by the exploitation of Indigenous communities (Assembly of First Nations Quebec-Labrador 2014; Smith 2021; Bilge 2020). This explains the sense of mistrust sometimes felt towards researchers, institutions and research projects (Durst 2004). Colonization had devastating effects, and it is hard to turn the page. Established in 2007, the Truth and Reconciliation Commission is one of the pillars of a collective healing process in which everyone must become aware of past events in order to build a solid and healthy future. The Commission defines reconciliation as “establishing and maintaining a mutually respectful relationship between Aboriginal and non-Aboriginal peoples in this country.” (Truth and Reconciliation Commission of Canada, Final Report, 2015, p. 6). For Sipi Flamand,² Indigenous author and current chief of Manawan, reconciliation is an imperative that requires recognizing the consequences of the past and the current links stemming from these consequences in the social, economic and political system. He remains wary of a one-sided reconciliation that

“asks little Indians to forget the past and contemplate a ‘beautiful future’ by turning a blind eye to the exploitation of natural resources on their traditional territories.” (Flamand 2022, p. 19).

In the spirit of reconciliation, research practices must free themselves from the colonial legacy (Flamand 2022; McGregor 2018; Smith 2021). Ideally, the decolonization of research implies *full* Indigenous ownership of research. However, it is still hard to fulfil this ideal. At the very least, the simplest expression of decolonization would represent research undertaken *in partnership* with Indigenous peoples (Assembly of First Nations Quebec-Labrador 2014; Basile 2012; Poirier 2014). The realities of Indigenous communities and organizations are extremely varied. “The First Nation should ideally be involved at all stages of the research if it so desires and has the capacity. It is up to the First Nation to decide how much time and resources they want to invest in the research project.” (First Nations of Quebec and Labrador Health and Social Services Commission 2019, p. 3).

There are different kinds of collaborative research; however, even with the best intentions, there is always the risk of reproducing the power dynamics arising from colonization. In order to understand and question certain relational dynamics, a reflexive approach needs to be adopted; that is, one which allows us to analyze the process and reflect on the experience itself (Dolson 2013; Jérôme 2008; Nicholls 2009). The social sciences component of this research project helps structure this reflexive approach and analyze the harmonization of dialogue between Indigenous knowledge and scientific knowledge.

² Sipi Flamand’s book was mentioned as a source of inspiration by Pessamit contributors.

The recognition of Indigenous knowledge is rooted in the decolonization process (Cajete 2000; Guay 2007; Smith 2021), and brings a new perspective on research topics, new data collection practices, and a transdisciplinary approach to science. The theme of National Forest Week in 2024,³ was “Two-Eyed Seeing: Welcoming all knowledge to sustain our forests.” (Figure 1). This approach (*Double regard* in French and *Etuaptmumk* in Mi'kmaw), put forward by Mi'kmaw Elders Murdena and Albert Marshall, combines Indigenous knowledge and scientific worldviews (Marshall 2005; Martin 2012; Peltier 2018; Reid et al. 2020). Other approaches focus on dialogues between different types of knowledge, for example co-construction (Lévesque, Cloutier, and Salée 2013; Apgar et al. 2016), intersectional knowledge (Carrel et al. 2017; Brun 2002) and situated knowledge (Haraway 1988). As LFC's multidisciplinary team works towards reconciliation with Indigenous peoples and decolonizing research, the team seeks to define where it fits in the various spheres linked to the co-creation of knowledge.



Figure 1. National Forest Week poster. Source: Canadian Institute of Forestry (<https://www.cif-ifc.org/what-we-do/national-forest-week/participate/>).

³ National Forest Week is an initiative of the *Canadian Institute of Forestry* and involves a number of partners, including Natural Resources Canada.

