



**PEEL WATERSHED**  
PLANNING COMMISSION  
TOGETHER FOR THE PEEL • CHUU TL'TI GEENJIT KHETOK

## **Draft Peel Watershed Land Use Plan**

**April 2009**



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## About the **Peel Watershed Planning Commission**

The Peel Watershed Planning Commission is responsible for developing and recommending a regional land use plan for the Peel watershed planning region. The Commission is composed of six public members nominated by the Na-cho Nyak Dun, the Gwich'in Tribal Council, as a joint Yukon Government/Vuntut Gwitchin nominee, a joint Yukon Government/ Tr'ondëk Hwëch'in nominee and two Yukon Government nominees.

## Commission Members

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## Cover Photo

Tributary into Snake River east of Colley Mountain. John Meikle



**PEEL WATERSHED**  
PLANNING COMMISSION  
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April 28, 2009

## **Letter of Transmittal for Peel Watershed Draft Regional Land Use Plan**

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**To: Governments of Yukon, Na-Cho Nyak Dun, Tr'ondëk Hwëch'in, Gwich'in Tribal Council and Vuntut Gwitchin**

The Peel Watershed Planning Commission (PWPC) is pleased to submit our Draft Peel Watershed Regional Land Use Plan for Party and public review. The Draft Plan incorporates various forms of input gathered since 2005 from its Technical Working Group, Senior Liaison, local communities, First Nations, government agencies, Renewable Resource Councils public stakeholders, interest groups and the general public. In keeping with the Commission's Terms of Reference, considerable effort has been made to link various recommendations in the Draft Plan to all relevant sections of the Umbrella, and individual Final Agreements of affected First Nations (10-18, 22). In doing so, a stronger foundation can be created for collaborative decision-making in areas of shared responsibility within the Peel region. In presenting its recommendations, the Plan intends not to present prescriptive measures for regulators, but rather a clear range of useful guideposts and management tools for sustaining underlying ecosystem functions, recognizing key values and minimizing land-use conflicts to the greatest possible extent.

Since its creation in 2004, the Commission has successfully progressed from the release of its guidance documents (Terms of Reference, Statement of Intent and Plan Principles) through its foundation research phase (Conservation and Resource Assessments)), then engaging in an intensive process of consultation and planning to end up with this Draft Plan. To highlight that work, the PWPC undertook:

- facilitation of a stakeholder workshop in Whitehorse, October, 2008 with over 30 participants to provide a synthesis on the Commission's baseline research (Conservation Priorities, and Resource Assessment reports), Land Management Unit options, and area-specific issues identification.
- delivery of a First Nations focus group meeting of approx 30 government, staff and Elder delegates was held in November, 2008 to seek further guidance on management issues and direction.
- release of its Scenario Options methodology, November, 2008 and Scenarios Options Report
- In February 2009, the PWPC visited Mayo, Dawson City, Inuvik, Fort McPherson, Old Crow and Whitehorse to present and discuss its Scenarios Options.
- Facilitation of a follow-up stakeholder roundtable session was also held in February, 2009 in response to the Scenario Options reports

During the Scenarios Options consultation period, PWPC received over 400 written submissions, and these comments are available for viewing and download on our website ([www.peel.planyukon.ca](http://www.peel.planyukon.ca)). Particular guidance from the Parties was provided by the SLC's recent review of our Scenarios Options work as it pertained to YG policy on "no expropriation and no compensation" with respect to sub-surface tenures. This document reflects it best understanding of the facts, issues and objectives of the Parties and public in shaping a Plan that strives to meet the PWPC's Terms of Reference, and the decision-making filters it developed in fall 2008 that led to its selection of modified version of Scenario Two.

In summary, the Draft Plan strives to:

- Present a land-management framework (landscape units, zoning, general mgt directions and indicators) that (a) builds upon the work of neighbouring regional plans (b) designed in consideration of the two dominant eco-zones with their particular requirements for management and monitoring; (c) is adaptable for future Plan reviews carried out by future Commissions (d) can be strengthened through further research and evaluation;
- Designate a land-base and access for future oil and gas development, development of the Dempster corridor and other resource industry purposes within Integrated Management Zones;
- Enable a degree of continued, but conditional and access through recommended corridors to existing mineral claims (including Crest iron-ore and quartz claims) according to specific land-use management units, and an acceptable proposal review by regulators which includes full reclamation for any access and site development;
- Recommend two tiers of “Protected Area” designations that could be classified as UFA-based (Chapter 10) Special Mgt Areas requiring withdrawal from mineral staking and that provides for either strict ecosystem-protection (Tier I), or a wilderness-conservation classification (Tier II) that puts emphasis on low-surface footprint activities while allowing grandfathered access to existing mineral claims;

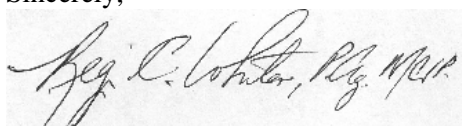
In the preparation of the Draft Plan, the PWPC carefully considered the following factors:

- The level of existing information with respect to resource data (existing and potential values), and the informed opinion of a wide range of specialists with direct experience in land management or use within the Peel region;
- General objectives of all affected First Nations which emphasized their interest in having a Plan that (a) creates and manages for the least possible surface footprint, particularly in river corridors, wildlife areas, and upper drainage basins; (b) creation of a land-use framework that recognizes cultural, ecological and community development objectives; (c) articulation of management strategies that would protect water, fish and wildlife values and their use indefinitely;
- Technical reviews from Yukon Government, and Technical Working Group dating back to 2005 articulating management issues, concerns and interest concerning Plan development while refraining from being overly prescriptive, and the Commission therefore made a concerted effort to:
  - (i) provide as much clarity as possible in developing its land-use concepts, defining monitoring tools and presenting recommendations without attempting to define specific implementation measures or targets that are best left to regulatory bodies;
  - (ii) respect the need for the Plan to guide the work of YESAB in determining allowable land uses, and potential variances during project review
  - (iii) provide guidance for future Plan amendments and periodic Plan review;

As outlined in the Terms of Reference and our 2009 Workplan, the Commission will undertake consultation with the Parties and the public on its Draft Plan. We look forward to engaging in productive dialogue and receiving specific comments that will enhance the document, and ultimately lead to its approval and implementation.

All background documents that have led to the Draft Plan are available in digital format from the PWPC website, and a limited number of printed copies will be available for distribution. On behalf of the Peel Watershed Planning Commission, may I extend our appreciation to the Parties, and Committees for having helped to inform this plan.

Sincerely,



Reg Whiten, P.Ag, MCIP  
Senior Land Use Planner



**Table 1.0**

During production of this Draft Plan, PWPC believes it has fulfilled the requirements of its guiding documents (Statement of Intent, Terms of Reference, Principles, and Final Agreements) in a manner that gives articulation to Chapter 11, Section 11.4.5, in the following ways:

<b>Umbrella and First Nation Final Agreements</b>		<b>Draft Plan</b>
11.4.5.3	Shall ensure adequate opportunity for public participation	<ul style="list-style-type: none"> <li>• PWPC held numerous workshops, presentations and open houses during the planning process.</li> <li>• PWPC consulted widely on the Draft Plan; comments have been incorporated into this document.</li> </ul>
11.4.5.4	Shall recommend measures to minimize actual and potential land use conflicts throughout the planning region	<ul style="list-style-type: none"> <li>• PWPC examined various commissioned studies, independent industry reports, and developed future land use scenarios to understand potential land use conflicts.</li> <li>• PWPC recommended a number of tools and approaches to minimize land use conflicts, including various forms of Land Use designation and management corridors (Dempster Highway, recommended Protected Areas, Integrated Management Areas)</li> </ul>
11.4.5.5	Shall use the knowledge and traditional experience of Yukon Indian People, and the knowledge and experience of other residents of the planning region	<ul style="list-style-type: none"> <li>• A number of heritage and traditional knowledge workshops were held during the planning process</li> <li>• Traditional knowledge was utilized equally with science-based knowledge.</li> </ul>
11.4.5.6	Shall take into account oral forms of communication and traditional land management practices of Yukon Indian People	
11.4.5.7	Shall promote the well-being of Yukon Indian People, other residents for the planning region, the communities, and the Yukon as a whole, while having regard to the interests of other Canadians	<ul style="list-style-type: none"> <li>• The Plan is balanced and reflects the social and economic well-being of residents and Yukoners, both by providing for continued economic activity, sustaining resources for future use, and ensure restoration of surface disturbances that may result.</li> <li>• Applies sustainability principles to ensure conservation, social, cultural and economic objectives can be achieved.</li> <li>• Interests and management regimes in adjacent jurisdictions have been considered.</li> </ul>
11.4.5.8	Shall take into account that the management of land, water and resources, including Fish, Wildlife and their habitats, is to be integrated	<ul style="list-style-type: none"> <li>• The tools and approaches of this Plan facilitate integrated landscape management.</li> <li>• The Plan considers cumulative impacts to land and water from multiple land use activities.</li> </ul>
11.4.5.9	Shall promote Sustainable Development	<ul style="list-style-type: none"> <li>• The Plan addresses ecological, social and economic themes through an underlying understanding of ecosystem function and processes</li> <li>• The Plan recommends measures to manage cumulative impacts of multiple land use activities.</li> </ul>
11.4.5.10	May monitor the implementation of the approved regional land use plan, in order to monitor compliance with the plan and to assess the need for amendment of the plan	<ul style="list-style-type: none"> <li>• PWPC has recommended implementation tasks and methods for monitoring plan effectiveness</li> <li>• Potential processes and time-lines for revising the Plan have been suggested.</li> </ul>

## Acknowledgements

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The Peel Watershed Planning Commission wishes to extend its gratitude to many for their assistance and advice in preparation of its draft land-use plan. Firstly, it appreciates the assistance of key Plan partners including the Yukon Government, including representatives of the Internal Working Group and other agency staff for their review of Commission outputs. The PWPC thanks the First Nation governments of Na-Cho Nyak Dun (NND), Tr'ondëk Hwëch'in (TH), Gwich'in Tribal Council (GTC) and Vuntut Gwitchin (VG) for their continual involvement and contributions. Special thanks to the Chief and Councils, Elders and community members who gave of their time to provide guidance and input on the work of the Planning Commission.

An important source of guidance in the Commission's work was provided through the PWPC's Senior Liaison Committee, and it wishes to acknowledge contributions from Albert Peters – Chair (NND), Angus Robertson (YG), Hugh Monaghan (VG), Tim Gerberding (TH), and Chief Wilbert Firth (GTC).

Significant effort was also put forward in reviewing and coordinating response by individuals within the Technical Working Group, and the PWPC thanks the following for their assistance: Jen Meurer (YG), Jeff Hamm (YLUPC), Dawna Hope (NND), Renee Mayes (TH), Mardy Semmler (GTC), and Shel Graupe (VG).

The Commission appreciates major contribution of colleagues within the Yukon Land Use Planning Council (Ron Cruikshank, Jeff Hamm, and Gerald Isaac) in providing support for mapping, technical reviews, planning advice and general administration support. The YLUPC is also acknowledged for its support of the Commission's work, and advice on annual workplan implementation.

Thanks goes also to the many individuals from stakeholder organizations who have kindly given of their time and energy in reviewing preliminary outputs, providing written comment and participating in meetings.

## Recommended Plan Highlights

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- The Plan provides a sustainability framework to guide land-use and development in the Peel Watershed Planning Region that applies principles of ecosystem-based planning and integrated resource management
- The Plan addresses four key issues: i) management of sensitive ecosystems for water, fish and wildlife, ii) long-term maintenance of the region's wilderness character, iii) access to existing mineral claims for further exploration and potential development, and iv) realizing future long-term economic potential, while ensuring full restoration of surface disturbances.
- The Plan divides the region into 13 landscape management units and 46 sub-units; each sub-unit is designated to a land use management zone (see Map 1, Appendix 1).
- Of the total region:
  - 37 % is in the Integrated Management Zone (IMZ), and can be considered the 'working landscape.' 9 % of the IMZ has a higher industrial development focus.
  - 15 % has been recommended for Tier I Ecosystem Protection for protection of river corridors, lakes, wetlands, and other sensitive habitats.
  - 48 % has been designated Tier II Wilderness Conservation for renewable resource and cultural uses and habitat protection. Access to, and development of existing mineral claims is allowed within strict standards. Mineral claims within the Tier II zone occupy 4 % of the region.
  - The Tier I zone and the unclaimed portion of the Tier II zone result in 59% of the region recommended for land withdrawal.
- Additional Plan recommendations include:
  - Measures to manage cumulative effects of multiple land use activities based upon application of appropriate land-use indicators.
  - Recommendations for limitations on surface access and complete reclamation of new roads.
  - Recommendations for Plan implementation related to research, policy and coordinated land-use decision-making.
  - Additional specific recommendations related to achieving social, economic and ecological objectives.

## Message from the Commission

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April 7, 2009

It is with humility and hope that we submit this Plan to the governments that appointed us, to the communities that ring the Peel Watershed, and to the people of the Yukon. They all have a stake in this extraordinary region. We are aware that Canadians, and people in other countries are also looking on, waiting with interest to see what we have to offer. They too have a stake in the Peel, just as we in the North have a stake in what goes on the world's tropical forests. The issues addressed by this plan are not easy to solve - we hope we got it right.

We want to talk about what we are trying to do in this plan and why we took the approach we have. We have endeavored to foster ethics, equity, responsibility, and stewardship, with an eye to the present and to the future. We have tried to take seriously the values, hopes, and interests of the First Nations who look on the Peel Watershed as a homeland.

Here is our starting point. Everything is connected to everything else; we are endlessly cycling what we have been given. We have only so much land and so much water - nothing new is waiting for us over the horizon, so we have to work with what we have. Make it last. Maintain harmony between people and the land, and among people. Make our great-grandchildren proud and grateful for what we passed on to them.

We were told, by First Nations people, by scores of Yukoners, and by visitors, that the Peel Watershed is unusual. Not just in the Yukon, but indeed in Canada and in the world. Other places are beautiful, other places have animals, and other places have rivers and wetlands and mountains and tundra. Our planning area has these assets in abundance, but that's not what makes it so unique. The really important asset of the Peel country is that it is extensive, undeveloped, and largely devoid of roads. In short, it is both rich and wild, and therefore both unusual and unusually valuable – *as it is*. As it has been for 10,000 years or more.

We didn't make this up. It has been emphasized by First Nation governments, by communities, by Elders, by hunters and artists and hikers and paddlers; by scientists. The country is valuable as it is: roadless, a legacy for present and future generations.

On the other hand, we are also told that the Peel country holds potential reserves of minerals, oil, and gas. Our resource tenure system is one of open staking, and miners also assert they have a right to build roads to claims and leases. The assumption is that industrial development of resources and "opening the country" is best for society. Underlying this assumption is another, that economic worth is how lands and resources should be valued by society. Yukon people have a long history and tradition in mining.

Some people tell us that open staking and open access to minerals is a "right". The problem is that by its very nature, exercising this right undermines what is valued by others: the wildness, the biological richness, the roadlessness of the country...its heritage. Again, we did not make this conflict up; we have been told this repeatedly by the people who are affected by development: Elders, First Nation governments, hunters, trappers, renewable resource users, wilderness guides, recreationists, scientists. Yukon people have long traditions here too.

So we as a Planning Commission have a conundrum. One part of society wants free access to activities that are likely to harm another part of society. These other people want to exclude mineral developments in order to protect their own values and heritage. It is no good trying to explain away this problem by saying that there is no conflict that cannot be managed. This would be dishonest, for these problems are real and to a large extent involve winners and losers. Developers, First Nations, conservationists – all represent legitimate values; there are no villains in this drama.

As a Commission, here is how we proceeded. First we scouted the landscape: we learned what Yukoners and others had to say, what they wanted and what concerned them. We gained understanding of what the planning region had and what it had to offer. We thought hard about issues and conflicts and opportunities; we considered our Terms of Reference and the UFA. Based on this, we drafted our Statement of Intent – what we thought important to accomplish in this plan. This statement acknowledged that the land *as it is* – a wild assembly of landscapes, ecosystems, wildlife, vegetation, and cultural history is infinitely valuable and should be maintained. We also acknowledged that humans have a place in this region and that somehow their uses should be accommodated – encouraged, even – but not at the permanent expense of the land as wild, ecologically intact country.

Then with the aid of scientists, resource specialists, Elders, users of the land, and other informed people, we started to learn about this region in detail: its ecosystem processes, its vegetation, animals, and fish, its landforms and waterways, its minerals, its human uses and activities, its heritage. Equally important, we learned the limits of the land, and the sticking points where human uses conflict with each other and with the health of the land.

Knowing that we could not write a plan that would satisfy everyone, we took the principle of Sustainable Development as our point of common reference. We applied this principle in our plan to sort out priorities:

- Sustain ecosystem integrity *first*. Conserving the land, its living things, and its processes is the fundamental priority: lose this and all else crumbles. This involves maintaining a state of harmony between people and the land.
- Sustain communities and cultures *next*. These rely on achieving success in the first priority. Sustainable communities and sustainable ecosystems are intertwined.
- Foster sustainable economic activities *third*. There are two kinds of sustainability here: activities that don't degrade the land and don't undermine communities and can be sustained indefinitely; and activities that deplete resources, but from which the land can recover. Not all economic activities fit in this region.

Using our best information and science about the land and its resources, about how its ecosystem processes function, and about what people want and do, we started to identify patterns.

- We determined that the Peel Watershed could sustain a “working landscape” that included non renewable industrial development in some places, but not everywhere. Access routes had to be provided for the working landscape.
- Some key environments, such as riparian corridors, key wildlife habitats and wetlands, and culturally important areas required strong protection.



- Maintaining ecosystem integrity, conserving migratory species, keeping wilderness character, and respecting First Nation values, required a large, contiguous conservation zone. Existing mineral claims in most of this area would be respected. Exploration and development of claims could occur and overland access could be provided with the strict proviso that the land would be restored so that it could recover to its former state. In effect, this is a *temporary* working landscape.
- The conservation zone should be withdrawn from further staking right away, as mining development is understood to erode the conservation values integral to this zone. Restoration requirements would be stringent, bondable, and enforced.