Context

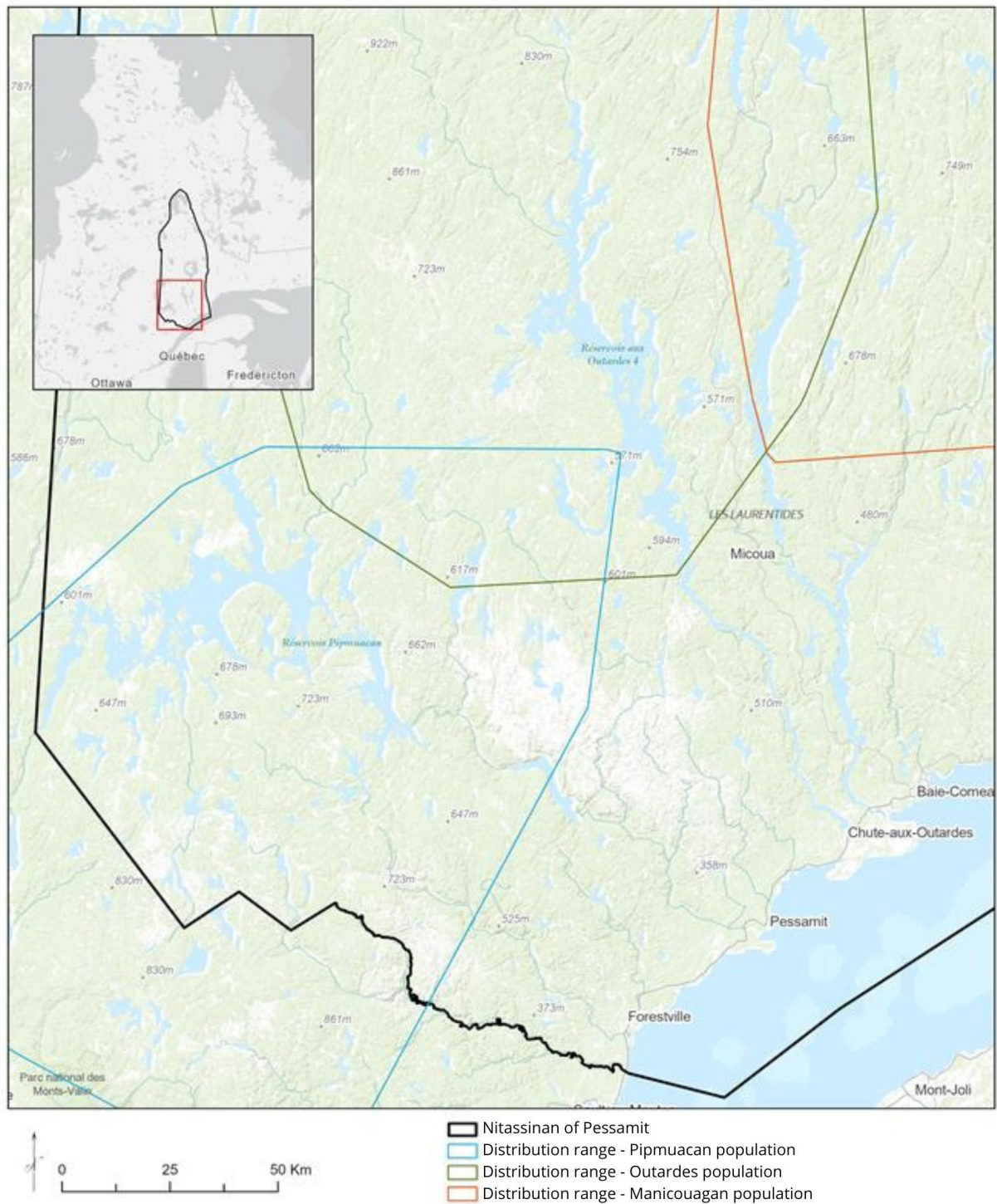


Figure 2. Distribution ranges of caribou populations in southern Nitassinan. Source: Pessamit Innu Council Land and Resources Sector. Author: David Gervais.

Since 2019, the LFC has been working closely with the Land and Resources sector of the Innu First Nation of Pessamit, located 370 km northeast of the City of Québec. Various research teams are carrying out projects on caribou habitat in the Pessamit Nitassinan (ancestral territory), more specifically in the Pimpuakan sector (Figure 2).

Following up on research progress, LFC's multidisciplinary research team sought an innovative and culturally relevant approach to validating research results and disseminating them within the community. This approach would be part of the team's efforts to move away from extractivist research (Bilge 2020), in order to develop what Palmer (2023) describes as intellectual humility. For their part, the partners in Pessamit's Land and Resources Sector were considering the best way to disseminate their initiatives on caribou within the community, which ultimately led to the idea of the *Uauilatau Atik' Parlons caribou!* Exhibition. The event brought together key organizations working with Pessamit on caribou conservation. There was a wide variety of exhibitors' tables, including Pessamit's Land and Resources Sector and Innu-Aitun Committee, the Tshakapesh Institute,⁴ the Uapaskuss Project⁵, the Canadian Parks and Wilderness Society (CPAWS)⁶ and the First Nations of Quebec and Labrador Sustainable Development Institute (FNQLSDI).⁷ Despite the snowstorm that day, the exhibition

was a huge success with the public and marked a new milestone in the collaboration process.



Figure 2. The exhibition poster. Source: Pessamit Innu Council Land and Resources Sector Facebook page. (In French only)

⁴ <https://www.tshakapesh.ca/>

⁵ <https://uapashkuss.com/les-sites-sacres/>

⁶ [Home - SNAP Québec \(snapquebec.org\)](https://snapquebec.org/)

⁷ <https://iddpnql.ca/en/>

Planning

The logistics involved in organizing this event cannot be underestimated. We streamlined exchanges with the community by entrusting logistics to LFC project coordinator Dominique Boucher. Moreover, given that accommodation and food supplies were limited in the community, a good deal of discussion was needed to organize guest stays. In order to develop closer ties with members of the community, some LFC team members were able to stay with Pessamiulnuat (Innu from Pessamit) who were open to hosting guests. All LFC participants also had the opportunity to stay in a hotel in Baie-Comeau. Finally, in its drive for self-sufficiency, the LFC team met a few times beforehand to discuss ways of presenting booth information and to map out the necessary supplies (extension cords, a connection plate, projectors, a projection screen support, tacks, string, sticky paper, etc.).

1st LFC Team Booth – Using Science and Indigenous Knowledge to Forecast Changes in Caribou Habitat – Social Science Component

Hosted by Delphine Th  berge, the first booth provided an overview of the project, drawing on Innu knowledge, values and perspectives, and using a social science approach guided by Solange Nadeau. With a view to sharing expertise and responding to the needs of the community, exhibition participants were invited to take part in a short interactive survey. Answers to the first question were instantly projected onto a screen (Figure 5). The results of this questionnaire were given in full to the Land and Resources Sector.



Figure 3. On the eve of the event, Dominique Boucher gives a hand to the Pessamit Innu Council Land and Resources Sector.



Figure 4. Word cloud representing caribou. Source: Pessamit Innu Council Land and Resources Sector.

2nd Booth – Caribou Food Sources

The second booth was devoted to the abundance of caribou food sources in different types of forests in Nitassinan, a project led by Dominique Boucher, Louis De Grandpré and André Arsenault. They briefly described the methodology used to model the abundance of food sources based on field data, supported by a poster, as well as specimens and photos of lichens and understory plants. The results of the lichen and plant abundance modelling were presented on maps of Nitassinan for participants to consult.



Figure 5. Delphine Théberge and Dominique Boucher at their booth. (Photo credit: André Beaudoin).

3rd Booth – Modelling Ground Lichens



Figure 6. Parvin Kalantari at her booth. (Photo credit: Delphine Théberge).

At the third booth, Parvin Kalantari presented models of the presence/absence and abundance of ground lichens under different climatic and forest management scenarios in order to demonstrate their impact on caribou habitat quality. This project was carried out under the supervision of Yan Boulanger.