Our aim all along has been to achieve our Statement of Intent and our Terms of Reference. We think this plan largely accomplishes this. It provides for a full suite of economic activities and it preserves wilderness character throughout a crucial core area of the planning region. The management regime for the conservation zone is practical. It makes plain that conservation is the priority, but it does not preclude *temporary* development that is significant enough to pay its own ecological bills, which are the costs of full restoration.

This plan is not rigid. Through a plan review, the people of the Yukon can choose to remove selected lands from the conservation zone – and the plan provides an avenue for returning these lands to conservation management when they are restored. Our Statement of Intent calls for maintaining wilderness characteristics *over time*.

Operating in the Conservation zone – the temporary working landscape – would require a new way of doing business.

Is this strict? Yes.  
Expensive? Probably.  
Difficult? Most certainly.

But we suggest that the importance of maintaining the Peel country *as it is* for future generations makes this an acceptable cost of doing business. First Nations, area residents, Yukoners, and other Canadians expect and deserve our best efforts. This plan is fair, workable, conservative, and responsible.

We thank you for the honor of working on this Plan.

Peel Watershed Planning Commission

Albert Genier  
Peter Kaye

Marvin Frost  
Steve Taylor

Ray Hayes  
David Loeks

April 7, 2009

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## List of Acronyms

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<b>ANWR</b>	Arctic National Wildlife Refuge
<b>BMPs</b>	Best Management Practices
<b>CA</b>	Community Area
<b>GTC</b>	Gwich'in Tribal Council
<b>HPA</b>	Habitat Protection Area
<b>IMZ</b>	Integrated Management Zone
<b>ISR</b>	Inuvialuit Settlement Region
<b>LMU</b>	Land Management Unit
<b>NND</b>	First Nation of Na-cho Nyak Dun
<b>NYPC</b>	North Yukon Planning Commission
<b>NYRRC</b>	North Yukon Renewable Resources Council
<b>PA</b>	Protected Area
<b>PCMB</b>	Porcupine Caribou Management Board
<b>PWPC</b>	Peel Watershed Planning Commission
<b>PWPR</b>	Peel Watershed Planning Region
<b>PW-RLUP</b>	Peel Watershed Regional Land Use Plan
<b>SARA</b>	Species at Risk Act
<b>SMA</b>	Special Management Area
<b>TGFN</b>	Tetlit Gwich'in First Nation
<b>THFN</b>	Tr'ondek Hwech'in First Nation
<b>VG</b>	Vuntut Gwitchin
<b>VGFN</b>	Vuntut Gwitchin First Nation
<b>VGG</b>	Vuntut Gwitchin Government
<b>YESAA</b>	Yukon Environmental and Socio-Economic Assessment Act
<b>YESAB</b>	Yukon Environmental and Socio-Economic Assessment Board
<b>YG</b>	Yukon Government
<b>YLUPC</b>	Yukon Land Use Planning Council

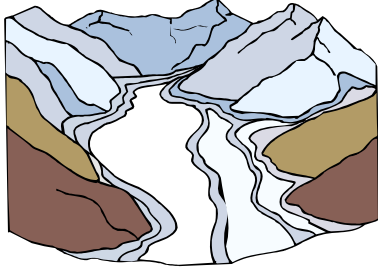
## Understanding the Plan

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A guide to using this land use plan is provided below.

STEP 1	Determine project location or area of interest
<p>Refer to Map 1, Appendix A.</p> <ul style="list-style-type: none"> <li>Is the project location or area of interest in the planning region?</li> <li>If in region, what landscape management unit does it occur within?</li> </ul>	
STEP 2	Understand land-use management framework, and determine broad management intent for landscape management units
<p>Refer to Map 2, Appendix A for proposed land use categories and zones (land use designation).</p> <ul style="list-style-type: none"> <li>Refer to Section 3 understanding of land-use management framework, and Section 4 for description of land use categories and zones (land use designation).</li> </ul>	
STEP 3	Determine what values might be affected
<p>Refer to Maps 3-5, Appendix A for map information on identified resource values, ecologically-important areas, heritage/cultural areas, and economic development potential</p> <ul style="list-style-type: none"> <li>Refer to Section 6 for descriptions of identified values and special considerations.</li> </ul>	
STEP 4	Determine management direction for identified values or issues within areas of interest
<ul style="list-style-type: none"> <li>Refer to Section 5 for management direction regarding identified values or issues.</li> <li>Refer to Section 6 for specific management issues and considerations within the area of interest (landscape management unit).</li> </ul>	
STEP 5	Determine other management direction, if required
<ul style="list-style-type: none"> <li>Refer to Appendix D for other management plans.</li> </ul>	

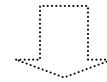
## Understanding Key Concepts of Land Use Management



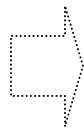
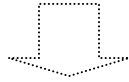
**Step I** – Understand the environment & resources, and define the areas you want to manage within the region (Ecosystem Values, Resource Values, and The Landscape Management Units)



**Step II** – Understand what people/resource users think are the issues are and what the value (Interests and Issues, Public Consultation Input)



**Step III** – Figure out how the landscape can be sustainably managed for a balance of interests and restored in the future. (The Land Use Management Tools/Framework: Mgt Directions, Strategies)



**Step V** – Implementing the Plan, Monitor and Respond to Societal and Ecological Change (Implementation Framework)



**Step IV** – Make choices to address the issues, and build capacity (Policy Development, Research Recommendations)

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# 1. Introduction

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## 1.1 Mandate and Context

Under the mandate of Chapter 11 of the Umbrella Final Agreement (UFA), the Peel Watershed Planning Commission (PWPC) is responsible for developing and recommending a regional land use plan for the Peel Watershed Planning Region – hereafter referred to as the Peel Watershed Regional Land Use Plan (PWRLUP). The PWPC is an arm's-length commission with members who are jointly nominated by the Yukon Government, Na-Cho Nyak Dun, Tr'ondëk Hwëch'in, Gwich'in Tribal Council, and Vuntut Gwitchin governments (Plan Parties). The primary purpose of the Plan is to achieve a higher level of land-use certainty for all resource users than the Commission believes exists under the current regime of site specific land use management. Most significantly, the existing system does not necessarily consider cumulative environmental and social impacts created by multiple uses in a region.

The PWRLUP will apply to all settlement and non-settlement lands in the planning region. The target period of application for the Plan is approximately 10-15 years, with at least one opportunity for review during this period. The Commission has also offered various recommendations for Plan implementation, including new special management area designations, supplementary environmental and socio-economic research, and enhanced decision-making mechanisms,

This Draft Plan has been built upon a solid foundation of research and planning, including: (i) baseline research (conservation priorities and resource assessments), (ii) consultation activities (public, stakeholder, and First Nations), and (iii) in-house analytical work that builds upon the Terms of Reference objectives, Statement of Intent, Plan Principles, and Methodology reports (Guiding Documents)

Key documents used as a foundation for Plan development include the Resource Assessment Report (PWPC 2008), Conservation Priorities Assessment Report (PWPC 2008), and a variety of commissioned research. Using this baseline of information, along with the consultation input it has received throughout the planning process, the Commission has focused on the following considerations for both settlement and non-settlement lands in the planning region:

- the nature, form, and extent of key resource values;
- accommodation of existing resource uses (traditional, commercial, and non-commercial)
- known government resource-use policy;
- ecosystem sensitivity (land, water, wildlife, fish, and vegetation);
- legal framework of resource tenures;
- potential for expansion of existing and, potentially, new sustainable resource uses;
- present and future land-use compatibility; and,
- appropriate types of monitoring tools that can be used to guide an acceptable limit of land-use change.



## 1.2 The Commission's Terms of Reference

The Peel Watershed regional planning process is intended to achieve the following goals and objectives, as described in the UFA and as articulated in the Commission's Terms of Reference:

- promote the well-being of the affected First Nations, other residents of the planning region, the communities, and the Yukon as a whole, while having regard to the interest of other Canadians (UFA 11.4.5.7);
- recommend measures to minimize actual or potential land-use conflicts throughout the planning region (UFA 11.4.5.4);
- recognize and promote the cultural values of the affected First Nations and other affected Yukon Indian People (UFA 11.1.1.3);
- ensure that social, cultural, economic, and environmental policies are applied to the management, protection, and use of land, water, and resources in an integrated and coordinated manner so as to ensure sustainable development (UFA 11.1.1.6);
- promote sustainable development (UFA 11.4.5.9);
- take into account that the management of land, water, and resources, including fish, wildlife, and their habitats, is to be integrated (UFA 11.4.5.8);\
- provide for enhanced opportunities to have ongoing co-operative land-use planning activities between the Peel Watershed Planning Commission and the Gwich'in Land Use Planning Board. (7.1.3, GCLCA). Any Regional Land Use Planning Commission, or other planning agency described in (7.1.1, GCLCA), shall consult with the Gwich'in Land Use Planning Board in order to make use of planning that has been done with respect to the Peel River watershed by the Mackenzie Delta Beaufort Sea Land Use Planning Commission, and to discuss ongoing co-operative land-use planning activities
- recognize all economic potential of the planning region, including, but not limited to subsurface resources.

### 1.3 The Commission's Statement of Intent

To guide preparation of the Land Use Plan, the Commission prepared a Statement of Intent in 2006 — which the Parties reviewed, and subsequently made public — to make clear how the PWPC would proceed in developing its Draft Plan:

The goal of the Peel Watershed Regional Land Use Plan is to ensure wilderness<sup>1</sup> characteristics, wildlife and their habitats, cultural resources, and waters are maintained over time while managing resource use. These uses include, but are not limited to, traditional use, trapping, recreation, outfitting, wilderness tourism, subsistence harvesting, and the exploration and development of non-renewable resources. Achieving this goal requires managing development at a pace and scale that maintains ecological integrity<sup>2</sup>. The long-term objective is to return all lands to their natural state<sup>3</sup>.

### 1.4 Scope of the Plan

It is important to understand both what a regional land use plan is and what it is not:

- A regional land use plan is a collective statement about how we want land and resources to be managed within a given area. It provides guidance for land and resource decision making and helps us achieve the kind of future we want to see.
- This regional land use plan, however, is not a legal document. It does not replace existing legislation. Neither does it affect First Nation rights as established by land claim agreements and constitutional law.
- The Plan applies only to the Peel Watershed Planning Region (Figure 1.1). It provides management direction for all Yukon non-settlement lands and all First Nation settlement lands.

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<sup>1</sup> **Wilderness** is defined as: any area in a largely natural condition in which ecosystem processes are largely unaltered by human activity or in which human activity has been limited to developments or activities that do not significantly modify the environment, and includes an area restored to a largely natural condition. (Yukon Environment Act)

<sup>2</sup> **Ecological integrity** is defined as: a concept that expresses the degree to which the physical, chemical, and biological components (including composition, structure, and process) of an ecosystem and their relationships are present, functioning, and capable of self-renewal. Ecological integrity implies the presence of appropriate species, populations, and communities, and the occurrence of ecological processes at appropriate rates and scales as well as the environmental conditions that support these taxa and processes. (U.S. National Park Service)

<sup>3</sup> **Natural state** in this context refers to terrestrial conditions and is elaborated in the surface disturbances discussion in section 5.2.1 e.g., *A human-caused surface disturbance is considered recovered, or returned to its natural state, when it no longer facilitates travel or access by wildlife and people, when increased run-off and sediment loading is no longer significant, and when its contours roughly match the original contours.*

## 1.5 Plan Principles

### Plan Principles That Underlie the Peel Watershed Land Use Plan

There are five guiding principles that underlie development and recommendation of the Peel Watershed Regional Land Use Plan.

#### *Independence and Impartiality*

As an independent, public agency appointed to represent the best interests of Yukon people, the Planning Commission will carefully consider any and all information, advice, or recommendations provided to it by any government, agency, or the public in a balanced and neutral manner for preparation and recommendation of this Land Use Plan consistent with its Terms of Reference and expectations of the UFA (11.4.0 to 11.7.0 incl.)

#### *Sustainable Development*

The core principle that guides the Plan is sustainable development, as defined in the UFA: “Beneficial socio-economic change that does not undermine the ecological and social systems upon which communities and societies are dependent.” (UFA, p.7, 11.4.5.9).

This includes a commitment to the practice of integrated resource management (UFA, 11.4.5.8, 11.2.1.2), so that the Plan “...ensures that social, cultural, economic and environmental policies are applied to the management, protection and use of land, water and resources in an integrated and coordinated manner so as to ensure sustainable development” (UFA, 11.1.1.6).

#### *First Nations Traditional and Community Resource Use*

The plan will promote the interests, rights, and responsibilities of the Tettit Gwich'in, Nacho Nyak Dun, Tr'ondëk Hwëch'in, and Vuntut Gwitchin with respect to the conservation and use of their traditional territories for country food harvest, promotion of a renewable resource economy, or other purpose as they may decide for settlement lands (UFA, 16.1.1.1, 5.4.9, 12.1.1.1)

#### *Conservation*

The plan proposes to manage fish and wildlife habitats and water resources using the conservation principle as defined and specified in the Umbrella Final Agreement: “*The management of Fish and Wildlife populations and habitats and the regulation of users to ensure the quality, diversity and Long Term Optimum Productivity of Fish and Wildlife populations, with the primary goal of ensuring a sustainable harvest and its proper utilization*” (UFA, p.1).

### ***Adaptive Management***

The Plan is a living document. In accordance with the intent of UFA 11.2.1.3 – 11.2.1.5, the Plan will be reviewed, monitored and updated in response to changing land-use and/or environmental conditions, or as better information becomes available. Adaptive Management means we must: *“Look, learn and adjust as required.”* It requires that those implementing the plan learn and adapt as their information improves.

### ***Precautionary Principle***

The Plan recognizes that the Peel Watershed is an intact ecosystem, the need to consider potential impacts before making resource decisions, and, in particular, the need to recognize and enhance, to the extent practicable, the livelihood of First Nations and their relationship to the wilderness environment (12.1.1.1). A lack of conclusive scientific evidence does not justify inaction on managing the environment, particularly when the consequences of inaction may be undesirable, or when the costs of action are negligible. (International Institute for Sustainable Development).

## **1.6 Key Land-Use Management Issues**

Affected First Nations and the general public expressed strong desire for a land use plan that will ensure respect for the land while allowing for future sustainable and compatible-use opportunities. Governments and industry asked for a plan that would ensure certainty and flexibility with respect to broad societal goals for sustainable development. This Plan aims to satisfy those desires by shaping land use in the region within a framework of ecosystem sustainability that protects valued cultural and ecological resources while facilitating a limited degree of access for economic development.

Along with existing Final Agreements of the First Nations, and the Umbrella Final Agreement, this Plan makes an important contribution to ensuring regional conservation measures are in place prior to permitting an increase in land-use activity level. A number of existing economic development plans, land disposition systems (e.g., Yukon oil and gas disposition process), and the Territory’s project assessment process (YESAB) will benefit from guidance provided by this Plan.

Land-use interests in the Peel region span a history from pre-contact to modern day. Research has shown that First Nations people of the Peel Watershed region have long utilized the water, wildlife, fish, and plant resources of the region and they continue to rely on these resources today. They have also indicated that their culture and traditional economy in the future depends upon a healthy environment and people’s connection with the land.

Renewable resource businesses have also long utilized the area for a range of tourism-related activities. This sector places special emphasis on maintaining the Peel’s existing landscapes for their ecological, cultural, and aesthetic values, which many industry representatives claim are essential to maintain both present, and long-term economic certainty. Similar perspectives have been expressed by the general public, recreational users, and the conservation community, who also regard a large part of the Peel region as a globally significant ecosystem with intrinsic value.

The non-renewable industry sector (oil & gas, mining) similarly regards the Peel from a landscape perspective – a working landscape, throughout which there is need to ensure access for resource

exploration and development. The sector is confident this can be done through existing regulatory processes, and by applying best management practices in a way that does not compromise ecological, social, or cultural values.

A major challenge for the Commission has been to determine what management challenges exist in trying to accommodate the greatest possible range of land use, given what it knows of ecosystem sensitivities and public interests in the land base.

### **Clarifying Issues and Providing Direction**

In trying to consider land-use management issues and options as fully as possible, the Commission has consulted at length with the general public, local communities, First Nations, Yukon government, UFA agencies, and stakeholder organizations. Based upon this input, it has endeavoured to adopt *a precautionary approach* that takes into account our current understanding of resource values, public interests, legal considerations, and future ability to enable regional land-use adaptation. While other regions of the Yukon may have a higher degree of resilience for adaptive change, conservation priority research and consultations in the Peel Watershed planning process indicate that the Peel region has many unique landscape and ecosystem features (hydrology, fish & wildlife habitats/corridors, terrain features) that will influence decision making about acceptable land-use change. Such opinions have been expressed by experts from First Nations, government and non-government sectors both within the Yukon, and beyond its borders.

After its iterative process of planning and consultation, the Commission is confident that the proposed Land Use Plan framework (including the land-use designation system, land-use management units, and management directions/strategies) provides an effective and objective foundation for enabling both ongoing land-use management and future Plan review/adaptation. Given the status of ecosystem knowledge (e.g., focal fish and wildlife species distributions, hydrology) and understanding of potential risk to key resource values, the Commission recognizes that the various proposed results-based monitoring tools and indicators presented in this Plan will evolve in their utility for guiding decisions to achieve acceptable limits to change. For example, it is known (from the North Yukon Land Use Plan) that managing for surface disturbance is a useful measure to indicate risk to Porcupine caribou habitat or movements in areas affected by oil & gas development, however this indicator has little utility in mountainous areas (river corridors). In such areas, other tools such as stream crossing density and linear density are more likely to inform regulators whether there may be an increased risk from increased access.

**The Key Issues:** Plan partners and stakeholders identified five major planning issues of both short-term and long-term importance to the Peel Watershed Planning Region:

#### ***Coordinated management for land-use certainty***

A priority issue for land-use management in the planning region is lack of certainty for resource use when considering existing land use, resource potential, market trends and general economic conditions. The Plan strives to provide this certainty, first in the application of key planning principles such as adaptive management and precautionary decision making, and then in the form of recommended general management directions, objectives and strategies for designated land-use management units. In addition, it proposes a set of recommendations to facilitate Plan implementation, including further research,

policy/regulatory development, and land-use management process. As a living document, it is anticipated that future Plan reviews may bring into focus new information and directions that will further shape regional land-use management and economic development.