4th Booth – The Caribou Diet From a Genomic Perspective

At this booth, Christine Martineau and her team, including Patrick Gagné and Marie-Josée Bergeron, explained how the DNA contained in the faeces of Pipmuakan caribou can be used to study their diet, and invited participants to handle the instruments used in the DNA extraction process. The team presented visitors with a series of photos of plants and lichens that were detected in the DNA of caribou faeces collected by a team made up of LFC employees and community collaborators during a visit to Nitassinan territory. Several visitors reported having observed the plants and lichens detected in the faeces in the region, thereby helping to validate the use of this method. Some of the lichen specimens could also be observed using binoculars—which was a big hit with children!



Figure 7. Marie-Josée Bergeron, Patrick Gagné and Christine Martineau at their booth. (Photo credit: André Beaudoin).



Figure 8. Patrick Gagné, a bioinformatician at the LFC from the Innu community of Mashteuiatsh. As a First Nations member, Patrick was particularly touched to see how keen young people from the Pessamit community were to learn more about his research work. (Photo credit: André Beaudoin).

5th Booth – Caribou as an Umbrella Species

Finally, Christian Hébert and his team, including Jean-Michel Béland and Nicolas Bédard, shared their love of several insects found on Nitassinan territory and explained that the caribou is an umbrella species for biodiversity conservation. They presented research results on the impact of the spruce budworm and the spraying with Btk—a biological insecticide—on the Nitassinan fir forest, and especially on the butterfly fauna that inhabits it. They also presented research results demonstrating that the interaction between climate change and forest management is likely to modify the forest, increasing the frequency of forest fires and disturbing the beetle fauna living there. Protecting forest area for caribou would therefore have an umbrella effect for many living species such as forest insects, which play important roles in the ecosystem.



Figure 9. Christian Hébert, Jean-Michel Béland and Nicolas Bédard chose to stand in front of their booth as a way of encouraging discussion with the public. Placing photos up front provided an opportunity for concrete discussions about insects. (Photo credits: André Beaudoin and Jean-Michel Béland).

LFC Participant Testimonials

On returning from the event, the LFC team found it would be useful to document the experience. The creation of a narrative would support the social science component of the project, provide an example of collaborative outreach within the structure of the federal government, and cast light on human and relational aspects that went beyond the exchange of knowledge.

Accordingly, a general question and a number of sub-questions were sent by e-mail to members of the LFC team who had attended the exhibition:⁸ “In the context of reconciliation with Indigenous peoples, decolonization of research and co-creation of knowledge, how is a meeting held in Pessamit different from a meeting held in the City of Québec or remotely?

- What inspired me the most at the Atik^u Exhibition?
- Were there any aspects I was less comfortable with? If so, which ones?
- Did I learn anything? If so, what?
- Will this experience influence my professional practice? If so, how?”

Eight of the thirteen people who took part⁹ took the time to respond in writing.

In addition, a *post-mortem* meeting was held to discuss the experience. This meeting was attended by 14 people, including those who had taken part in the exhibition, other members of the multidisciplinary team who were unable to attend, and members of LFC’s Indigenous knowledge exchange and mobilization team. The following questions were asked:

- What did I like best about the exhibition?
- What have I learned personally and professionally?
- What were the challenges of this experience? What could be done differently?
- How can we pass on what we learn and communicate the challenges we face within our organization?
- In a nutshell, how do I see the future of research with Indigenous communities at the CFS/LFC?

The meeting was not recorded, but the notes taken during this activity were used to complete the analysis of testimonials received by e-mail.

⁸ Includes members of the multidisciplinary caribou research team, researchers developing new projects with Pessamit, as well as an employee participating in the Interchange Canada Program.

⁹ The lead author was a participant at the exhibition, but did not include her own responses in the analysis.

Findings

Attendance at the Exhibition: Encouraging Discussion and Demonstrating Commitment

The testimonials gathered highlighted the fact that the LFC's presence in Pessamit demonstrated respect and a real desire to collaborate. LFC team members stated that being at the exhibition facilitated exchanges with members of the community and gave them a better understanding of Innu culture:

This enabled me to have authentic and open discussions in their living environment, in their community. (4309)

The face-to-face meeting was a unique opportunity to communicate with people who couldn't be reached remotely. For example, school children and (...) Elders (...). There's nothing like a real face-to-face meeting to pass on heartfelt information! (6833)

The meeting in Pessamit, particularly in the context of the Atik^u Exhibition, opened the way to rich and spontaneous exchanges with members of the Innu community as well as with the key players in the Pessamit Innu Council Land and Resources Sector, thereby offering privileged access to their knowledge of the territory, stories as told by Elders, their cultural identity and their claims or aspirations. (8912)

Several attendees commented on the astonishing depth of the discussions for a first visit, and were moved by the welcome they received from the community:

What inspired me most during the Atik^u Exhibition? A different and inspiring way of sharing in a broader setting, including cultural, relational and historical aspects... the welcome and openness of the Innu to co-create... (...) The

openness and welcomeness of the Pessamit Innu. (4309)

What inspired me the most during the Atik^u Exhibition? The cordial discussions and the warm welcome from the Innu people. (1789)

Members of the LFC team are used to working with people from Pessamit's Land and Resources sector, and were delighted to be able to talk to young people from the school. The booth format allowed for personal interactions, particularly with Elders. Many attendees were touched by what they had to say:

What inspired me the most during the Atik^u Exhibition? The Elders' extensive knowledge of caribou and their deep connection with this animal. It's really rewarding to talk to people who have seen caribou in their natural environment. These personal stories are both informative and touching! (3876)

What inspired me the most during the Atik^u Exhibition? The stories and emotions shared by Elders. (6833)

Towards the end of the day, the Elders spoke publicly about the caribou. Most of the session was conducted in Innu-Aimun (Innu language). Although the members of the LFC do not speak this language, they listened attentively. The moderator translated most of what they said into French. This attentive listening demonstrated the LFC members' interest in and commitment to Innu culture.

Together for the Caribou

The aim of the event was to talk about caribou in a variety of ways: in cultural terms, in scientific terms, in symbolic terms, and so on. At the end of the day, a makusham (traditional Innu dance) was performed in honour of the caribou.

What inspired me most during the Atikʷ Exhibition? The meeting of all generations around the same theme: caribou! (8912)

For several years now, the Pessamiulnuat have stopped hunting caribou in order to protect the species. This seems a heavy burden for the people of the community, since many cultural practices are linked to this hunt, and caribou are an integral part of their identity. LFC team members said they learned a lot about caribou and their place in Innu culture:

I also realized just how central the caribou is to Innu culture (I knew about this before, but I now fully grasped this reality). (5543)

What inspired me most at Atikʷ Exhibition? The community's deep attachment to caribou, the animal's place in their culture and way of life, and the desire to fight to preserve it. (7657)

Emotions and Suffering Associated With Colonial History

It is normal to experience discomfort during intercultural encounters. The dialogues with people from the community led to some very emotional exchanges:

Hearing the painful words of people who feel powerless and who see us as powerless (...) It was great, but sad at times! (6833)

A better understanding of the vivid suffering from the not-so-distant colonial past and, particularly, the suffering associated with the decline of Atikʷ (I was really touched/moved by the testimonies). (4309)

Despite the emotional burden associated with the loss of caribou habitat and the impact of colonial history, some people felt the resilience of the Pessamiulnuat:

Despite all the challenges they face (caribou, decline in traditional activities, loss of transmission of language and knowledge, etc.), all the people I spoke to carry a message of hope. (5543)

The expression of so many emotions was overwhelming for some and led to questions such as "Why conduct research?" "Why conduct it in an Indigenous context?" LFC team members said that gaining a better understanding of the emotions of people in the community made them want to remain involved in the research undertaken.

Co-creation of Knowledge and Changes in Professional Practices

The maps proved to be excellent tools for exchange and communication. Many of those attending the exhibition were interested in the maps and scientific forecasts about particular places:

I finally realized that using maps was the perfect way to start a discussion with people in the community. They looked a lot at the maps I presented and each time they had something to say about specific locations on the territory. (2341)

Many Pessamiulnuat have in-depth knowledge of the territory. The cultural practices surrounding caribou are diverse:

One of the Elders told us that when a caribou was slaughtered, absolutely everything was used, including the contents of the rumen (she didn't use this term, but we understood that it had to do with the belly), which was mixed with one cup of the animal's blood and then dried for several weeks. The resulting product (black in colour) was

used to make a stew known to be very rich and fortifying. When you think about what this product might have contained, you realize that it could have been both a very good probiotic (bacteria from the caribou's intestinal flora) and a prebiotic (fibre)! Super interesting! The lady mentioned that, unfortunately, young people don't know about this tradition. (3876)

Themes related to plants were also addressed:

Two people told me how they used Usnea for medicinal purposes. (2341)

There was a lot to learn, and the event provided an opportunity to exchange expertise and change the way we look at research:

Reaching out to others is an important sign of openness. It gives us a better understanding of Indigenous realities and, by the same token, enables us to take a few steps towards reconciliation and decolonization. Becoming a minority for a few moments and fully exposing yourself to the culture of the other person allows you to change your perspective on your research subject and makes you see other concerns that you would not have been aware of otherwise. (1789)

Some LFC members said that this event had made them more open to Indigenous knowledge:

It's been exerting an influence for a while, and this is continuing. I'm more open to Indigenous knowledge and more comfortable with it being part of my considerations when I think about research projects. It's becoming more of a reflex, second nature. (1789)

This experience has made me wonder about how to use the information provided to us by the people we met at the exhibition (especially the Elders) in a way that respects and recognizes their knowledge. I'll probably be doing this kind of

proactive thinking in the future (rather than retroactively). (3876)

This event has led some people to reflect on their professional practice:

The way I communicate with Indigenous communities is always improved each time I present results and discuss them with Indigenous people. (6833)

Continuing these exchanges will make it easier to co-create specific research component that are respectful of the Innu community, while enriching our research beyond the mere acquisition of new knowledge. In short: carrying out research where the human being is more central to our concerns and objectives. (4309)

In this sense, the meeting provided some very concrete answers for specific projects. For example, an Elder confirmed to Christine Martineau's team that several plants detected in the DNA of caribou faeces make up its winter food source. For others, discussions with people in the community have led to the emergence of new research ideas. For example, Christian Hébert's team found that many members of the community are familiar with the white-spotted sawyer, but that it is not popular with people with long hair because it gets tangled in it. Yet this species is very useful in terms of the ecosystem. This could be an area to explore for future research, as the people of Pessamit seem to want to put the precautionary principle first, even if at first glance they don't seem to have any particular interest in this insect.

This activity has also enabled us to think about new projects and consolidate several upcoming project stages:

Firstly, I managed to talk through some of the points I'd wanted to discuss with them for a long time, and to get answers from them, so I could plan the next stages of the project. This is very hard to do by e-mail alone. As part of my job, I

think I should visit the community more often to take the project forward. (2341)

Some LFC team members identified a problematic situation related to the departmental standards and administrative processes which would need to be adjusted in order to better meet the needs with regards to travel to the community or on the territory. Nonetheless, the experience provided an opportunity to exchange and validate research data. It facilitated the planning of future activities and encouraged the development of new projects.

It should also be mentioned that the richness of this experience stems from a relationship between the LFC and Pessamit that has been evolving since 2019 (the beginning of which led

to the drafting of a report supervised by Frank Grenon).¹⁰ This relationship was forged through face-to-face meetings on the territory and in the community, as well as through written and video exchanges. This relationship is also nurtured by the exchange of personnel between Pessamit and the LFC (via the Interchange Canada Program), namely Louis De Grandpré (researcher) and David Gervais (forest biologist), and by the regular work of the field team led by Stéphane Bourassa, Mathieu Gauvin and Jean-Michel Béland. The field team helped consolidate the relationship by strengthening the bond of trust. In short, this extraordinary experience is the result of the work of multidisciplinary teams made up of motivated people who are keen to discover another culture to enrich their scientific approach.