### ***Management of aquatic resources***

Given that the entire region is defined within the major watershed boundary of the upper Peel River basin, with its subsequent flow into the Mackenzie River basin, aquatic resource management is a priority issue. Special emphasis has been placed, therefore, on water quality and supply protection. Wetlands, lakes, rivers, and riparian environments are biologically productive areas that hold many of the heritage, cultural, and ecological values of the region. Future land-use activities, particularly industrial uses, require special management to minimize impacts on these values and to ensure maintenance of ecosystem function.

### ***Management of terrestrial resources***

First Nation communities of the Peel region are particularly concerned about immediate and long-term conservation of the Porcupine caribou herd over its entire seasonal range, particularly in the light of trends in population dynamics and perceived changes to habitat from climate change. The Commission has been told that First Nation culture, traditional values, and subsistence economy depend upon continued access to and utilization of a healthy Porcupine caribou herd. Others have expressed concern about northern mountain caribou species (Bonnet Plume, Hart River, and Red Stone populations), migratory fish, and other focal species that require special management. Addressing this issue requires effective and practical resource policies, land-use designations, and management strategies that are also consistent with the fish and wildlife management plans of all relevant governments, and agencies.

### ***Access planning for responsible resource development***

Preserving the wilderness character and ecosystem integrity of the Peel watershed requires thorough and effective planning to manage for both existing access, and any designation of future access to surface and subsurface resources. Issues concerning maintenance of wilderness experience, public/private cost accountability, environmental risk assessment, and information gap analysis all point to a need to apply the precautionary and adaptive management principles in considering future industrial land use throughout the Peel region.

### ***Current and potential economic activity***

Resource Assessments for the Peel region indicate significant economic flows from well-established renewable and non-renewable resource industries. In addition, the region supports a subsistence economy for First Nations and other local resource harvesters. A key issue has been to determine how to manage the greatest possible range of commercial activity in an environmentally sustainable manner that supports existing business operations, considers legal interests of resource tenure, and provides some degree of certainty to capture potential economic benefits.

## 1.7 Management Goals To Achieve Desired Future State

The underlying principle of sustainable development is expressed in the Plan in a set of seven goals that address economic, social, and ecological considerations, and are further referenced throughout the remainder of the Plan.

### Goal 1

*Coordinated Land-Use Management:* Promote plan principles by ensuring social, cultural, economic, and environmental policies are applied to the management, protection, and use of land, water, and resources in an integrated and coordinated manner.

### Goal 2

*Aquatic Resources:* Provide for the management, protection, and use of water and related ecosystems and the species (fish, waterbirds) they support.

### Goal 3

*Terrestrial Resources:* Provide for the management, protection, and use of land and related ecosystems and the species they support.

### Goal 4

*Special Features Management:* Promote long-term ecological integrity of sensitive terrain, unique landforms and significant biophysical features.

### Goal 5

*Heritage Conservation:* Recognize, conserve, and promote the heritage and cultural resources, and values of affected First Nations and the Yukon.

### Goal 6

*Access Management and Planning:* Access managed to respect ecological, cultural heritage, and wilderness values of the areas while providing for the full range of user needs as deemed compatible for specific sustainable development opportunities.

### Goal 7

*Current and Potential Economic Activity:* Facilitate ecologically-sustainable opportunities and activities that result in socio-economic benefits to the affected First Nations, northern communities, and the Yukon as a whole.

## 1.8 Linkages to Other Plans

Every effort was made in the Draft Plan to achieve consistency in the PWPC's approach to other land-use and resource management plans that relate directly to lands within the Peel region (see also Appendix D). During the Scenario Options phase, the PWPC undertook consultations and reviewed other existing land use plans relevant to the Peel planning region. These include the work of the North Yukon Planning Commission, the Mackenzie River Basin Board, the Gwich'in Planning Board, and certain UFA boards including The Porcupine Caribou Management Board, Renewable Resource Councils and Yukon Fish and Wildlife Management Board. The Commission has undertaken the following with respect to key plans:

- Reviewed the plan concepts and land-use designation framework developed in the North Yukon Regional Plan to achieve consistency in land-use management objectives and applicability of planning approaches and tools. This includes use of select cumulative-effects indicators for application in the Peel region (e.g., managing surface disturbance impacts on Porcupine caribou in the Richardson Mountains, Eagle Plains, Peel Plateau, and common land-use strategies in the Dempster Corridor).
- Reviewed the plan concepts and land-use designation framework used in the Gwich'in Land Use Plan and, based upon the advice of the Gwich'in Planning Board, proposed complementary zoning for linking shared-boundary landscape units:
  - Richardson Mountains link to Conservation Zones (James Creek-Vittrekwa River) for both Porcupine caribou, and critical fish habitat (char), respectively;
  - protected and conservation areas designation in the headwaters of the Snake River to complement the objectives for water quality protection, and sheep habitat management in the Arctic Red River Headwaters Special Management Zone;
  - designation of an Integrated Management Area (comparable to adjacent General Use Zone), which provides for a sustainable level of industrial activity, such as oil & gas exploration and drilling, and possible north access to the Crest iron-ore deposit.
- Reviewed the Yukon-Northwest Territories River Basin Transboundary Water Management Agreement and recommendations of the Peel River Watershed Advisory Committee and the Mackenzie Basin Board regarding land-use planning, transboundary water management, and special management of water resources. The Draft Plan seeks to achieve consistency on water management indicators, including:
  - need to sustain existing in-stream uses to appropriate level of activity, including river tourism, outfitting, subsistence fish harvest, and river crossings;
  - support role of community Renewable Resource Boards and the federal Department of Fisheries and Oceans in undertaking traditional knowledge research of aquatic species and habitats, and in setting allowable harvests, licensing of sport and commercial fishers, and other studies of fish stocks;



- continued water monitoring for sustained flow and quality (to maintain natural conditions for sediment load and associated bound metals);
  - support for Tetlit Gwich'in First Nation subsistence fish harvest, including char and Rat River Dolly Varden.
- Considered Tombstone Park Management Plan objectives and directions provided on bordering lands within the Peel Region to emphasize community cultural-use priorities, access management controls for off-road vehicles along the Hart Trail Winter Road, and community development linkages to support other Tr'ondëk Hwëch'in economic development objectives for tourism.
- Reviewed Silver Trail Region Tourism Plan (1998) with its goals to improve and expand regional tourism attractions, products, and services (adventure, cultural, and historical tourism) within the Silver Trail tourism region, which encompasses the Hart, Wind, Bonnet Plume, Snake, and Peel river watersheds, and includes involvement of the Nacho Nyak Dun, the Village of Mayo, and the communities of Elsa/Keno City and Stewart Crossing. Additional reference is made in the Klondike Region Tourism Marketing Strategy to wilderness and other fly-drive tourism opportunities within the Peel region, including the Dempster Highway.

## 2. Description of Planning Region

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### 2.1 Setting

The Peel Watershed Planning Region, shown in Figure 2.1, represents about 14% of Yukon. At about 68,000 square kilometres, the region is almost the size of Ireland. The Region encompasses overlapping traditional territories of the Tetlit Gwich'in, Nacho Nyak Dun, Tr'ondëk Hwëch'in, and Vuntut Gwitchin First Nations. There is one major all-season road, the Dempster Highway. This region is the only planning region in the Yukon without any permanent settlements, though there are scattered seasonal inhabitants along the Dempster Highway in semi-permanent big game outfitting base-camps, scattered trappers' cabins, and temporary mineral exploration camps.

Land and resource management in the planning region is shared among governments, other agencies, and land claim boards. The Yukon manages non-settlement lands (both surface and subsurface rights) totaling 97.3% of the region. The Tetlit Gwich'in First Nation owns 11 blocks of fee-simple settlement land – with surface rights only – and 14 smaller site-specific settlement lands. These lands represent 2.32% of the Region. The Nacho Nyak Dun hold 25 site-specific settlement lands and one category-A R-Block – with surface and subsurface rights – accounting for 0.38% of the Region. The Tr'ondëk Hwëch'in and Vuntut Gwitchin hold much smaller amounts of settlement land. The Tr'ondëk Hwëch'in have 8 site-specific blocks and two category-B R-Blocks (surface rights only) totaling less than 0.01% of the Region, and the Vuntut Gwitchin have two site-specific blocks along the Dempster Highway. As of 2008, there is no private land ownership in the Peel Watershed Planning Region.

The Peel Watershed Planning Region includes the Bonnet Plume River, a Canadian Heritage River. This designation recommends a “higher duty of care” for this watershed, but does not have any legislative power. While no lands in the Region are managed with a conservation focus, several areas in adjacent jurisdictions are managed in this way. The Rat River and James Creek-Vittrekwa River Gwich'in Conservation Zones in NWT are located to the north, the Gwich'in General Management Area lies to the east, and further south can be found the Arctic Red River Headwaters Special Management Zone. Tombstone Territorial Park abuts the Region to the southwest. The Rock River – Mount Joyal Integrated Management Zone of the North Yukon Planning Commission, which abuts the Region to the northwest, carries a recommendation for a low level of development only.

The regional context also relates to planning for resource development. This includes the eastern Gwich'in General Management Area, which provides for a range of industrial development activities (e.g., oil & gas, mining). Similar provisions apply to North Yukon Region's Integrated Management Area designation (Class III & IV) for areas to the northwest of the Peel planning region.

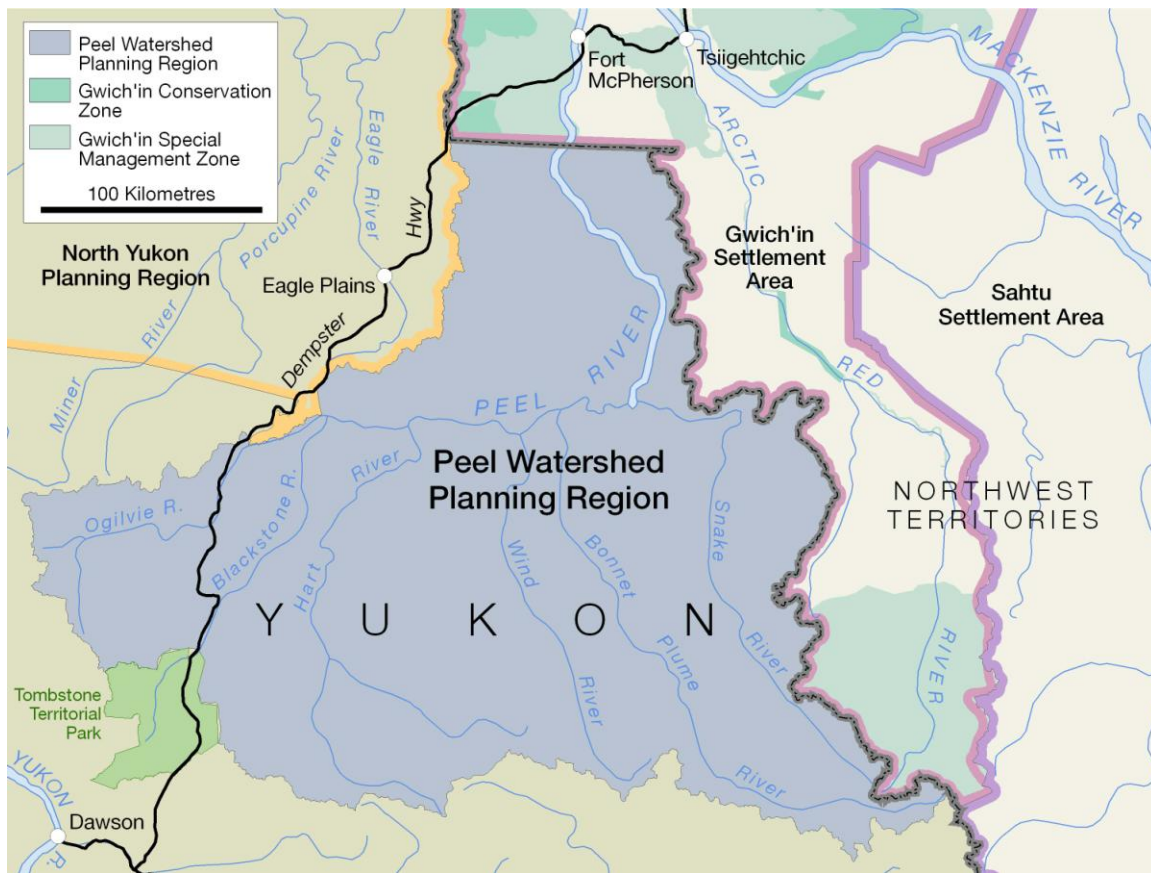


Figure 2.1. Overview of Peel Watershed Planning Region.

## 2.2 Environment

The region lies at the eastern-most edge of Beringia, an area extending from Yukon to Siberia. For almost two million years, Beringia remained free of glaciers, providing a refuge for plants, animals, and some of the first people of North America. These ice-free conditions left a legacy of unaltered landscapes and unusual plant populations in the western half of the planning region.

The Peel Watershed Planning Region has a very cold and dry climate owing to its northerly latitude and to the rain-shadow effect of the Ogilvie, Wernecke and Selwyn mountains on its southern limit. Low-stature spruce forests, shrub and tundra vegetation underlain with permafrost, and scattered wetlands characterize low-to-mid-elevation areas of low relief. High-elevation mountain ranges contain extensive areas of rock and sparse vegetation. Large tributaries to the Peel River are often flanked by gravel bars, shrubs, and older stands of large white spruce. Rivers experience very low winter flows and dramatic variations in the summer. Available water flow rates and storage capacity may be inadequate to support industrial activities during the winter months.

The region contains portions of six distinct ecoregions, including Fort McPherson Plain, Peel River Plateau, Eagle Plains, North Ogilvie Mountains, British-Richardson

Mountains, and Mackenzie Mountains. Elevation ranges from almost 0 to 2,700 metres above sea level. With a few very small exceptions in the Richardson Mountains, the entire region is within the Peel watershed. However, there are two notable portions of the Peel Watershed located outside the planning region: a portion of Tombstone Territorial Park, and an R-Block (VG R-08A) where the Dempster Highway leaves the Ogilvie River heading north.

## **2.3 People**

Parts of the Traditional Territories of the four participating First Nations are situated within the planning region. Historically, the people of these First Nations lived in and traveled throughout what they also describe as homelands. There are no settlements within the region today, but the region is the seasonal home of subsistence hunters and fishers, trappers, highway maintenance personnel, and big game outfitters. Wilderness tourists, Dempster Highway tourists, geologists, prospectors, and drillers also spend time in the region. The nearest settlements are Keno, Mayo, Dawson City, and Fort McPherson.

## **2.4 Economy**

Historically, the Peel region has played a vital role in supporting the traditional, subsistence economy of the region's First Nation people. Although there is less reliance today on the harvest of wild game, plants, and medicines, this Plan gives special consideration to First Nations' long-term interest in maintaining these traditional harvest activities throughout the Peel region. Other commercial activities that have long contributed to both the local and Yukon economy include both renewable, surface uses (trapping, guide/outfitting, wilderness eco-tourism, outdoor recreation) and non-renewable subsurface uses (mineral and gas exploration).

The regional economy is a mixed economy, in which traditional subsistence harvesting and wage-based activities co-exist. Subsistence hunting, gathering, and trapping are still very important economic and cultural activities to residents of Mayo, Keno City, Dawson City, Fort McPherson, and Old Crow. These communities also express interest in maintaining a viable degree of participation in the wage economy.

While some data exists to show significant economic flows within the Peel region, no concrete determination has yet been made by sector organizations or government regarding the actual total economic impact (direct, indirect, and induced) including benefits from employment, government revenues, and business spin-off. Renewable resource sector proponents and individual firms have clearly articulated that new permanent access and development would potentially have a negative economic impact on those industries, due to the perceived loss of the "intact wilderness" experience. According to industry representatives, wilderness and scenic features are highly valued as an international tourism product by both government, and industry representatives. Similarly, the mineral sector (industry representatives and individual firms) has expressed strong concerns about the need to maintain access to existing claims and provide for

access to explore and develop those mineral resources. Of notable interest is the potential economic viability of the Crest iron-ore deposit.

To date, there has not been a detailed economic analysis of all sectors in the context of the planning region, thus making direct comparisons difficult. It is recommended that this work be undertaken co-operatively as soon as possible by government and industry representatives, according to a mutually-agreed methodology (e.g., Multiple Accounts Assessment, to capture both private and public-sector revenues). Several sectors have significant economic interests in the planning region, including transportation, tourism (“rubber tire tourism” on the Dempster Highway, and “wilderness-based tourism”), mineral exploration, oil and gas exploration, trapping, and big game outfitting. There is no agriculture or commercial forestry, although some limited, community-based forestry occurs in the north end of the planning region.

Major economic sectors are discussed briefly below.

#### **2.4.1. Transportation**

The Dempster Highway connects southern Yukon and Canada to the Mackenzie Delta communities of the Northwest Territories (NWT) and passes through the western portion of the planning region. Regular scheduled air service facilitates the transport of goods and people between Old Crow, Dawson, Inuvik, and Whitehorse. The Dempster Highway corridor is also the potential route for future pipeline, telecommunications, or other linear infrastructure. Related uses that might be situated off the Highway Right-of-Way include gravel pits or highway maintenance stations. Other historical transportation routes include the Wind River Trail and the Hart River Winter Road, providing access to mineral exploration properties in the Mackenzie Mountains and Hart River headwaters, respectively. Another winter access road goes to the historic J-21 gas well in the Peel plateau. Other exploration trails are now largely overgrown with vegetation.

Air travel in the region includes frequent chartered flights to various land airstrips, and float-plane charters to several lakes or the larger river landing sites in the planning region. Major rivers provide summer and winter travel routes for local residents and tourists seeking wilderness recreation. Local residents use many trails and routes for subsistence harvest, travel between communities, and other cultural activities.

#### **2.4.2. Tourism**

The Peel watershed is a valuable region for Yukon tourism largely because of its wilderness character. The Dempster Highway, considered by many to be one of the few remaining “wilderness highways” in the north, draws increasing numbers of tourists interested in road-accessible activities and scenery. These visitors are drawn to the unique landscapes, wildlife viewing, photography, viewsapes, hiking, birdwatching, and road-accessible wilderness rivers (e.g. The Blackstone and Ogilvie Rivers) of the region. The portion of the region outside of the highway corridor is of territorial and international significance to the wilderness tourism sector, and supports approximately 20 operations (guides, transport and expeditors) that are mostly Yukon-based businesses.

According to both government and industry sources, the Snake, Wind, Bonnet Plume and Hart River watersheds within the Southern Mackenzie Range represent together the largest intact, remote wilderness areas in the Yukon and North America. This landscape is traversed by challenging but navigable rivers with an international reputation for world-class river travel. Other popular activities related to river tours are hiking, horseback riding, wildlife viewing, birdwatching, fishing, photography and nature study. The Peel region-based river-based tourism in this region has been generated in the range of \$3.67 million for the period 2001-2006 (Earle, 2008). The region has excellent potential for managed growth of wilderness adventure and eco-tourism products, and further potential for development of First Nation cultural tourism product. Industry and government representatives indicate that current and future tourism activities depend upon the maintenance of wilderness and wildlife values as the foundation for high quality, sustainable tourism products and services.

#### **2.4.3. Big Game Outfitting**

Big game outfitting has been an economic generator in the Peel watershed for decades. In order to be economically viable and ecologically sustainable, the industry requires large intact wilderness and healthy wildlife populations. The Peel watershed represents some of North America's highest quality big game hunting opportunities. There are six outfitting concessions in the PWPR. Sport hunting products focus primarily on hunting of Dall sheep, grizzly bear, caribou, and moose. Other products offered by guide outfitters include: horseback riding, birdwatching, and wildlife viewing. Most excursions are accessed by float plane, with overland transportation by horseback or by foot. Big game outfitting activities and their associated concessions are generally located in the southern half of the PWPR. A conservative estimate of \$12-18 million direct revenues were generated in the period 2001-06, based upon information provided by Peel region outfitters.

#### **2.4.4. Oil and Gas**

Oil and gas exploration activity in the Peel watershed has been low since its initial surge in the early 1960s. The region contains a significant portion of Yukon's total estimated natural gas and oil potential in four petroleum basins. The Eagle Plains basin, which contains proven reserves, is the basin most likely to be developed first in northern Yukon, given its proximity to gas fields off the Dempster Highway. In the small portion of this basin that extends into the planning region, there are two exploration permits and eight significant discovery licenses held by Northern Cross (Yukon) Ltd. It is thought that this basin has substantial natural gas potential and moderate oil potential. The Peel Plateau and Plain Basin has the potential to be economically viable for natural gas development. Such development would most likely begin well after that of Eagle Plains. Only one exploration license, belonging to AustroCan Petroleum Corp., exists in the Yukon portion of this basin. The remaining two basins, the Kandik and Bonnet Plume, are the least likely to be developed in the foreseeable future, owing to their limited exploration history and remoteness. Lack of pipeline infrastructure is a major barrier to developing the natural gas resource of this region.

### **2.4.5. Mining**

Though mineral development has not yet occurred in the region, interest in mineral exploration has increased in the last few years. Much of the planning region remains inadequately explored. There are approximately 219 known mineral occurrences and 13 known deposits in the Peel watershed. There are two mineral deposit-types of significant economic size: the Crest iron deposit and the Bonnet Plume coal deposits. Both these deposits would require significant transportation infrastructure (e.g., railway and/or slurry pipeline) for them to be exploited. Indeed, mineral development in the planning region would face many challenges: lack of infrastructure, costly infrastructure, remote location, rugged terrain, and lack of water at upper elevations and during the winter. However, these challenges may not be insurmountable given a sufficiently high market price for the targeted commodity. A large portion of the region is considered to have high potential for mineral resources, and has received an increase in interest from exploration companies in recent years. A total of 11,275 active quartz claims and 525 active iron-mica claims exist in the region as of February, 2009, representing a seven-fold increase since establishment of the planning region in the fall of 2004<sup>1</sup>. There are nine active coal licenses. Based upon government analyses, the industry spent an average of \$6 million per year in mineral exploration expenditures during the period from 2000-2008 (YEMR, 2009).

### **2.4.6. Trapping**

Trapping provides self-employment opportunities for area residents and is a cultural tradition valued by First Nations. The entire Peel Watershed Planning Region is occupied by trapping concessions. There are 28 concessions permitting the exclusive rights to harvest furbearing animals to an individual. Not all these concessions may be active. In addition, Tethit Gwich'in and Vuntut Gwitchin First Nations each have their own larger group area concessions, which permit exclusive harvesting rights to their members.

### **2.4.7. Aggregate (gravel)**

Aggregate is an important resource for the maintenance of the Dempster Highway. Large amounts of gravel may be required to support future industrial activity. In Beringian portions of the Peel Watershed Planning Region, there are thought to be relatively few gravel deposits compared to many other areas of western Canada, largely due to lack of glaciation. From preliminary assessments by the Geological Survey of Canada, however, the central and lower Peel region appears to have sufficient aggregate-bearing formations. A detailed inventory of aggregate resources is currently underway in the region. Crushed rock can be used in place of gravel, though for a higher cost.

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<sup>1</sup>Based on public quartz claims data base (Min\_qclaims\_20090209.shp) using October 15<sup>th</sup>, 2004 as the PWPC start date.

### **2.4.8. Forest Resources**

Due to the sub-arctic location of the Peel watershed, the majority of forest growth is found on alluvial soils in the major river valleys. Part of the planning region in the southwest section is within an established forest management planning area (as set out in UFA, Chap. 17) and was identified by the Forest Management Planning Committee as a Hinterland Forest Zone. The forest resource is not considered valuable for production of timber products due to the remoteness of the resource and low productivity of the forest.

The majority of forest harvesting occurs in support of First Nations' traditional use, as well as backcountry activities (i.e., outfitting, trapping, recreation). Much of the timber use, therefore, is for individual subsistence purposes but potential exists for other industrial uses such as bridge timbers, tourism lodge construction, or other needs of the oil & gas or mining sectors. Currently, the principal consumptive-use forest products are domestic fuelwood, cabin logs, and wood used for other traditional or cultural purposes. To date, only a minor volume of commercial fuel-wood permits has been issued within this region, and that has been concentrated around km 286 of the Dempster Highway. The harvest sites are unrecorded and are adjacent to major rivers, popular camping spots, and travel corridors. Timber values are known to exist in the Peel River Corridor, and there may a future need to undertake forest management planning in that part of the region as well.

## **2.5 Significant Ecological and Cultural Values**

The region contains a number of features and values of territorial, national, and global significance, including both heritage and ecological resources.

### **2.5.1 Heritage Resources**

Although there are currently no human settlements located in the PWPR, the Tr'ondëk Hwëch'in, Na-Cho Nyak Dun, and Vuntut Gwitchin of the Yukon and the Tetl'it Gwich'in of the Northwest Territories have traditionally occupied, traveled, or harvested in virtually every corner of the planning region. This presence is reflected in the many trails and named places, which provide a window into the culture and history of the region. Archaeological evidence indicates the region has been occupied for millennia.

Much of the PWPR has yet to be systematically surveyed by archaeologists or palaeontologists, and the First Nations have gathered some but not all traditional knowledge of the region. Nonetheless, fossils and other remains of plants, dinosaurs, ancient fish, insects, and Ice Age mammals, including mammoth, sheep, bison, and Yukon horse, have all been found at a number of locations around the region. The numerous archaeological sites and artifacts around the watershed include gravesites, tent rings, caribou fences, caches, adze-cut stumps, abandoned settlements, and trading posts. Spring water, sulfur sources, medicinal plants, furbearers, and big game continue to have cultural importance. Some heritage trails and routes are still used to travel between communities and to reach areas for hunting, trapping, and fishing. At a much broader scale, expansive natural features – such as



mountains, mountain ranges, lakes, and rivers, and the stories embedded in these places – also represent First Nations heritage and culture.

### **2.5.2 Wildlife and Plants**

The diversity of wildlife and plants in the Peel watershed is remarkably high for a taiga region at these latitudes. This diversity results in part from a lack of glaciation over parts of the region. The wide range of elevations, and consequently habitat types, also contributes to present-day diversity. The western portion of the region represents an area with the most endemic plant species (i.e., plant species found nowhere else) in Canada. The region also contains a number of animal species listed as being of national or international conservation concern, including: Short-eared Owl, wolverine, northern mountain populations of caribou (e.g., Hart River, Bonnet Plume, and Redstone herds), grizzly bear, Rusty Blackbird, Peregrine Falcon, Olive-sided Flycatcher, American Golden-Plover, Harlequin Duck, Smith's Longspur, Solitary Sandpiper, Surfbird, Swainson's Hawk, Upland Sandpiper, and Wandering Tattler. The Peel River and its tributaries also support a unique assemblage of fish species. Again, the region's unique glacial history, in concert with the impassable Aberdeen Canyon, has given rise to genetically distinct populations of several fish species.

Several wildlife resources in the region have great cultural or economic importance. The Porcupine caribou herd has been very important to several First Nations for generations. The population of the herd is currently (2009) estimated at 110,000 animals and has been declining steadily since 1989. The winter range of the herd in this planning region extends primarily down the Richardson Mountains into the Hart, Blackstone, and Ogilvie drainages. Over the years, the herd has wintered throughout the planning region, with the exception of the headwaters of the Wind, Bonnet Plume, and Snake rivers, and east of the Peel River below the Snake. Traditional knowledge of the Tetl'it Gwich'in tells of some of this herd calving in the region. Several sea-run fish species (whitefish, herrings/ciscos, inconnu, and Dolly Varden char) are of immense current and historical importance as subsistence food to communities in the Mackenzie Delta. Despite their importance, little is known about numbers or key spawning habitat. Dall Sheep is the most important game species for the guide-outfitting industry in the Peel. Other species with significant cultural or economic importance are: marten, moose, non-sea-run fish (e.g., grayling, arctic char), waterfowl, grizzly bears, and other herds of caribou (Hart River, Bonnet Plume, Redstone, and Boreal herds).

### **2.5.3 Wetlands**

Wetland ecosystems contribute enormously to the total biodiversity of the region because of their productivity and unique growing conditions that are otherwise uncommon in this generally mountainous region. They also serve as reservoirs in a region relatively devoid of lakes. The Peel River drainage breaks the long spine of the northern cordillera, creating a migratory pathway for numerous birds traveling east or west between the Yukon and Mackenzie river basins. Many of the region's wetlands sit in this break, on the Peel Plateau, and so provide valuable staging and stop-over sites for waterfowl. Some of these wetlands are of territorial significance: Turner Lakes, Jackfish Creek, Tabour Lakes, and Chappie Lakes. Many wetlands on the Peel Plateau are "perched" near rivers incised in the plateau. The terrain between these wetlands and neighbouring escarpments is underlain with

permafrost. Therefore, these perched wetlands may be sensitive to changes in the permafrost incurred through climate change or surface disturbance.

#### **2.5.4 Water**

The fact that the planning region is defined by its watershed highlights the critical role of water in the land use plan – ecologically, socially, culturally, and economically. The waters sustain the full spectrum of plant and animal life across many ecosystems, provide an important source of food for the First Nations, offer a means of access to renewable and non-renewable resources, are required for a number of industrial activities, and are critical to the health of the downstream communities of Fort McPherson and Aklavik.

The headwaters of the six tributaries flow northward through the planning region, converging with the Peel River, which then flows west and north before crossing into the Northwest Territories and passing by the communities of Fort McPherson and Aklavik. What happens upstream – from the headwaters to the mainstem – has a significant impact on the wildlife of the planning region, as well as on the people of the Mackenzie Delta.

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### 3. Concepts & Land-Use Management Framework

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The Peel Watershed Regional Land Use Plan broadly describes the desired future condition of the region. It also provides specific management considerations for different areas within the region.

The Plan uses four tools, to be applied in combination to frame and guide sustainable land-use management in the region:

- Landscape Management Units;
- Land-Use Designation System;
- General Management Directions; and,
- Results-based Management Framework.

These tools complement each other and form part of an integrated land management framework. Some innovations were introduced that will be unique to Yukon regional planning (e.g., use of grandfathered access to mineral claims as an interim measure).

Given the region's complex physiography, known ecological sensitivities, and our current understanding of land-use compatibilities, it may also be necessary to manage surface footprint or cumulative impacts through the use of specific tools called *activity indicator levels*. These tools enable ongoing monitoring of resource use within the framework of adaptive management and precautionary principles.

In the future, it is anticipated that new information may lead to a change in the designation for some Land Management Units. Possible factors include new government policy/regulations, economic opportunities, environmental management or industrial technologies, land-use and management assessment tools, and resource best-management practices. This approach is called *adaptive land-use management and planning*, and it means that specific terms and conditions for management of activities are applied based on: (i) widely accepted ecosystem management principles; (ii) their suitability to the ecosystems that make up the Peel region; and (iii) capacity to measure success in achieving land-use management goals and objectives.

#### 3.1. Landscape Management Unit (LMUs)

Landscape Management Units (LMUs) are distinct areas of land that typically have well-defined ecological boundaries (i.e., landforms, vegetation, and drainage). Some LMUs are further defined on the basis of unique ecological characteristics that provide impetus for special management (e.g., lakes and wetlands on permafrost). Still other units are further defined by the clustering of existing or potential land use (e.g., Eagle Plains oil & gas basin, historical/existing mineral claim areas, First Nations community resource-use).

Watershed units make up the fundamental structure of most LMUs for the following reasons:

- recognition of regional management priority for aquatic resource stewardship;
- function as major wildlife migratory corridors; and,
- delineation of common land-use patterns (e.g., First Nations, tourism, access and travel corridors).

Thirteen major LMUs are identified in the Peel Watershed Planning Region (Map 1, Appendix A). LMUs are further divided into an additional forty-six sub-LMUs.

### 3.2. Land-Use Designation System

A Land-Use Designation System is used to guide the management of land-use activities within the LMUs. It provides the broadest level of guidance for land and resource decision making. The system consists of different landscape categories that describe the overarching management intent for an LMU. Each LMU and/or LMU sub-unit is assigned to a land-use designation category, or zone. A future Plan review may determine that further modifications to LMU boundaries or designation may be required to meet future management goals.

The Commission has gained considerable insight through the research and consultation process that guided the creation of this land-use management framework. The framework achieves the Commission's Statement of Intent by providing the following:

- A designation that allows varying degrees of non-renewable resource use, subject to the implementation of an appropriate management regime for compliance, monitoring, and restoration; and,
- Designations that recognize and protect, as paramount, ecological and cultural resources and integrity of key landscapes.

Inter-regional consistency has been achieved with this Plan by linking with the existing land-use zoning systems used by the Gwich'in Land-Use Planning Board, and the North Yukon Planning Commission.

#### **Important Cultural Areas**

Every affected First Nation expressed that the entire region is culturally important. However, a number of localized areas came up repeatedly as being especially important for historical, current, and even future use. These areas are labeled *Important Cultural Areas* on most maps in this plan. While cultural and traditional pursuits are allowed throughout the region, they are the primary management direction for the *Important Cultural Areas*. Any proposed developments in these areas would require consultation with, and participation of, the affected First Nation(s) over and above what is required elsewhere.

**Table 3.1.** Land-use designation system for Peel Watershed Planning Region

Zone	Description	Zone	Characteristics of Zone	Management Intent
Recommended Conservation and Protection Zones: Tier I – Ecosystem Protection	Legally designated land areas withdrawn from surface and subsurface rights issuance.	Critical Landscape Zones (CLZs)	Areas that warrant higher levels of protection for long-term stewardship of sensitive ecosystems, critical habitat, and/or cultural landscapes.	Largely undisturbed natural environment. Some LMU sub-units provide allowable surface uses (e.g., camps, cabins, and buildings for cultural purposes) subject to compliance with zone management objectives.
		River Corridor Zones (RCZs)	Generally flat terrain lying between toes of mountains or escarpments adjacent to major streams and rivers.	Largely undisturbed natural environment; recognize the unique biophysical position, importance of river corridors and connectivity to the surrounding landscape to maintain key ecological functions, and compatible resource uses; conditional access to existing industrial tenure within specified sections of the RCZs (specified by LMU).
		Remote Access Lakes (RALs)	Fly-in lakes used, or that could be used, for remote wilderness access.	Largely undisturbed natural environment; allow for regulation of private and public access into remote lakes, and no new surface or subsurface uses.
Recommended Conservation and Protection Zones: Tier II – Wilderness Conservation	Existing surface and subsurface dispositions are grandfathered, but remaining lands are withdrawn from new subsurface tenures.	General Conservation Zones (GCZs)	Large areas of mostly wilderness with some existing subsurface industrial tenures.	Lowest Development: Maintaining ecological integrity and protecting heritage and cultural resources are the priorities, while minimizing expansion of industrial activity to accommodate existing subsurface tenures. The long-term intent is no subsurface industrial activity, restore and maintain a natural environment that is mostly undisturbed at present; provide conditional access to industrial tenures.
Integrated Management Zones (IMZs)	Subsurface resource extraction while minimizing land-use conflicts and maintaining long-term ecosystem function.	Zone I	Very high ecological and heritage/cultural values within a sensitive biophysical setting.	Lowest Development: Maintaining ecological integrity and protecting heritage and cultural resources are the priorities.
		Zone II	High ecological and heritage/cultural values within a moderately sensitive biophysical setting.	Low Development: Maintaining ecological integrity, protecting heritage and cultural resources, and minimizing land-use impacts are the priorities.
		Zone III	Moderate ecological and heritage/cultural values within a moderately sensitive biophysical setting.	Moderate Development: Conservative levels of land use are consistent with Zone III objectives.
		Zone IV	Lower ecological and heritage/cultural values within a moderately sensitive biophysical setting.	Highest Development: Higher levels of land use are consistent with Zone IV objectives.

### 3.2.1. Description of Management Zones

Two types of Planning Zones were created to guide future land-use decisions in the Region: Recommended Conservation and Protection Zones, and Integrated Management Zones. Each type is further divided into sub-zones that define the management intent at the LMU sub-unit level. The recommended zone for each LMU (or sub-unit) is depicted on Map 2, Appendix A.