Figure 10. Field work provided an opportunity to forge bonds between the stewards of the land and the LFC team. (Photo credit: David Gervais).

¹⁰ This report can be consulted at the following URL address: <https://ostrnrcan-dostrnrcan.canada.ca/entities/publication/ff3b9ca5-b331-4420-82f3-c43f2e8b894a>

What to Take Away From This Experience

Relationships with Indigenous communities are established and developed through face-to-face meetings. It is important for researchers, research professionals and members of field teams to be able to travel to communities and territories to forge and strengthen relationships. To do this, it would be essential to analyze the problems surrounding the administrative procedures so they can better support the implementation of reconciliation and collaborative research between Natural Resources Canada and First Nations. Moreover, several best-practice guides for research with Indigenous peoples mention the importance of face-to-face meetings: "There is no replacement or shortcut for spending time with people and in place." (Reid et al. 2024 p. 3). It should also be remembered that working in an Indigenous context means interacting with other systems of rationality and other ways of operating, which in turn brings a host of uncertainties and planning challenges. Each experience is unique and the challenges that can arise are diverse. These challenges may involve destabilizing emotional charges, exchanges that stray from the usual context of discussing scientific results, or comments about the role of the federal government or science since colonization.

The Royal Commission on Aboriginal Peoples and the Truth and Reconciliation Commission of Canada have both demonstrated the importance of telling the devastating effects of colonialism. Knowing and sharing these experiences can offer, on the one hand, an opportunity to heal traumas and, on the other, an opportunity to better understand the deep ties of Indigenous people to the land (Reid 2024). Encountering Indigenous cultures requires open-mindedness, listening skills and empathy, characteristics associated with intellectual humility (Palmer 2023; Porter et al. 2022), which requires facing the Other. So, does this kind of encounter require preparations that go beyond logistics per se? It is crucial that teams be prepared by

understanding the culture, history and issues of the community; however, employees also need training and information about the significance of their role as federal public servants, given the complex historical background that precedes them. As representatives of the State, their presence can arouse a variety of feelings, as they often embody the institutions and policies of the past that have had a profound impact on communities. Raising awareness is essential, but it needs to be handled with sensitivity. If approached the wrong way, it could paralyze employees with fear or discomfort that they are not doing the right thing, which would make their experience even more difficult than if they had received no guidance at all. It's crucial to find the right balance so that information doesn't become a burden. Information should provide leverage to open the way to true understanding and respectful exchanges. As a team, it might be a good idea to set up mutual support mechanisms and have various processes for discussing the difficult emotions generated by colonial history and the questioning of scientific approaches, for example by regularly engaging with Elders who can support the teams by providing their own expertise.

The experience also raised a number of questions about the development of Indigenous knowledge and compliance with OCAP principles® (ownership, control, access, and possession). These questions were addressed at a meeting held shortly after the event between the LFC team and the Land and Resources Sector. How do we protect sensitive data? How should intellectual property issues be handled? Depending on the research context, what type of recognition should be given in scientific articles (acknowledgement, co-authorship, etc.)? Providing opportunities for members of Indigenous communities to participate in science is one of the ten calls to action made to natural science researchers by Wong et al. (2020).

In addition to being rooted in elements of this call to action, this experience at the exhibition embodies many of the practices put forward in NRCan's Draft Policy for the Ethics for Research Involving Indigenous Peoples and Territories.¹¹ First, because it fosters building relationships premised on mutual respect and trust, the forging of relations in an enduring and coordinated manner and the establishment of reciprocal collaborations (practices 8.3, 8.4 and 8.6). Secondly, because it has made it possible to mobilize knowledge in a manner that is accessible and culturally relevant (practice 8.8). Nevertheless, a number of questions concerning research ethics continue to be explored with the community as concrete examples arise along the road to collaboration. This needs to be achieved, while also considering NRCan's Scientific Integrity Policy¹² and the requirements of the Tri-Council Statement on Ethical Conduct for Research, particularly the chapter on research involving First Nations.¹³

It's hard to say exactly how an event like the *Uauilatau Atikʷ Parlons caribou!* Exhibition contributes to reconciliation with Indigenous peoples, the decolonization of research and the co-creation of knowledge. Each person's experience of this event is unique. Each person takes away their own lessons, discovers themselves through the Other, and moves, in their own way, towards reconciliation, decolonization and co-creation. The values needed to fulfil these ideals have been mentioned many times over the past few years and by various bodies: respect, trust, listening, authenticity, humility, mutual learning, the importance of the land and of face-to-face encounters, redefining power relationships,

combating inequality, and so on (Gentelet 2009; Gros-Louis Mchugh, Gentelet, and Basile 2018; Gros-Louis McHugh 2013; Guay 2007; Jérôme 2008; Reid et al. 2024). There is no single recipe; each person combines the values needed in their own particular way, and accepts to be transformed by the experience in order to build, together, a desirable future and to imbue their actions as a federal public servant with these values so as to support the evolution of the government's relationship with Indigenous peoples.

This exhibition is part of a growing awareness of the need to rethink the methods used to conduct scientific investigations. The *Uauilatau Atikʷ Parlons caribou!* Exhibition is a concrete example of innovation demonstrating the kind of initiatives that NRCan can support. It is also a first step towards a decolonized research model, in which our organization can play a key role by facilitating contact with Indigenous communities and creating opportunities for exchange and sharing around common issues linked to the land.

The decolonization of research begins with a personal journey, but it must also be translated into profound and concrete changes in research practices, supported by the institutions themselves. The *Uauilatau Atikʷ Parlons caribou!* Exhibition took a step in this direction. The real challenge now lies in sustaining this momentum and putting in place structures and practices that extend and reinforce this learning.

¹¹ The Draft can be consulted at the following URL address: <https://natural-resources.canada.ca/natural-resources-indigenous-peoples/nrcan-s-draft-policy-ethics-research-involving-indigenous-peoples-territories>

¹² The Policy can be consulted at the following URL address: <https://natural-resources.canada.ca/science-data/science-research/scientific-integrity-nrcan>

¹³ The Statement can be consulted at the following URL address: <https://ethics.gc.ca/eng/documents/tcps2-2022-en.pdf>



Figure 11. Photo of caribou taken during LFC-Pessamit data collection. (Photo credit: Stéphane Bourassa).