#### Recommended Conservation and Protection Zones

Recommended Conservation and Protection Zones are areas with a significant overlap of:

- cultural, historic, and archaeological resources; and/or
- rare or endangered species; and/or
- renewable activities that produce minimal surface footprint.

They are further broken into Tier I protection and Tier II conservation areas.

#### Tier I – Ecosystem Protection

The management intent for this zone is to promote ecosystem function, wilderness integrity, biodiversity, and peaceful enjoyment of land while allowing very limited, provisional access for renewable resource activities. Withdrawal of subsurface and associated surface rights is recommended to ensure the maximum level of legal authority to protect natural resources of very high ecological and heritage/cultural value. Current surface uses (e.g., camps, cabins, and buildings) are grandfathered into the LMU sub-unit, and variances for such uses in the future would be issued on a case-by-case basis to ensure integrity of this rigorous zone designation.

Sub-regional planning may be required for management of protected areas. Tier 1 protection areas are broken into three designations that serve key ecological functions: (i) Critical Landscape Zone; (ii) River Corridor Zone; and (iii) Remote Access Lake.

*Critical Landscape Zones (CLZs)* recognize unique areas of the Peel region for key functions and purposes, including: (i) rare, threatened, or endangered species or species of special concern; (ii) representative examples of natural phenomena; (iii) unique natural features; (iv) genetic diversity, and/or (v) peaceful enjoyment for cultural use. Withdrawal of these lands for both subsurface and associated surface tenures is recommended. Conditional access to existing subsurface tenure is specified for certain sections of the CLZs as identified by LMU. Existing surface tenures (e.g., camps, cabins, and buildings) are grandfathered and specified by LMU sub-unit.

<b>Recommendation</b>	<ul style="list-style-type: none"> <li>• <i>Withdrawal of these lands for both subsurface and associated surface tenures is recommended to ensure the maximum level of legal authority to protect natural resources of very high ecological and heritage/cultural value.</i></li> </ul>
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Management goals of Critical Landscape Zones include:

- maintain ecological and cultural integrity of the land;
- limit auditory or visual sensory disturbances to wildlife;
- maintain hydrologic integrity; and,
- preserve a largely undisturbed natural environment.

*River Corridor Zones (RCZs)* recognize the unique biophysical position, connectivity to the surrounding landscape for focal wildlife species, and First Nations cultural use of river corridors. The RCZs were mapped by extracting major stream or river valleys from the 1:250,000 regional terrain mapping of the Peel Watershed (Gartner Lee, 2005). These zones do not include the broad glacial-fluvial deposits of the Lower Bonnet Plume and Wind rivers. Though the mapped extent of the RCZs generally reflects what the PCPC envisioned (i.e., the relatively flat terrain next to major rivers that lies between toes of adjacent mountains/escarpments), in some cases it does not.

Recommendation	<ul style="list-style-type: none"> <li>• <i>Future revisions of these corridors should include the relatively flat terrain next to major rivers that lies between toes of adjacent mountains/escarpments.</i></li> </ul>
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Withdrawal of these lands for issuance of subsurface and associated surface tenures is recommended to ensure the maximum level of legal authority to protect natural resources of very high ecological and heritage/cultural value. Existing surface uses (e.g. camps, cabins, and buildings) are grandfathered and specified by LMU sub-unit. Access restrictions vary among individual LMU sub-units and are further discussed in section 4 and section 6. All-season access development within, along, and across RCZs is discouraged. Goals of River Corridor Zones include:

- minimize physical, sound, and activity disturbance to ecologically important valley bottoms and riparian areas;
- maintain hydrologic integrity of the river systems;
- recognize First Nations cultural use priorities (subsistence resources);
- maintain the wilderness aesthetics and recreational/tourism values of the river corridor;
- maintain peaceful enjoyment of the river corridor; and,
- provide strictly planned access through sections of the RCZs to enable access to mineral claims while maintaining ecosystem integrity.

*Remote Access Lakes (RALs)* are fly-in lakes used, or that could be used, for remote wilderness access. Withdrawal of subsurface and associated surface rights is recommended to ensure the maximum level of legal authority to protect natural resources



of very high ecological and heritage/cultural value. Existing surface uses (e.g., camps, cabins, and buildings) are grandfathered and specified by LMU sub-unit. Remote Access Zones can regulate private and public access into remote lakes under strict management conditions to:

- limit impacts of large numbers of visitors arriving at once;
- maintain peaceful enjoyment of the land; and,
- limit auditory or visual sensory disturbances to local wildlife.

## **Tier II – Wilderness Conservation**

The management intent for this zone is to emphasize wilderness conservation. Following a period of land withdrawal and discontinuance of subsurface tenures, the zone should eventually be reclassified to Tier I Ecosystem Protection. Allowable renewable resource uses and their associated surface use tenures (e.g., facilities, structures) are recommended to include wilderness tourism, trapping, big-game outfitting, and traditional use. During the term of this Plan, access to existing mineral claims by air or ground is conditionally allowed, following general and special management directions and strategies by LMU. However, the area should be withdrawn from future staking. Industrial development and associated access would require a comprehensive impact/benefit assessment. Tier II wilderness conservation areas have only one designation – the General Conservation Zone.

*General Conservation Zones (GCZs)* are large designated areas of mostly wilderness with some existing industrial tenures and various surface-use tenures. Management goals of General Conservation Zones include:

- maintain ecological and cultural values;
- maintain peaceful enjoyment of the land;
- limit the expansion of exploration or development activities;
- permit exploration only in currently claimed or leased areas; and,
- permit the minimum of subsurface development activity for existing tenures, subject to stringent guidelines, recommendations of this Plan, and any YESAB requirements.

## **Integrated Management Zone (IMZ)**

The intent of all integrated management zones is to enable capture of existing and future economic potential for both surface uses and subsurface resource extraction, while minimizing land-use conflicts and maintaining long-term ecosystem function. Within IMZs, integrated land management tools are used to regulate multiple resource uses. They may include the following considerations:

- development of access management plans and policy;

- coordination of resource development industry to minimize conflicts with other resource users;
- provisions for infrastructure necessary for exploration and development;
- adherence to current best management practices and/or other general management directions;
- water quality and/or quantity indicators for major tributaries;
- linear density and footprint indicators; and,
- any other provisions to minimize land-use impact, maintain ecological integrity, and protect heritage and cultural resources.

**Integrated Management Zones are split into four distinct sub-zones:**

Zone I: Lowest development/very low “critical levels”;

Zone II: Low development/ low “critical levels” (approx. twice those of Zone I);

Zone III: Moderate development/moderate “critical levels” (approx. 5X those of Zone I);

Zone IV: Highest development/high “critical levels” (approx. 10X those of Zone I).

### **3.3. General Management Direction**

The third major tool that the Plan uses in association with the foregoing Land-Use Designation System is a planning framework called General Management Direction (GMD). This framework is articulated in the form of land management goals, objectives, strategies, best management practices and recommendations. In essence, these GMDs form the foundation for guiding both commercial and non-commercial land-use activities in the region. General management direction applies to all Landscape Management Units.

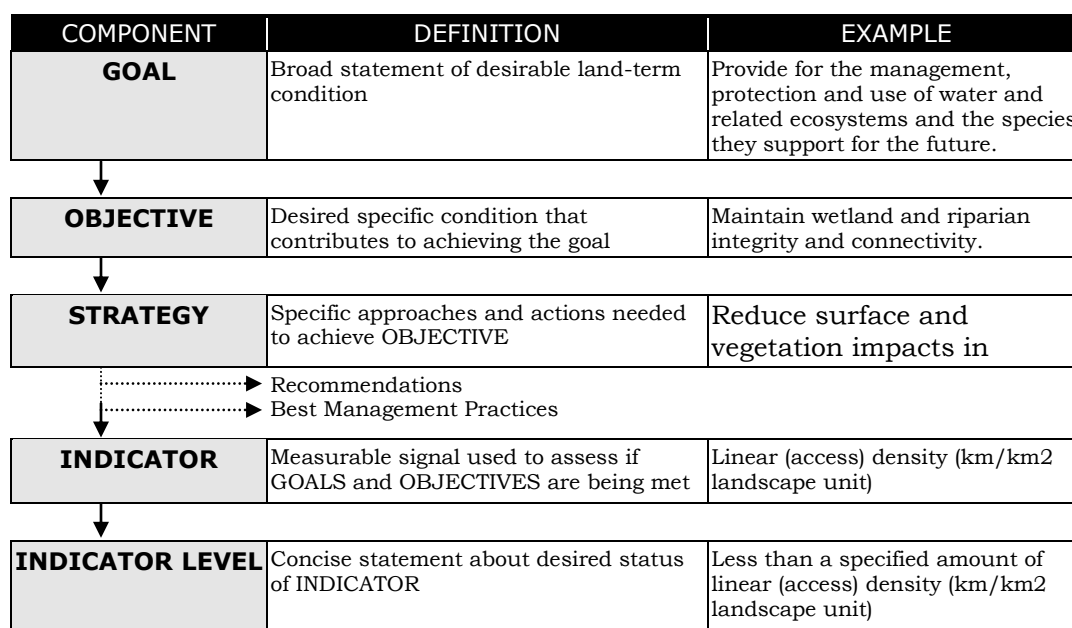
#### **3.3.1 Results-based Management Framework**

Wherever possible, management direction for the Plan is structured around a results-based management framework. A results-based management framework is a structured way to determine if Plan goals and objectives are being met. It is a way to link general, higher-level objectives with more detailed, operational decisions. The results-based management framework and its various components are summarized in Figure 3.1.

Goals and objectives state the desired management outcomes. Strategies are approaches and actions that land managers can use to achieve specific objectives. Strategies may include recommendations and best management practices. Best management practices are ways of

working that can reduce the time, intensity, impact, or duration of land-use activities<sup>1</sup>. Many best management practices developed for Yukon relate directly to achieving the objectives and strategies of this Plan.

Monitoring and assessing indicators is necessary to determine if goals and objectives are being met. Strategies can be adjusted in response to the changing status of indicators, facilitating an adaptive management process. The Plan proposes that land-use or ecological indicators be confirmed and then reported for each LMU. At this time, indicators do not address all strategies or cover monitoring of all implementation requirements. Currently, the Plan focuses on cumulative effects indicators. Recommended and potential indicators and critical levels are summarized in Appendix B.3 for consideration.



**Figure 3.1.** Components of the Peel Watershed Planning Region results-based management framework.

<sup>1</sup> A description of best management practices is provided by the Yukon Department of Energy, Mines and Resources, Oil and Gas Management Branch, 2007:  
[http://www.emr.gov.yk.ca/oilandgas/best\\_management\\_practices.html#What\\_are\\_Best\\_Management\\_Practices](http://www.emr.gov.yk.ca/oilandgas/best_management_practices.html#What_are_Best_Management_Practices).

### Cumulative Effects

Cumulative effects are the net changes to the environment and/or society that result from a land-use activity in combination with other past, present, and future activities. Managing cumulative effects is best accomplished by applying a suite of integrated and coordinated actions to land management. Assessment, mitigation, government policy, legislation, and planning all play a role. In combination with these coordinated actions, the management of cumulative effects can be an important outcome of applying a results-based management framework to land management. An evaluation of cumulative effects is partially achieved through the measurement of indicators (e.g., How much impact are we having on the land?).

#### 3.3.1.1. Cumulative Effects Indicators

The Plan proposes five indicators that can be used to track the potential cumulative effects of land use. These indicators provide resource managers with guidance in their decision making. When evaluated as a component of the results-based management framework, the indicators assist in establishing a general index of ecological integrity. Acceptable levels of change for the cumulative effects indicators are linked to the land-use designation of each LMU or sub-unit. Table 3.2 shows how these indicators are applied to each land-use zone designation.

The indicator framework also recognizes the constraints of the Peel's two principal topographies – plateau/plains and mountains – which may affect the application of ecosystem monitoring tools or indicator levels for specific resource management objectives.

#### *Plateau/Plain Areas:*

- Surface activities and disturbances are generally not limited by topography (broad lowlands and plateaus).
- Sensitivity to disturbance is heightened by continuous permafrost cover, with implications for reclamation.
- Water quality and flow are strongly influenced by continuous permafrost cover (sharper and higher peaks in runoff volume than is typical to the south and occasional zero flow in intermediate-sized streams in the winter).

#### *Mountain Areas:*

- Surface disturbance is likely to be constrained to deep intervening valleys (semi-parallel mountain ridges) and identified mountain passes.
- Sensitivity to disturbance is heightened where permafrost is extensive, with implications for reclamation.
- Water quality and flow are strongly influenced by extensive permafrost cover and low infiltration rate (sharper and higher peaks in runoff volume than is typical to the south and occasional zero flow in intermediate-sized streams in the winter).

The recommended indicators are:

- **Direct Surface Disturbance:** the amount of area physically disturbed by human activities. Such things as structures, roads, gravel quarries, seismic lines, access trails,

and similar features all create physical *footprints* on the land, resulting in direct habitat impacts. This indicator is typically reported as a percent of the land base.

- **Linear Density:** the total length of all human-created linear features (roads, seismic lines, access trails, etc.) in a given area. Linear density can be used as an indicator of fragmentation – the division of larger areas of habitat into smaller areas. Increasing levels of access may result from linear feature development, potentially leading to greater harvest of wildlife and fish, higher predation rates, and a change in how people and wildlife use the land. For this reason linear density is sometimes referred to as *access density*. This indicator is typically reported in km/km<sup>2</sup>.
- **Water Quality Indices:** track the water quality relative to aquatic life guidelines, human consumption guidelines, and baseline data. A group of these indices can be used as an indicator of fish habitat quality for each watershed-based LMU and the entire region. Protocols evaluated for the Mackenzie River basin could be applicable to the region and would mesh with the existing Canadian Water Quality Index specifications. Expertise in water quality trend monitoring already exists in the Yukon, and some useful regional baseline data has been collected. Tracking this indicator would also contribute to meeting the requirements of the Transboundary Water Management Bilateral Agreement between the Yukon and the Northwest Territories.
- **Water Flow Indices:** should be developed to monitor potential decline in overwintering and spawning habitat quality for each watershed-based LMU and the entire region. Several small and intermediate rivers have zero flow or low flow in the winter months, making them particularly susceptible to water withdrawals for industrial use. Shifts in flow could also alter spawning habitat. Tracking this indicator would also contribute to meeting the requirements of the Transboundary Water Management Bilateral Agreement between the Yukon and the Northwest Territories.
- **River Corridor Zone Crossing:** the total number of crossings per River Corridor Zone (see River Corridor Zones definition) within a given LMU or LMU sub-unit.

Unfavourable changes in these indicator levels would be expected to increase risk of damage to valued ecological and cultural resources. Social and economic values can also be affected when there are high levels of disturbance and activity on the land.

Several other indicators are being considered by the commission to track other cumulative effects:

- **Habitat availability:** Habitat availability is based on the % of habitat disturbed or altered for species found within the planning unit. Habitat availability can be used as an indicator of disturbance to habitat quality or use. Such levels are useful in mountainous areas where habitat needs of some species are concentrated in valley bottoms and riparian areas – areas most prone to linear development and surface disturbance.

- **Minimum core area:** Core areas are relatively undisturbed source areas for plant and animal populations. Core areas are larger than the minimum home ranges or territories of the target species. Expressed as % of available habitat in large core areas.
- **Minimum patch size:** Patches are areas of habitat secure from disturbance and mortality associated with human activities. Minimum patch size is set by the amount of range typically used by the species in a 24-48 hour period.
- **Sensory disturbance:** Sound disturbance includes loudness (decibels) and the associated effective zone. Visual disturbance includes the sight of activity, such as aircraft or lights from traffic. Both can lead to habitat loss (unusable habitat) and increased stress, especially for residential populations.

<b>Research Recommendation</b>	<ul style="list-style-type: none"><li>• <i>Undertake research to determine the effectiveness of the above suggested indicators and recommended indicator levels (Table 3.2) that have been proposed for tracking cumulative effects.</i></li></ul>
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**Table 3.2.** Guidance chart of land-use designation zones for access considerations and proposed cumulative effects indicators for the Peel Watershed Planning Region

Land Use Category	Zone	All-season Access	Winter Roads	Aggregate for access	Withdrawal from staking/new tenures	Grandfathering of existing tenures	Linear density	Surface disturbance	River Corridor Zone crossing density	Water quality indices (aquatic life)	Water flow indices (aquatic life)	Water quality indices (human consumption)	Habitat availability	Minimum core area	Minimum patch size	Sensory Disturbance
<b>Designated Protected Zones: Tier I - Ecosystem Protection</b>	Critical Landscape Zone				✓				✓	✓	✓					
	River Corridor Zone	~	~		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Remote Access Lakes		~		✓				✓	✓	✓					✓
<b>Designated Protected Zones: Tier II - Wilderness Conservation Zone</b>	General Conservation Zone - Mountain	~	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	General Conservation Zone - Plateau	~	✓		✓	✓	✓	~	✓	✓	✓	~	~	~	~	~
<b>Integrated Management Zones</b>	Zone I	~	✓	~		✓	✓	✓	~	✓	✓	~	~	~	~	~
	Zone II	✓	✓	✓		✓	✓	✓	~	✓	✓	~	~	~	~	~
	Zone III	✓	✓	✓		✓	✓	✓	~	✓	✓	~	~	~	~	~
	Zone IV	✓	✓	✓		✓	✓	✓	~	✓	✓	~	~	~	~	~

✓ Allowable access and recommended indicators for cumulative effects assessment

~ Possible allowable access and recommended indicators for cumulative effects assessment (LMU specific management direction)

### 3.3.1.2. *Cumulative Effects Indicator Levels*

The cumulative effects indicator levels identified in the Plan represent a theoretical point between acceptable and unacceptable levels of human-caused disturbance. The recommended indicator levels provide guidance on acceptable levels of human-caused disturbance within each LMU or sub-unit. As shown in Table 3.3., the cumulative effects indicator levels are linked to all the zone designations, providing clear management direction for the different areas of the IMZ and RPZ. When the indicator levels are reached or exceeded, it is a signal that undesirable impacts to ecological and cultural resources may result.<sup>2</sup>

The Plan proposes cautionary indicator levels as the point where indicators may be close to reaching undesired levels. This provides an early warning signal, allowing time for pro-active management steps to be considered or taken. Critical indicator levels represent the point where the indicators have reached or surpassed acceptable levels.