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Appendix 1: Poster: Overall Project

Canada Natural Resources Canada / Ressources naturelles Canada



Using Science and Indigenous Knowledge to Predict Changes in Caribou habitat – An Integrative Approach

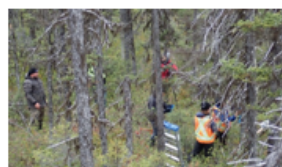
In order to provide the essential knowledge to improve recovery plans for woodland caribou, the Canadian Forest Service has launched an integrative research project in collaboration with the Innu community of Pessamit. This community is very concerned about caribou and has been monitoring caribou populations on the Nitassinan territory for several years now. The project has five streams that integrate science and Indigenous knowledge.

Conseil des Innu de Pessamit



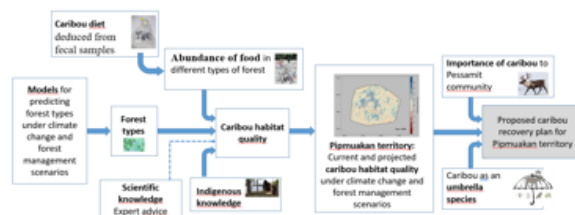
Objective 1 – Mobilize Indigenous and scientific expertise in order to meet social science research needs (Stream 1 leader: S. Nadeau)

- Collaboration between researchers and Innu experts is encouraged and supported:
- Find ways of involving the Innu in scientific activities such as design, fieldwork, discussions on results, etc.
- Seek opportunities to make research more relevant to the community
- In collaboration with Pessamit, develop a social science research project to fill gaps identified by the community.



Meeting point: Pimpuakan territory

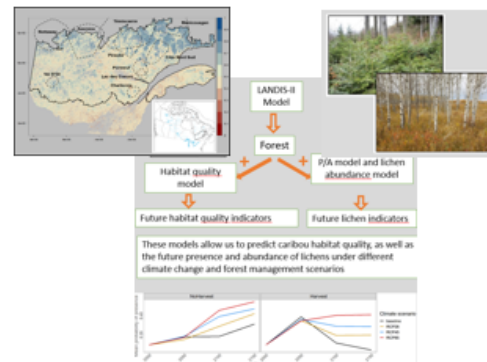
The integration of all project components will help assess the current and projected quality of caribou habitat in the Pimpuakan territory (in the Pessamit Nitassinan) and inform the region's caribou recovery plan.



Collaborators:
 Laurentian Forestry Centre (LFC): S. Nadeau, C. Hébert, A. Arsenault, Y. Boulanger, C. Martineau, L. De Grandpré, D. Boucher, G. Gervais, J.-M. Béland, S. Bourassa, M. Gauthier, P. Gauthier, J. Piquet, M.-J. Bergeron, D. Thibault
 Pessamit: M.-H. Roussseau, A. Côté, J.-L. Gauthier, E. Gauthier, S. Picard, A. Benjamin

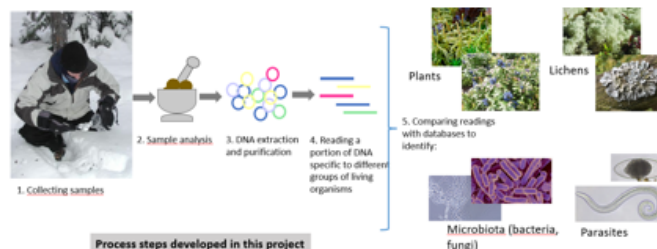
Objective 2: Predict and monitor changes in caribou habitat.

Predicting the impact of disturbances, climate change and forest management on the quality of caribou habitat (Stream 2 leader: Y. Boulanger)



Development of genomic tools to characterize the winter diet of caribou, parasites and micro-organisms present in faeces (Stream 3 leader: C. Martineau)

Caribou faeces contain a great deal of information in the form of DNA. They contain the DNA of food residues as well as that of micro-organisms and parasites living in the animal's digestive tract. Studying this DNA can help us better understand the factors—including habitat characteristics and disturbances—affecting woodland caribou populations across Canada.



Process steps developed in this project

Objective 3: Develop sustainable forest management practices that protect caribou habitat

Assessment of the caribou's potential as an umbrella species for maintaining biodiversity (Stream 4 leaders: C. Hébert, A. Arsenault)

Biodiversity is a good indicator of ecological integrity. Sampling insects and lichens from stands affected by different levels of disturbance (budworm and logging) will help determine whether caribou management also protects communities of other living organisms.