#### **Determining Cautionary Indicator Levels**

Calculating or selecting cautionary indicator levels is often not a simple task. The North Yukon Planning Commission calculated their linear density and direct surface disturbance levels using models of ecological, social, and economic outcomes of future land-use activity (NYPC 2007). Much of the PWPR has biophysical features, topography, and ecological, social, and economic values analogous to those of the North Yukon Planning Region. For this reason, the cautionary indicator levels of the Final Recommended North Yukon Land Use Plan<sup>3</sup> were adopted as a cautionary starting point for use in the PWPR until region-specific cautionary levels are modeled. These two indicators may not provide sufficient warning in mountainous areas such as the southern portion of the PWPR. Therefore, additional water and stream-crossing indicators are also recommended. The River Corridor crossing density indicator considers both access management and aesthetic and aquatic values. New and existing baseline data and federal guidelines and frameworks should be used to develop LMU-specific cautionary indicator levels for water.

This plan also lists some indicators that could be useful for tracking ecologically, socially, or economically significant cumulative impacts. However, it is not recommended that these potential indicators be tracked in the immediate future. Their scope may be too narrow to make them a priority, or the determination of defensible cautionary levels may require

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<sup>2</sup> As human-caused surface disturbances, including linear features, recover through natural revegetation or active reclamation, they are subtracted from the total amount of disturbed area. A human-caused surface disturbance is considered recovered when it no longer facilitates travel or access by wildlife and people. In forested areas, a feature can be considered recovered when it contains woody vegetation (trees and shrubs) approximately 1.5 metres in height. See discussion of surface disturbances in section 4. This definition is closely linked with human and predator access and potential effects on caribou and moose, key values in the region.

<sup>3</sup> This plan has not yet been approved.



substantial research. The cautionary levels for these indicators, shown in Table 3.3, were taken from the Dehcho Final Draft Land Use Plan (DLUPC, 2006) and are meant to be used as starting points for discussion.

Through the use of cumulative effects indicators, and their recommended levels, the Plan attempts to balance potential risks to ecological and cultural resources with the requirement for, and potential impacts of, economic development.

#### **Cumulative Effects Indicator Levels**

These levels are not intended to be an absolute cap on activities. They are intended to provide a clear statement regarding the level of human-caused environmental change considered acceptable within a specific LMU. When used in a results-based management context, indicator levels are designed to promote pro-active and integrated land management. The recommended indicator levels serve only as a benchmark and provide the Parties responsible for plan implementation an opportunity to review and consider the potential outcomes of resource management decisions. They will also assist in the YESAA process by providing an indication of potential cumulative effects within a LMU. As recommended earlier, further research will be needed to determine the utility of the proposed indicators and levels.

**Table 3.3.** Land-Use Zone Designations and proposed cumulative effects indicator levels (~ indicates that levels are to be determined, \* indicates that they are LMU-specific; see LMU description under Special Management Considerations)

Zone		Tier I CLZ		Tier I RCZ		Tier I RAL		Tier II GCZ - Plateau		Tier II GCZ Mountain		IMZ Zone I <sup>2</sup>		IMZ Zone II		IMZ Zone III		IMZ Zone IV	
Management Intent		Land withdrawal		Land withdrawal <sup>3</sup>		Land withdrawal		Lowest development		Lowest development		Lowest development		Low development		Moderate development		Highest development	
Level	Area of calculation	Cautionary Level I	Critical Level	Cautionary Level I	Critical Level	Cautionary Level I	Critical Level	Cautionary Level I	Critical Level	Cautionary Level I	Critical Level	Cautionary Level I	Critical Level	Cautionary Level I	Critical Level	Cautionary Level I	Critical Level	Cautionary Level I	Critical Level
Linear density km/km2	Sub-unit	0	0	0.075 <sup>3</sup>	0.1	0	0	0.075	0.1	0.075	0.1	0.075	0.1	0.15	0.2	0.375	0.5	0.75	1
Surface disturbance %	Sub-unit	0	0	0.075 <sup>3</sup>	0.1	0	0	0.075	0.1	0.075	0.1	0.075	0.1	0.15	0.2	0.375	0.5	0.75	1
RCZ Crossing (# crossings/RCZ)	LMU			*	*														
Water quality indices (aquatic life)	LMU	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Water flow indices (aquatic life)	LMU	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Water quality indices (human consumption)	LMU	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
Habitat availability %	LMU			>5	>5			>5	>5	>5	>5	>5	>5	>5	>5	>5	>5	>5	>5
Minimum core area %	LMU			>85	>65			>85	>65	>85	>65	>85	>65	>85	>65	>85	>65	>85	>65
Minimum patch size km <sup>2</sup>	LMU				>10		>10		>10		>10		>10		>10		>10		>10
Sensory disturbance dB(A)	Sub-unit	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~

\*see LMU sub-unit for number of allowable crossings of the sub-unit.

<sup>1</sup> Cautionary level is established as 75% of the upper, or critical, level.

<sup>2</sup> While cumulative effects indicator levels are identified for Zone I and all RPZs, the intent is to discourage development of new all-season industrial infrastructure, aggregate extraction, and human settlements/structures.

<sup>3</sup> Restrictions for access may apply to some RCZs. Only Wind River and Bonnet Plume River RCZ have management direction regarding access along or across RCZ.

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## 4. Land-Use Designation

The recommended land-use designation for the region is summarized in Table 4.1 and shown in Map 2, Appendix A. The two major land-use categories are the Integrated Management Zone (IMZ) and, the Recommended Conservation and Protection Zone. The latter contains Tier I Ecosystem Protection, which includes Critical Landscape Zone (CLZ), River Corridor Zones (RCZs) and Remote Access Lakes (RALs), and Tier II Wilderness Conservation, the General Conservation Zone (GCZ).

Within the IMZ, each landscape management unit (LMU) has been assigned to a specific land-use zone (Zones I-IV). A complete land withdrawal is recommended for all Tier I Designated Protected Zones. Grandfathering-in of existing tenures and a land withdrawal for remaining non-settlement and settlement lands is recommended for all Tier II Designated Protected Zones.

**Table 4.1.** Land-use designation summary.

Land-Use Category	Area (km <sup>2</sup> )	Area (% of region)
<b>Recommended Conservation and Protection Zone</b>		
Critical Landscape Zone	7469	11.1%
River Corridors Zone	2448	3.6%
Remote Access Lakes	169	0.3%
General Conservation Zone	32538	48.3%
RCPZ Total	42624	63.2%
<b>Integrated Management Zone</b>		
Zone I	9717	14.4%
Zone II	9036	13.4%
Zone III	3517	5.2%
Zone IV	2503	3.7%
IMZ Total	24772	36.8%
<b>Total</b>	<b>67397</b>	<b>100%</b>

### 4.1 Recommended Conservation and Protection Zone

There are currently no protected areas in the region. The Tetlit Gwich'in submitted an application to nominate two areas in the PWPR for National Historic Site status. These two areas are Teetł'it nkik and Tshuu tr'adaojjich'uu. Several other Tier I protected zones were selected according to ecological, cultural, or geophysical uniqueness and importance. In total, these areas contribute approximately 15% of lands to the Tier I protected areas category. Tier II areas further add 48% to a protected area category with grandfathered tenures (i.e., claims, leases, licenses, and permits) and future access planning to meet development needs, according to key recommendations in this Plan.

## Tier I – Ecosystem Protection Zone

### *Teetl'it nkik (LMU 11a) and Tshuu tr'adaojich'uu (LMU 11c)*

Teetl'it nkik and Tshuu tr'adaojich'uu are two related sites, connected by common stories, experiences, and history, and set within the larger cultural landscape of the Tetlit Gwich'in. These areas are discussed in detail in the document *At the Heart of the Teetl'it Gwich'in Cultural Landscape* (Teetl'it Gwich'in First Nation, 2003). Much of the areas were previously selected by the Tetlit Gwich'in in the Yukon Transboundary Agreement (TG R-01FS, TG R-03FS & TG R-14FS). Tshuu tr'adaojich'uu partly overlaps with the Bonnet Plume Canadian Heritage River. Designation of CLZ seeks to protect these cultural landscapes.

Key issues with respect to the conservation and management of Teetl'it nkik & Tshuu tr'adaojich'uu include:

- Need for further research into traditional land use and place names, and recording of significant heritage sites and archaeological surveys in the upper and lower reaches of the Peel River watershed
- Work with the Gwich'in Language Centre to review existing information already collected about the two zones.

Recommendation	<ul style="list-style-type: none"> <li>• <i>LMU 11a &amp; 11c, Teetl'it nkik and Tshuu tr'adaojich'uu, a sub-unit of the Peel River Corridor, should be designated Tier I Critical Landscape Zones (see Section 6 for location and description). These areas include Tetlit Gwich'in fee simple lands (TG R-01FS, TG R-03FS &amp; TG R-14FS) and non-settlement lands around the Peel River and the river corridor itself.</i></li> </ul>
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### *Peel Mainstem (LMU 11b) & Upper Peel River (LMU 11f)*

Although the Peel Mainstem and Upper Peel River are connected through the Peel River, they are designated as two separate LMUs due to their distinct cultural and unique geological differences. The Peel Mainstem lies between Teetl'it nkik and Tshuu tr'adaojich'uu and contains fee simple land selections of Tetlit Gwich'in First Nation (TG R-04FS, TG R-05FS, TG R-08FS, TG R-12FS & TG R-13FS) selected for their important cultural and traditional use areas (Big Eddy, fishing holes, and travel routes). The Upper Peel River has no transboundary land selected or settlement lands but contains an important travel route for the THFN (see Final Agreement special provisions). Designation of CLZ seeks to protect the cultural landscape and connectivity of traditional travel routes, as well as the aesthetic values of the Peel River.

Key issues with respect to the conservation and management of Peel Mainstem & Upper Peel River include:

- Potential access route along the eastern boundary of the Peel Mainstem.
- Tourism value of the Peel Mainstem due to higher visitation to the Wind and Snake Rivers.

- Upper Peel River is adjacent to an IMZ IV LMU (Eagle Plains) and may receive higher levels of access (water, air, and land), should Eagle Plains LMU be developed.

Recommendation	<ul style="list-style-type: none"> <li>• <i>LMU 11b &amp; 11f, a sub-unit of the Peel River, should be designated Tier I Critical Landscape Zones (see Section 6 for location and description). These areas include Tetlit Gwich'in fee simple lands (TG R-04FS, TG R-05FS, TG R-08FS, TG R-12FS &amp; TG R-13FS) and non-settlement lands around the Peel River and the river corridor itself.</i></li> </ul>
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*Turner Wetlands and Caribou River (LMU 8a), Jackfish Lakes (LMU 7b), Tabor Lakes (LMU 7c), Vittrekwa River (LMU 12b) & Chappie Lake (LMU 2c)*

Turner Lake and Caribou River, Jackfish Lakes, Tabor Lakes, Vittrekwa River, Chappie Lake, and their associated wetland complexes are ecologically rich wetland and open habitats important for waterfowl and other wetland-dependent species. These areas have continuous permafrost coverage, making them sensitive to industrial disturbance (surface disturbance). All five areas have been mentioned as priority areas for protection in other assessments (LMU 8a, 7b, 7c - Ducks Unlimited, LMU 8a,7b,7c,2c - Canadian Wildlife Services, LMU 8a,2c - Peel River Watershed Advisory Committee Workshop on Land and Water Management (1996) and LMU 7b, 7c, 12b - Gwich'in Land Use Planning Board). All five wetland complexes are in the northern Peel River Plateau and Fort McPherson Plain ecoregions. The Turner Lake wetlands contain a portion of a fee simple land selection of Tetlit Gwich'in First Nation (TG R-05FS). Designation of CLZ seeks to protect important open-water and wetland habitat for breeding, foraging, and rearing habitat for waterfowl and other migratory birds.

Key issues with respect to the conservation and management of Turner Wetlands and Caribou River, Jackfish Lakes, Tabor Lakes, Vittrekwa River, and Chappie Lake include:

- Need for data on habitat mapping of wetland areas.
- Need for research on hydrological relationship between wetland areas and surrounding landscape.
- Map critical wetland components of these landscapes and biologically important seasonal-use patterns by waterfowl and other wetland-dependent species.

Recommendation	<ul style="list-style-type: none"> <li>• <i>LMU 8a, 7b, 7c, 2c and 12b are sub-units of the Peel River Plateau and Fort McPherson Plain ecozone, and should be designated Tier I Critical Landscape Zones (see Section 6 for location and description). This area includes both settlement land and non-settlement lands.</i></li> </ul>
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*West Hart (LMU 4b) - Hart River Caribou Herd Core Winter Area*

The West Hart LMU contains over 80% of the Hart River caribou herd's key wintering ground and also contains a migratory route connecting the herd to its ranges further south. The LMU is

in the headwaters of the West Hart River in the Blackstone uplands ecodistrict. Designation of CLZ seeks to protect critical wintering grounds when caribou are most susceptible to disturbance.

Key issues with respect to the conservation and management of West Hart LMU include:

- Need to further map critical Hart River caribou herd winter habitat.
- Examine the need for further hunting restriction to help mitigate hunting pressure on the HRCH due to the proximity of the Porcupine caribou herd.

Recommendation	<ul style="list-style-type: none"> <li>• <i>4b is a sub-unit of the Hart River drainage (LMU 4), should be designated a Tier I Critical Landscape Zone (see Section 6 for location and description). This area includes non-settlement lands only and site-specific lands.</i></li> </ul>
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#### *Nihtavan diniinelee – Fish Lake (LMU 1d)*

Nihtavan diniinelee – Fish Lake is a string of lakes from Cranswick River towards the Snake River. Families (primarily Gwich'ya Gwich'in) would come from Tsiigehtchic to Nihtavan diniinelee. The fish run through here just after New Year. There is also a hot spring in this area. LMU 1d runs along the southern boundary of the Nihtavan diniinelee lake system and is nested within the Snake River Watershed LMU 1. LMU 1d is a fee simple land selection of Tetlit Gwich'in First Nation (TG R-1FS) and a site-specific selection of NND (S-139b). Designation of CLZ seeks to protect the area from disturbance that would detract from the peaceful enjoyment of this area at any time of the year or affect the fish run into these lakes.

Key issues with respect to the conservation and management of Nihtavan diniinelee include:

- Manage the surrounding IMZ I in such a way that it does not impact on LMU 1d and the adjacent lake system (including water flow, quality, and subsistence fish populations).

Recommendation	<ul style="list-style-type: none"> <li>• <i>LMU 1d, a sub-unit of the Snake River Watershed LMU 1, should be designated a Tier I Critical Landscape Zone (see Section 6 for location and description). This area includes TG R-1FS fee simple land and site-specific selection of NND (S-139b).</i></li> </ul>
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#### *Nash Creek (LMU 3d)*

The Nash Creek LMU sub-unit is a culturally important area to the Nacho Nyak Dun First Nation. There is connectivity through this area from Hart Lake to McCluskey Lake. The area is a traditional harvesting area and contains several cabins, mineral licks, and a hot spring. This area is relatively easily accessible from the communities of Dawson and Mayo. LMU 3d is comprised of a land selection of Nacho Nyak Dun First Nation (R-11A) and several NND site-specifics and non-settlement land. Designation of CLZ seeks to protect the area from disturbance that would

detract from the peaceful enjoyment of it at any time of the year and allow infrastructure compatible (under this designation) for educational purposes.

Key issues with respect to the conservation and management of Nash Creek include:

- Interest in developing an all-season access route into the Wind River may change the characteristics and desired future state of the sub-unit.
- Future clearing of the existing winter road (under the existing Wind River trail R.O.W.) access route into the Wind River may change the characteristics and desired future state of the sub-unit.
- Unauthorized use of settlement land - Nacho Nyak Dun First Nation (R-11A).
- Potential for geothermal energy development exists in this area.
- Need to monitor vegetation around the hot spring for disturbance and assess fish populations.

Recommendation	<ul style="list-style-type: none"> <li>• <i>LMU 3d, a sub-unit of the Wind River Watershed LMU 3, should be designated a Tier I Critical Landscape Zone (see Section 6 for location and description). This area includes NND R-11A and non-settlement lands between Hart Lake and McClusky Lake.</i></li> </ul>
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### *Hungry Lakes (LMU 3c)*

Hungry Lakes is a series of lakes and wetland complexes between the lower Hart River and lower Wind River. This area hosts a variety of palaeoenvironments, fauna, and potential for archaeological sites. This area has been used traditionally as a meeting place in spring. The area was also used to construct moose-skin boats. Hungry Lakes has cultural and historical significance for VGFN, NNF, TH and TG, as well as historical importance as a trading route. THFN has one site-specific selection (TH S-128B). Designation of CLZ seeks to protect Hungry Lakes from disturbance that would detract from peaceful enjoyment at any time of the year and should allow infrastructure compatible with subsistence hunting and cultural experiences.

Key issues with respect to the conservation and management of Hungry Lakes include:

- This area has had winter access in the past. Future winter access must take into consideration seasonal use of the area for hunting and trapping.

Recommendation	<ul style="list-style-type: none"> <li>• <i>LMU 3c, a sub-unit of the Wind River Watershed LMU 3, should be designated a Tier I Critical Landscape Zone (see Section 6 for location and description). This area includes TH S-128B and non-settlement lands between the Hart River, Hungry Lakes, and Wind River.</i></li> </ul>
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### *Doll Creek (LMU 9b) and Aberdeen Canyon (LMU 11d)*

Doll Creek flows into the Peel River downstream of Aberdeen Canyon. Therefore, these two sub-units are adjacent to one another. A smaller stream also enters the Peel River from sub-unit 9b, upstream of Aberdeen Canyon. Aberdeen Canyon is a deeply incised reach of the Peel River and a spectacular but impossible section for river travel. An important travel route for the THFN (see Final Agreement special provisions) connects Dawson to Fort McPherson along the Peel River, past Aberdeen Canyon. The Tetlit Gwich'in land selection R-07FS forms the bulk of sub-unit 9b. Designation of CLZ seeks to protect this area from any kind of surface disturbance or alteration of water flow. This area should also be managed for preservation of its aesthetic qualities and its cultural and historical significance.

Key issues with respect to the conservation and management of Doll Creek and Aberdeen Canyon include:

- This area has had winter access in the past. Future winter access must take into consideration seasonal use of the area for hunting and trapping.
- Any kind of development in this area is strongly discouraged. Management priority should be to preserve the aesthetic qualities of Aberdeen Canyon.

Recommendation	<ul style="list-style-type: none"> <li>• <i>11d, a sub-unit of the Peel River, and 9b, a sub-unit of the Richardson Mountains LMU 9, should be designated Tier I Critical Landscape Zones (see Section 6 for location and description). This area includes TGFN R-07FS lands and non-settlement lands around Aberdeen Canyon.</i></li> </ul>
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### *Mid Blackstone Flats – TH R-35B (LMU 5b)*

See Blackstone River Corridor (13-5)

## Remote Access Lakes

*Fairchild Lake (LMU 2d), Duo Lake (LMU 2e), Bonnet Plume Lake (LMU 2f), Margaret Lake (LMU 2g), Quartet Lakes (LMU 2h), Elliot Lake (LMU 4d), McClusky Lake (3x<sup>1</sup>), Goz Lake (2x<sup>2</sup>)*

Five lakes in Bonnet Plume River LMU 2 were selected for protection as Remote Access Lake. These lakes were identified as common fly-in access points for both river travel and mineral exploration activities. The Peel River Watershed Advisory Committee previously identified Margaret Lake, Quartet Lake, and Bonnet Plume Lake for protection. Fairchild Lake is culturally important to the THFN and NND, and several cabins owned by their citizens have been identified in the area. Designation of CLZ seeks to protect these areas from impacts related to concentrated human occupation and use of the area (camps and related waste, over-harvesting, etc.). Future management of these areas may restrict or regulate fly-in access to these lakes.

Key issues with respect to the conservation and management of remote access lakes include:

- Investigate the need to recommend other remote access lakes, such as the unnamed lake near the mouth of Reptile Creek (64° 34' 00"N 132° 15' 20"W), as potential candidate remote-access lakes.
- Monitor use of RAL by guided and non-guided wilderness travelers.

Recommendation	<ul style="list-style-type: none"> <li>• <i>2d, 2e, 2f, 2g and 2h, sub-units of the Bonnet Plume River Watershed LMU 2, should be designated as Tier I Remote Access Lakes (see Section 6 for location and description). These areas include several site-specific selections and non-settlement lands within the RAL.</i></li> </ul>
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*Hart Lake (LMU 4c), Elliot Lake (LMU 4d)*

Two lakes in Hart River LMU 4 were selected for protection as Remote Access Lakes. These lakes were identified as common fly-in access points for both river travel and mineral exploration activities. Designation of CLZ seeks to protect these areas from impacts related to concentrated human occupation and use of the area (camps and related waste, over-harvesting, etc.). Future management of these areas may restrict or regulate fly-in access to these lakes.

Key issues with respect to the conservation and management of remote access lakes include:

- Monitor use of RAL by guided and non-guided wilderness travelers.

Recommendation	<ul style="list-style-type: none"> <li>• <i>4c and 4d, sub-units of the Hart River Watershed LMU 4, should be designated as Tier I Remote Access Lakes (see Section 6 for location and</i></li> </ul>
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<sup>1</sup> This lake was identified as a candidate for a Remote Access Lake after draft plan maps were completed.

<sup>2</sup> This lake was identified as a candidate for a Remote Access Lake after draft plan maps were completed.

	<i>description). These areas include non-settlement lands within the RAL.</i>
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## River Corridor Zone

River corridor zones (LMU 13) were delineated for six of the major rivers in the Peel Planning Area: Snake River (LMU 13-1), Bonnet Plume River (LMU 13-2), Wind River (LMU 13-3), Hart River (LMU 13-4), Blackstone River (LMU 13-5), and Ogilvie River (13-6). The RCZ designation recommends a complete land withdrawal for all tenures within the RCZ, except existing surface dispositions (e.g., camps, cabins, and existing buildings). This zone has no grandfathering of subsurface claims, leases, licenses, and permits. Road development for all-season access is strongly discouraged for all RCZ. Limited access may be allowed in some RCZs where it can be shown that impacts to water flow and quality will be insignificant, and that impacts to focal species in the given LMU sub-unit will be insignificant. Note that it is anticipated that these conformity checks will be very difficult to meet in this Region due to the sensitivity of the terrain, incised valley bottoms, and low water flow through the winter months.

### *Snake River Corridor (LMU 13-1)*

The Snake River Corridor is the riparian zone and flood plain of the Snake River from approximately 40 km upstream of the Peel River/Snake River confluence (Big Eddy area) to its headwaters in Wernecke Mountains. Also included is a tributary river in sub-unit 1b. The Snake River Corridor is a popular wilderness tourism destination for river paddlers and includes several areas in the mountain zone that offer scenic views and hiking trips. This river is also an important migratory route for the Bonnet Plume caribou herd and has several important mineral licks in the upper reaches of the river corridor. Designation of RCZ seeks to protect the entire river corridor from any kind of surface disturbance or activity that will result in a decline of the northern mountain caribou herds in the area. The river corridor should also be protected for its aesthetic value and economic potential for low-impact, renewable-resource-based activities.

Key issues with respect to the conservation and management of Snake River corridor include:

- Conduct a viewshed analysis of the river corridor, based on the river corridor and high-value hiking and camping areas. Use this analysis to consider future expansion of the river corridor zone for the Snake River.
- The protected area designation will exclude all-season access in the Snake River corridor.
- Maintaining water flow and quality is a priority in the Snake River Watershed for health of fish populations and human water consumption in the RCZ and the waters downstream.

Recommendation	<ul style="list-style-type: none"> <li>• <i>13-1, a sub-unit of LMU 1, should be designated a Tier I River Corridor Zone (see Section 6 for location and description). This area includes one NND site-specific (NND S-130B) and non-settlement lands.</i></li> </ul>
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### *Bonnet Plume River Corridor (LMU 13-2)*

The Bonnet Plume River Corridor extends from the Tshuu tr'adaojich'uu CLZ (LMU 11c) to the headwaters of the Bonnet Plume River in the Wernecke Mountains. The Bonnet Plume Watershed and River is a Canadian Heritage River. The designation of RCZ recognizes this status. Designation of CLZ seeks to protect the entire river corridor from any kind of permanent surface disturbance or activity that will result in a decline of the northern mountain caribou herds in the area. One access route across this RCZ for all-season access may be allowed, should a formal proposal for mine development be found acceptable through the YESAA process (see Access GMDs and LMU description in Section 5). Any such developments would require complete restoration upon decommissioning of the site and access. This designation is also in agreement with the Gwich'in Tribal Council's high conservation priority given to the "Source Peaks" area. The river corridor should also be protected for its aesthetic value and economic potential for low-impact, renewable-resource-based activities.

Key issues with respect to the conservation and management of Bonnet Plume River Corridor include:

- Desire for on-going scientific research.
- Conduct a viewshed analysis of the river corridor based on the river corridor and high-value hiking and camping areas. Use this analysis to consider future expansion of the river corridor zone.
- The protected area designation will exclude all-season access in the Bonnet Plume River corridor, with the exception of up to one crossing for access to a development of preexisting tenures.
- Maintaining water flow and quality is a priority in the Bonnet Plume River Watershed for health of fish populations and human water consumption in the RCZ and waters downstream.

Recommendation	<ul style="list-style-type: none"> <li>• <i>13-2, a sub-unit of LMU 2, should be designated a Tier I River Corridor Zone (see Section 6 for location and description). This area includes one NND site-specific (NND S-104B, S-105B, S-115B) and non-settlement lands.</i></li> </ul>
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### *Wind River Corridor (LMU 13-3)*

The Wind River Corridor is the riparian zone and flood plain of the Wind River from the Peel River/Wind River confluence to the Wind's headwaters in the Wernecke Mountains. Also included is a tributary river called the Little Wind River. The Wind River Corridor is a popular wilderness tourism destination for river paddlers and includes several areas in the mountain zone that offer scenic views and hiking trips. This river is also an important migratory route for the Bonnet Plume caribou herd and has several important mineral licks in the upper reaches of the river corridor. The Wind River Corridor has an access right-of-way that bypasses the RCZ for the most part, but occasionally enters the RCZ. Sub-unit 13-3 is the only river corridor unit (i.e., LMU 13-x) that explicitly allows road access for future development (see Access GMDs in

section 5 and LMU 13 sub-units in Section 6). Designation of CLZ seeks to protect the entire river corridor from any kind of surface disturbance or activity that will result in a decline of the northern mountain caribou and sheep populations. The river corridor should also be protected, to the extent possible, for its aesthetic value and economic potential for low-impact renewable-resource-based activities.

Key issues with respect to the conservation and management of Wind River Corridor include:

- Conduct a viewshed analysis of the river corridor based on the river corridor and high value hiking and camping areas. Use this analysis to consider future expansion of the river corridor zone.
- All-season industrial infrastructure is discouraged. An all-season road is allowed for access to grandfathered tenures for their development (not exploration) that minimizes overall surface disturbance and road development within sub-unit LMU 3 and the planning region (see Access GMDs).
- Maintaining water flow and quality is a priority in the Wind River Corridor for the health of fish populations and human water consumption in the RCZ and waters downstream.

Recommendation	<ul style="list-style-type: none"> <li>• <i>13-3, a sub-unit of LMU 3, should be designated a Tier I River Corridor Zone (see Section 6 for location and description). This area includes several NND site-specific lands and non-settlement lands.</i></li> </ul>
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### *Hart River Corridor (13-4)*

The Hart River Corridor is the riparian zone and flood plain of the Hart River from the Peel River/Hart River confluence to its headwaters in both the Ogilvie (West Hart River) and Wernecke mountains (Hart River). The Hart River is part of a unique landscape in the Peel and Yukon context as it was ice-free during the last glaciation and contains many genetically unique Beringian species. Several fish species are genetically isolated because Aberdeen Canyon is not passable to fish from downstream. Both the Porcupine and Hart caribou herds winter in this area. Peregrine Falcons nest on the cliffs in the lower portion of the river corridor. The incidence of rare and endemic plant species is high in this watershed. The Hart River Corridor is an important travel corridor and trapline for the Tr'ondëk Hwëch'in First Nation. Although this river is not a popular paddling river, it is ecologically rich and unique in the Yukon context. Designation of RCZ seeks to protect the entire river corridor from any kind of surface disturbance or activity that will result in a decline of the Porcupine caribou and Hart River caribou herds in the area. The river corridor should also be protected for its ecological value and economic potential for low-impact renewable-resource-based activities.

Key issues with respect to the conservation and management of the Hart River Corridor include:

- Desire for on-going scientific research.
- Access to wilderness hiking and paddling from the Dempster Highway (via West Hart River), and remote access from fly-in lakes (Elliot Lake).

- Conduct a viewshed analysis of the river corridor based on the river corridor and high value hiking and camping on adjacent lands. Apply this analysis in considering future expansion of the river corridor zone.
- The protected area designation will exclude all-season access in the Hart River corridor.
- Maintaining water flow and quality is a priority in the Hart River Watershed for health of fish populations and human water consumption in the RCZ and waters downstream.

Recommendation	<ul style="list-style-type: none"> <li>• <i>13-4, a sub-unit of LMU 4, should be designated a Tier I River Corridor Zone (see Section 6 for location and description). This area includes non-settlement lands along the Hart River Corridor.</i></li> </ul>
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### *Blackstone River Corridor (13-5)*

The Blackstone River Corridor is the riparian zone and flood plain of the Blackstone River from the Peel River / Blackstone River confluence to the Blackstone's headwaters in the Ogilvie Mountains. Part of the headwaters of the Blackstone River lies within Tombstone Territorial Park. Within the PWPR, the Dempster Highway runs along the west side of the Blackstone River for approximately 25 km before leaving the Blackstone watershed for the Ogilvie watershed at Engineer Creek. Along with the Hart and Ogilvie rivers, the Blackstone River is part of a unique landscape in the Peel and Yukon context, as it was ice-free during the last glaciation and contains many genetically unique Beringian species. Several fish species are genetically isolated as Aberdeen Canyon is not passable to fish from downstream. Both the Porcupine and Hart caribou herds winter in this area. The incidence of rare and endemic plant species is high in this watershed. There are several THFN site-specific lands along this stretch of the Dempster Highway/Blackstone River, primarily gravesites. There is one R-block, TH R-35B, which lies partially inside the Blackstone River Corridor. This R-block should be considered part of 13-5. Designation of RCZ seeks to protect the entire river corridor from any kind of surface disturbance or activity that will result in a decline of the Porcupine caribou and Hart River caribou herds in the area. The river corridor should also be protected for its ecological value and economic potential for low-impact renewable-resource-based activities.

Key issues with respect to the conservation and management of Blackstone River Corridor include:

- Desire for on-going scientific research.
- Conduct a viewshed analysis of the river corridor based on the river corridor and high value hiking and camping areas on adjacent lands. Use this analysis to consider future expansion of the river corridor zone.
- Access to wilderness hiking and paddling from the Dempster Highway.
- All-season industrial infrastructure is discouraged. A minimum of all-season road access for development (not exploration) beyond this unit is allowed (see Access GMDs).

Recommendation	<ul style="list-style-type: none"> <li>13-5, a sub-unit of LMU 5, should be designated a Tier I River Corridor Zone (see Section 6 for location and description). This area includes site-specific land selections (TH-202B, TH-124B, TH-180B, &amp; TH-181B), TH R-35B settlement land, and non-settlement lands.</li> </ul>
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### *Ogilvie River Corridor (LMU 13-6)*

The Ogilvie River Corridor is the riparian zone and flood plain of the Ogilvie River from the Peel River / Ogilvie River confluence to its headwaters in the Ogilvie Mountains. Within the PWPR, the Dempster Highway runs along the west side of the Ogilvie River for approximately 100 km before leaving the Ogilvie Watershed for Eagle Plains (North Yukon Planning Region). Along with the Hart and Blackstone rivers, the Ogilvie River is part of a unique landscape in the Peel and Yukon context as it was ice-free during the last glaciation and contains many genetically unique Beringian species. Several fish species are genetically isolated as Aberdeen Canyon is not passable to fish from downstream. Both the Porcupine and Hart caribou herds winter in this area, although the Hart herd stays in the southern portion of the Blackstone River uplands. Incidence of rare and endemic plant species is high in this watershed. There is one site-specific land selection at Engineer Creek, VG S-44A and a small R-block TH R-40B in the headwaters of the Ogilvie River. Designation of RCZ seeks to protect the entire river corridor from any kind of surface disturbance or activity that will result in a decline of the Porcupine and Hart River caribou herds in the area. The river corridor should also be protected for its ecological value and economic potential for low-impact renewable-resource-based activities.

Key issues with respect to the conservation and management of Ogilvie River Corridor include:

- Desire for on-going scientific research.
- Conduct a viewshed analysis of the river corridor based on the river corridor and high value hiking and camping areas. Use this analysis to consider future expansion of the river corridor zone.
- Access to wilderness hiking and paddling from the Dempster Highway.
- All-season industrial infrastructure is discouraged. A minimum of all-season road access for development (not exploration) beyond this unit is allowed (see Access GMDs).

Recommendation	<ul style="list-style-type: none"> <li>13-6, a sub-unit of LMU 6, should be designated a Tier I River Corridor Zone (see Section 6 for location and description). This area includes one R-block (TH R-40) and non-settlement lands along the Ogilvie River Corridor.</li> </ul>
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## Tier II – Wilderness Conservation Zone

### *Upper Snake River Watershed (LMU sub-unit 1c)*

The Upper Snake Watershed, LMU 1c, is the Snake River drainage from its headwaters in the Wernecke Mountains to the northern boundary of the Mackenzie Mountain ecoregion where it meets the Peel River Plateau ecoregion. An area (sub-unit 1b IMZ IV) east of the Snake River and Peel River Plateau (sub-unit 1a IMZ I) was excluded to accommodate the potential need to manage development of mineral deposits and future exploration activity. The Upper Snake River Watershed area has high value for the tourism industry, as well as high concentrations of mineral licks, migration corridors for the Bonnet Plume caribou herd, and sheep migration routes. Refer to section 5 for further information about this sub-unit. This area is irreplaceable in the Yukon and Canadian context. The Peel Watershed Advisory Committee recommended that the Snake River Watershed and Source Peak Areas (headwaters of the Bonnet Plume, Snake, and Wind rivers) be protected. There are several site-specific land selections in the Upper Snake Watershed. The designation of GCZ seeks to protect the Snake River Watershed from disturbances that might affect the ecological integrity of the area, while supporting existing low-impact uses according to recommended indicator levels. The designation also allows all-season road access to grandfathered tenures for future development (see Access GMDs), while minimizing overall surface disturbance and road development within sub-unit 1c and the planning region.

Key issues with respect to the conservation and management of Upper Snake Watershed include:

- Need to plan access routes that do not use the Snake River Corridor Zone (sub-unit 13-1) passing through sub-unit 1c (see Access GMDs).
- Continue to collect information on all current and future economic opportunities and conflicting land uses in the region.
- All-season industrial infrastructure is discouraged. All-season road access to grandfathered tenures for future development (not exploration) that minimizes overall surface disturbance and road development within sub-unit 1c and the planning region is allowed (see Access GMDs).
- Maintaining water flow and quality is a priority for health of fish populations and human water consumption in the Snake River Watershed and waters downstream.

Recommendation	<ul style="list-style-type: none"> <li>• <i>1c, a sub-unit of LMU 1, should be designated a Tier II General Conservation Zone (see Section 6 for location and description). This area includes several site-specifics and non-settlement lands.</i></li> </ul>
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### *Lower and Upper Bonnet Plume Watershed (LMU 2a & 2b)*

The Upper Bonnet Plume Watershed LMU 2a and 2b is the Bonnet Plume River drainage from its headwaters of the Wernecke Mountains to the northern boundary of the Mackenzie Mountain ecoregion where it meets the Peel River Plateau ecoregion. The Lower Bonnet Plume Watershed is in the Peel River Plateau. The entire Bonnet Plume Watershed has high value for the tourism industry, a high concentration of mineral licks, migration corridors for the Bonnet Plume caribou herd, and sheep. This area is considered unique within a territorial, national, and even global



context. The Peel Watershed Advisory Committee recommended that the Source Peak Areas (headwaters of the Bonnet Plume, Snake, and Wind rivers) be protected.