Sampling in Northern Quebec and Newfoundland and Labrador



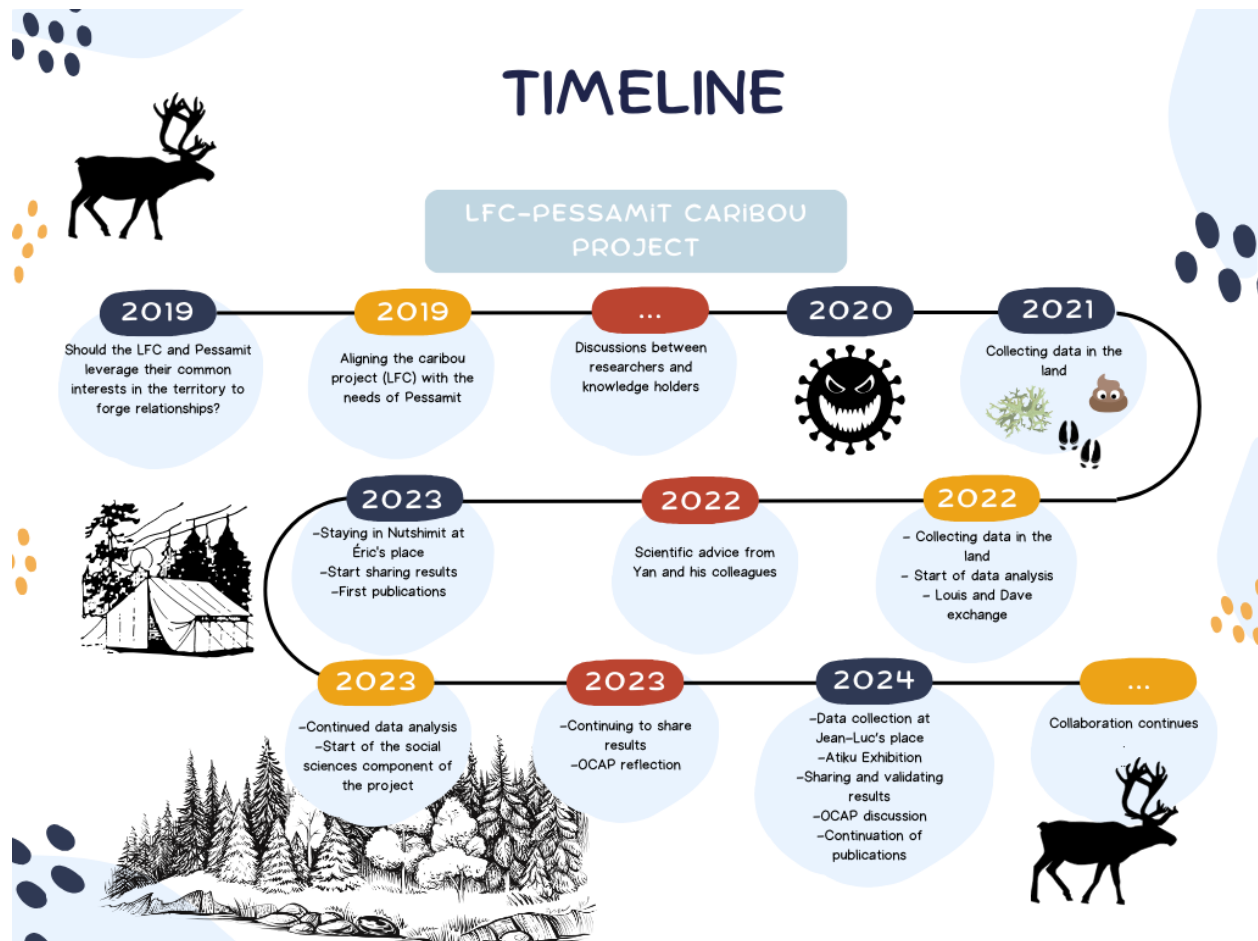
Assessment of the abundance of food sources for caribou in different types of forest (Stream 5 leaders: L. De Grandpré, A. Arsenault, D. Boucher)

The abundance of lichens and understory plants was measured in the forest types most representative of the Pimpuakan region and in forest habitats recognized by the Innu for their importance to caribou.

Assessing the abundance of the food sources in the various sectors of Nitassinan will help identify areas suitable for caribou protection.

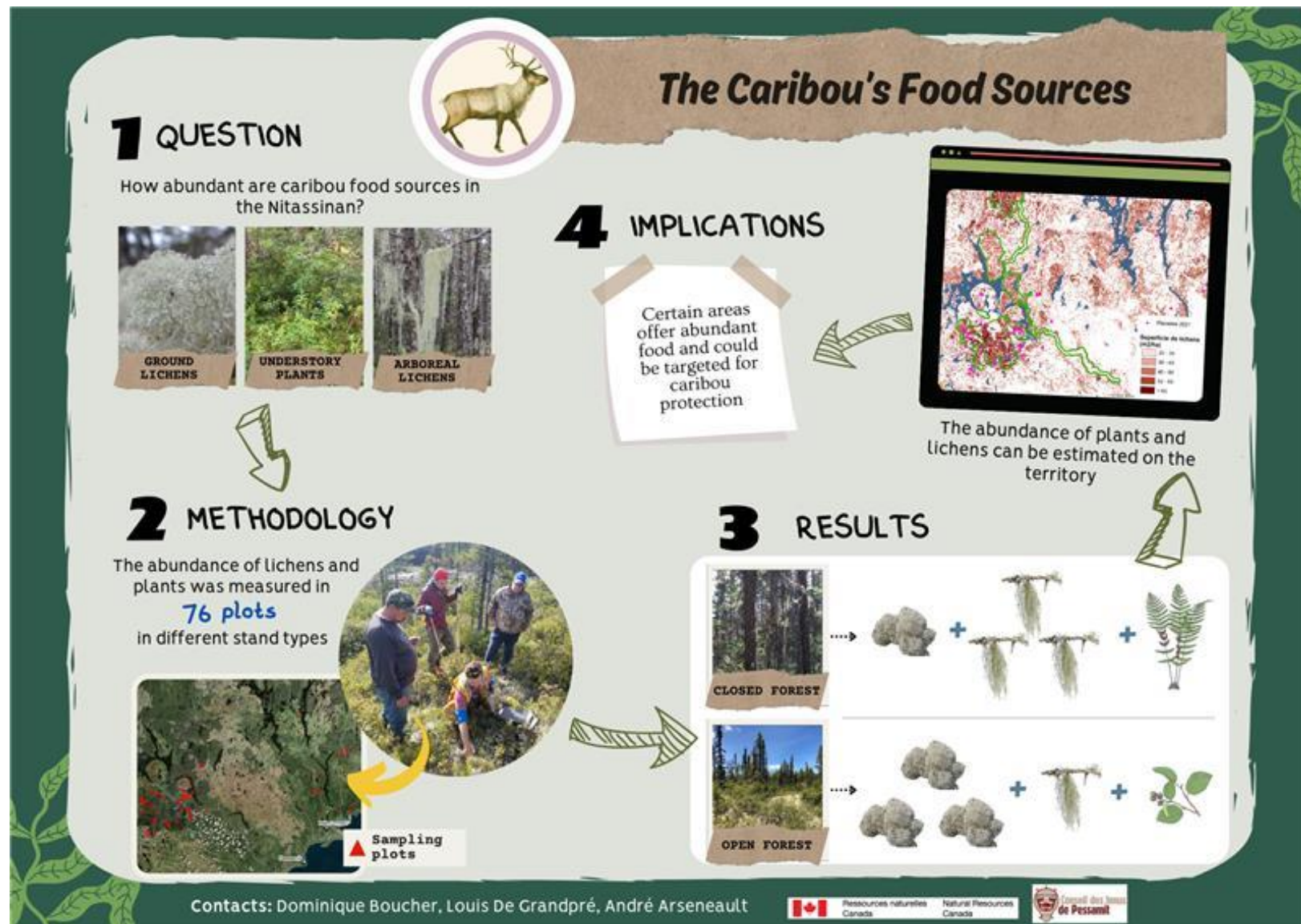


Appendix 2: Project Timeline



Project timeline. This document was used during a working meeting between the LFC and Pessamit to take stock of the collaboration.

Appendix 3: Poster: Abundance of Caribou Food Sources



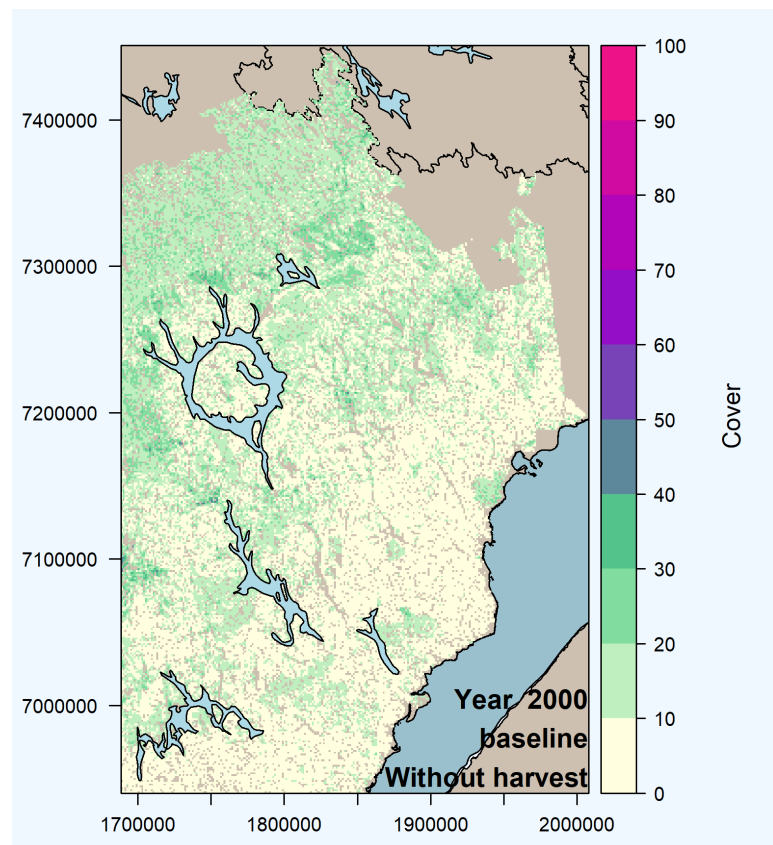
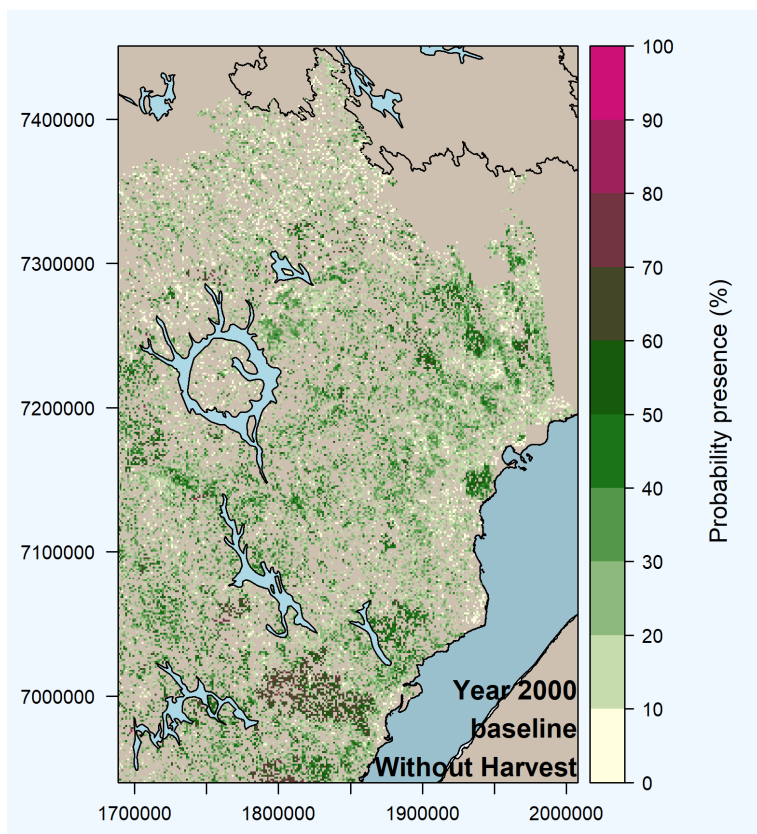
Appendix 4: Projections of Ground Lichen Cover

The year 2000 is considered as the baseline. The results for the year 2100 are presented here as the Prediction.

- Increase in the abundance and probability of the presence of ground lichens under all climate change scenarios, with a north-south spatial pattern across the territory.
- Decrease in the abundance of lichens following harvesting in the centre and south of the territory.

Baseline: Year 2000

Probability maps showing presence (left) and abundance (right) of ground lichen



Prediction: Year 2100

Probability maps showing presence (left) and abundance (right) of ground lichen