The Bonnet Plume Watershed was nominated to the Canadian Heritage Rivers System by YG, NND, DIAND, and Mayo RRC for the protection and conservation of the watershed's natural and human heritage resources. For further information about this sub-unit refer to section 5. There are several site-specific land selections in the Upper Bonnet Plume Watershed. The designation of GCZ seeks to protect the Bonnet Plume River Watershed from disturbances that might affect the ecological integrity of the area and the opportunity for identified renewable-resource-based economies in this area. The designation also allows all-season road access to grandfathered tenures for future development (see Access GMDs), while minimizing overall surface disturbance and road development within sub-unit 2a and 2b and the planning region.

Key issues with respect to the conservation and management of Upper Bonnet Plume Watershed include:

- Baseline research to collect information to increase knowledge about wildlife, hydrology, traditional use, vegetation, aquatic and terrestrial habitat.
- Need for an updated Bonnet Plume Canadian Heritage River Management Plan.
- Most likely area for development (greatest mineralization) often overlaps with areas of higher ecological values within the Bonnet Plume watershed.
- The lower Bonnet Plume watershed contains the majority of the Yukon's coal reserves (Gartner Lee, 2006). This coal is thermal grade, and has been proposed as an energy source for the development of the Crest Iron deposit in the Snake watershed (LMU #1b).
- Need to include complete life-cycle account methods for project proposals: social costs, public subsidies, and clean-up and restoration costs.
- Need to plan access routes that do not use the Bonnet Plume River Corridor Zone (sub-unit 13-2) passing through sub-unit 2a and 2b (see Access GMDs).
- Continue to collect information on all current and future economic opportunities and conflicting land uses in the region.
- All-season industrial infrastructure is discouraged. All-season road access to grandfathered tenures for future development (not exploration) that minimizes overall surface disturbance and road development within sub-units 2a and 2b and the planning region is allowed (see Access GMDs).
- Maintaining water flow and quality is a priority for health of fish populations and human water consumption in the Bonnet Plume River Watershed and waters downstream.

Recommendation	<ul style="list-style-type: none"> <li>• <i>LMU sub-units 2a and 2b should be designated Tier II General Conservation Zones (see Section 6 for location and description). These areas include several site-specifics and non-settlement lands.</i></li> </ul>
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### *Upper and Lower Wind Watershed (LMU 3a & 3b)*

The Upper Wind Watershed is the Wind River drainage from its headwaters of the Wernecke Mountains to the northern boundary of the Mackenzie Mountain ecoregion where it meets the Peel River Plateau ecoregion. The Lower Wind Watershed is in the Peel River Plateau. The entire Wind River Watershed has high value for the outfitting and tourism industry, high concentration of mineral licks in the mountain headwater, migration corridors for the Bonnet Plume caribou herd, and sheep migration routes. There is an existing access R.O.W that is recommended as the main access route into the Wind River LMU. The Peel Watershed Advisory Committee recommended that the Source Peak Areas (headwaters of the Bonnet Plume, Snake, and Wind rivers) be protected. For further information about this sub-unit refer to section 5. There are several site-specific land selections in LMU sub-unit 3a and 3b. The designation of GCZ seeks to protect the Wind River Watershed from disturbances that might affect the ecological integrity of the area and opportunity for identified renewable-resource-based economies in this area. All-season road access to grandfathered tenures for future development (see Access GMDs) that minimizes overall surface disturbance and road development within sub-unit 3a and 3b is allowed.

Key issues with respect to the conservation and management of the Upper and Lower Wind Watershed include:

- Continue to collect information on all current and future economic opportunities and conflicting land uses in the region.
- All-season industrial infrastructure is discouraged. However, grandfathered tenures may be developed. A minimum of all-season road access for development (not exploration) of these tenures is allowed (see Access GMDs).
- Maintaining water flow and quality is a priority for health of fish populations and human water consumption in the Wind River Watershed and waters downstream.

Recommendation	<ul style="list-style-type: none"> <li>• <i>3a and 3b, sub-units of LMU 3, should be designated Tier II General Conservation Zones (see Section 6 for location and description). These areas include several site-specifics and non-settlement lands.</i></li> </ul>
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### *Hart River Watershed (LMU 4a)*

The Hart River Watershed extends from the Peel River/Hart River confluence to its headwaters in both the Ogilvie (West Hart River) and Wernecke mountains (Hart River). Most of the Hart drainage is in the North Ogilvie Mountains with a small amount in the Eagle Plains near where it joins the Peel River drainage. The Hart River is part of a unique landscape in the Peel and Yukon context as it was ice-free during the last glaciation and contains many genetically unique Beringian species. Several fish species are genetically isolated as Aberdeen Canyon is not passable to fish from downstream. Both the Porcupine and Hart River caribou herds winter in this area. Sub-unit 4b is designated as a Critical Landscape zone for protection of the Hart River caribou winter range and unique Beringian species. Peregrine Falcons nest on the cliffs in the lower portion of the river corridor and forage in nearby areas such as: the Peel River Corridor,

Hungry Lake, and Chappie Lake. The incidence of rare and endemic plant species is high in this watershed. The Hart River Corridor is an important travel corridor and trapline for the Tr'ondëk Hwëch'in First Nation. Travel routes connect Engineer Creek, Blackstone River, West Hart River, Little Wind River, Hungry Lakes, and Wind River. Although this river is not a popular paddling river, it is ecologically rich and unique in the Yukon context. Designation of GCZ seeks to protect the Hart River Watershed from any kind of surface disturbance or activity that will result in a decline of the Porcupine caribou and Hart River caribou herds in the area. The Hart River Watershed should also be protected for its ecological value and economic potential for low-impact renewable-resource-based activities. All-season road access to grandfathered tenures for future development (see Access GMDs) that minimizes overall surface disturbance and road development within sub-unit 4a is allowed.

Key issues with respect to the conservation and management of the Hart River Watershed include:

- Support of scientific research.
- Access to wilderness hiking and paddling from the Dempster Highway (via West Hart River), and remote access from fly-in lakes (Elliot Lake).
- Identify high-value hiking and camping areas.
- All-season industrial infrastructure is discouraged. However, grandfathered tenures may be developed. A minimum of all-season road access for development (not exploration) of these tenures is allowed (see Access GMDs).
- Maintaining water flow and quality is a priority for health of fish populations and human water consumption in the Hart River Watershed and waters downstream.

Recommendation	<ul style="list-style-type: none"> <li>• <i>4a , a sub-unit of LMU 3, should be designated a Tier II General Conservation Zone (see Section 6 for location and description). This area includes several site-specifics and non-settlement lands.</i></li> </ul>
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## 4.2 Integrated Management Zone

Thirty-seven percent of the region is within the IMZ, or working landscape, where applications for industrial land uses and other activities will be considered. Twenty-eight percent of the IMZ has a relatively low to lowest development focus (Zone II or I, respectively). Areas with some of the highest potential for significant oil and gas resources (LMU 10a) and mineral deposits (LMU 1b) form nine percent of the region. Within this zone, we indicate special interest in an area north of Tombstone Park (Tr'ondëk Hwëch'in First Hunt Area), where the Tr'ondëk Hwëch'in community carries out seasonal cultural/traditional activities and requires direct consultation on any land-use activities or dispositions that might impact upon those cultural uses (See Appendix A, Map 2). This First Nation has also identified interests in direct consultations regarding any proposed new access off the Dempster Highway. Other areas contained within the IMZ include the Ogilvie and Blackstone watersheds, Canyon Creek, the Richardson Mountains, and much of the Peel Plateau.

### IMZ Class I Descriptions:

#### *Lower Snake River Watershed (1b)*

The Lower Snake River Watershed forms the lower basin of the Snake River watershed in the Peel River Plateau. Rivers in this sub-unit have deeply incised valleys and the landscape has low topographic relief. The area is also part of the Tetlit Gwich'in Primary Use area. There are few existing claims, moderate potential for zinc, and some coal potential. There is moderate potential for oil and gas in the Peel Plateau and Plain Basin. An area recommended for Ecosystem Protection, LMU sub-unit 1d (TG R-11 fee simple land), stands out on the northwest corner of this sub-unit. One NND site-specific is near sub-unit 1d but lies within the Lower Snake River Watershed sub-unit. Designation of IMZ I seeks to discourage all-season road development within this zone. Any all-season access development, should it occur, is recommended as a central access corridor that connects LMU unit 7 to LMU 1 on the east side of the Snake River (see Map 2, Appendix A).

Key issues with respect to the conservation and management of the Lower Snake River Watershed (1a):

- Recommended access route to feasible mineral deposits on the east side of the Snake River.
- Snake River section flowing through this unit is highly valued for tourism and recreation.
- Recognition of subsistence trapping in the area and winter habitat use by the Bonnet Plume caribou herd.

Recommendation	<ul style="list-style-type: none"> <li>• <i>1a, a sub-unit of LMU 1, should be designated a Integrated Management Zone I (see Section 6 for location and description). This area includes non-settlement lands and one site-specific (NND S-139B) in the Peel River Plateau and Snake River Watershed.</i></li> </ul>
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### *Upper Ogilvie River Watershed (6b)*

The Upper Ogilvie River Watershed is situated in the North Ogilvie Mountains. Big game outfitting is the primary industry operating in this sub-unit. There are a few claims and high potential for copper/gold/ uranium in this area. Designation of IMZ I discourages all-season road development within this zone.

Key issues with respect to the conservation and management of Upper Ogilvie River Watershed (6b):

- Extensive permafrost is probable in plains.

Recommendation	<ul style="list-style-type: none"> <li>• <i>6b, a sub-unit of LMU 6, should be designated an Integrated Management Zone I (see Section 6 for location and description). This area includes non-settlement lands.</i></li> </ul>
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### *Peel Plain (7a)*

The Peel Plain sub-unit sits on the flat Fort McPherson Plain ecozone. This area is adjacent to several fee-simple TG lands (see LMU 11 sub-units). This area has continuous permafrost, with many pockets of small wetlands and several lakes. Designation of IMZ I discourages all-season road development within this zone. A central access corridor that connects LMU unit 7 to LMU 1 on the east side of the Snake River is the recommended access corridor for this sub-unit. (see Map 2, Appendix A).

Key issues with respect to the conservation and management of Peel Plain (7a):

- Extensive permafrost is probable in plains.
- TG primary use area.
- High use area for the boreal caribou herd in the PWPR.

Recommendation	<ul style="list-style-type: none"> <li>• <i>7a, a sub-unit of LMU 7, should be designated an Integrated Management Zone I (see Section 6 for location and description). This area includes non-settlement lands.</i></li> </ul>
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## **IMZ Class II Descriptions:**

### *Peel Plateau (12a)*

This unit lies in the Peel River Plateau between the Richardson Mountains to the west and Peel River to the east. Important riparian areas and traditional travel corridors are the Vittrekwa, Road, Trail, and Caribou rivers, which flow through this unit and drain into the Peel River. Oil and gas development in Peel Plateau and Plain basin in this unit has moderate potential for future

development. Eagle Plain basin is likely to be developed first. Designation of IMZ II seeks to maintain ecological integrity, protect heritage and cultural resources, and minimize land-use impacts.

Key issues with respect to the conservation and management of Peel Plateau (12a):

- Surface disturbance should be minimized to reduce permafrost damage.
- Since slope instability has been an issue in the past, terrain stability mapping for this area is a priority.
- The preferred access route to this unit is north-south from the Dempster Highway in the NWT.

Recommendation	<ul style="list-style-type: none"> <li>• <i>12a, a sub-unit of 12, should be designated an Integrated Management Zone II (see Section 6 for location and description). This area includes non-settlement lands.</i></li> </ul>
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### *Blackstone River Watershed (5a)*

The Blackstone River Watershed, sub-unit 5a, drains waters flowing from its headwaters in Tombstone Territorial Park. At its southern extent, the Dempster Highway follows the Blackstone River. There is some mineral interest in this area. Any development requiring all-season access would logically connect to the Dempster Highway. Future development may see construction of a Dempster lateral pipeline connecting to the Alaska Pipeline, should it be developed. Several site-specific TH land selections occur on along the Dempster Highway. Designation of IMZ II seeks to maintain ecological integrity, protect heritage and cultural resources, and minimize land-use impacts.

Key issues with respect to the conservation and management of the Blackstone River Watershed (5a):

- Surface disturbance should be minimized to reduce permafrost damage.
- Culturally important “THFN First Hunt” occurs at the southern end of this sub-unit. Unrelated development is discouraged in this area.
- Visual quality of mountain views off the Dempster Highway is an important draw for tourism in the area.
- Potential new all-season access roads into LUM #5a from the Dempster corridor require careful assessment and management.

Recommendation	<ul style="list-style-type: none"> <li>• <i>5a, a sub-unit of LMU 5, should be designated an Integrated Management Zone II (see Section 6 for location and description). This area includes non-settlement lands and site-specifics (TH S-180B and S-202B).</i></li> </ul>
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### *Southern Richardson Mountains (9a)*

The Southern Richardson Mountains (9a) separate the Eagle Plain from the Peel Plain. To the north, the Gwich'in Land Use Planning Council has identified the unit adjacent to 9a as a conservation zone. The North Yukon Plan identified the unit adjacent to 9a as an IMA II zone. Designation of IMZ II seeks to maintain ecological integrity, protect heritage and cultural resources, and minimize land-use impacts.

Key issues with respect to the conservation and management of 9a:

- All-season roads are not allowed to cross this unit in order to minimize impact to the migration and wintering of the Porcupine caribou herd.
- A co-operative management plan for Dall sheep should be developed, following the principles outlined by the Working Group for Northern Richardson Mountains Dall Sheep (2008).

Recommendation	<ul style="list-style-type: none"> <li>• <i>9a, a sub-unit of LMU 9, should be designated an Integrated Management Zone II (see Section 6 for location and description). This area includes non-settlement lands.</i></li> </ul>
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### **IMZ Class III Descriptions:**

#### *Canyon Creek (10b)*

Canyon Creek (10b) is nestled between Eagle Plains IMZ IV sub-unit 10a and the Richardson Mountains. The riparian areas of Canyon Creek have pockets of high-value wetland habitat. This corridor is also a traditional travel route along Canyon Creek. The North Yukon Planning Commission has identified adjacent units as IMA II & IV. Designation of IMZ III seeks conservative levels of land use.

Key issues with respect to the conservation and management of Canyon Creek (10b):

- Traditional travel corridors have been identified, connecting Eagle Plains to the Peel River.
- Consultation with VGFN, TGFN, NND, and TGFN (Primary Use Area) about impacts on subsistence use in the area.

Recommendation	<ul style="list-style-type: none"> <li>• <i>10b, a sub-unit of LMU 10, should be designated an Integrated Management Zone III (see Section 6 for location and description). This area includes non-settlement lands.</i></li> </ul>
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### *Lower Ogilvie Watershed – Engineer Creek (6a)*

The Lower Ogilvie River Watershed, set in the Taiga ranges ecodistrict, is more mountainous than its upstream sub-unit cousin 6b in the Blackstone Uplands. Tourism potential along the Dempster Highway, which bisects this sub-unit, is high with easy road-based access to wildlife viewing sites and scenic hiking in the Richardson Mountains. At the northern extent of this sub-unit, the Ogilvie Watershed enters the North Yukon Planning Region briefly. Here VHFN have identified their settlement land (TG R-08A) as IMA IV (high development). Designation of IMZ III seeks conservative levels of land use.

Key issues with respect to the conservation and management of Lower Ogilvie River Watershed (6a):

- Maintaining the visual quality of mountain viewsapes along this segment of the Dempster Highway is a management priority.
- Potential new all-season access roads into LMU #6A from the Dempster corridor require careful assessment and management.

Recommendation	<ul style="list-style-type: none"> <li>• <i>6a, a sub-unit of LMU 6, should be designated an Integrated Management Zone III (see Section 6 for location and description). This area includes site-specific lands (VG S-44A) and non-settlement lands.</i></li> </ul>
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### **IMZ Class IV Descriptions:**

#### *Middle Snake Watershed - Crest (1b)*

The Middle Snake Watershed of the Mackenzie Mountains ecoregion has deeply incised river valleys. Like most of the planning region this area is remote and has seen very little overland access in the last thirty years. Grizzly, caribou, moose, and sheep habitat is abundant throughout this unit, particularly in the river valleys. River valleys have high-value habitat and are used as movement corridors. This area has a very large proven iron deposit (Crest iron deposit) and low to moderate potential for other minerals. The Gwich'in Land Use Planning Board has identified the unit adjacent to 1b as a general management zone. Designation of IMZ IV allows the highest level of land use, with access routing that minimizes impacts of access on areas under ecosystem protection and wilderness conservation. Water quality and quantity are management priorities for this sub-unit.

Key issues with respect to the conservation and management of Middle Snake Watershed (1b):

- The Crest iron deposit is considered one of the largest iron deposits in the world. This plan enables its development.



- Recommended all-season access to this unit must be routed northward towards Ft McPherson, along the east side of the Peel River corridor adjacent to the LMUs 11a and 11b (Peel Mainstem, Lower Peel) and subject to thorough engineering, and impact assessment review.
- Recognize and minimize impacts of development on sectors dependent on ecosystem protection and wilderness conservation.
- Water quality and quantity are management priorities for this sub-unit.

Recommendation	<ul style="list-style-type: none"> <li>• <i>1b, a sub-unit of LMU 1, should be designated an Integrated Management Zone IV (see Section 6 for location and description). This area includes non-settlement lands.</i></li> </ul>
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### *Eagle Plains (10a)*

This sub-unit drains a portion of the Eagle Plains into the Peel River. In the adjacent North Yukon Planning Region, drainage is into the Miner River. The Eagle Plains basin has the highest potential for development of oil and gas basins in the PWPR. This area is also a general-use area for the Porcupine caribou herd. There are pockets of high-value waterbird habitat and peregrine foraging along the Peel River. There are traditional travel routes along Dalglish Creek to the Peel River. There are also many VGFN and TGFN archaeological sites and TGFN culturally important places. The NYPC designated adjacent lands as an IMA zone IV, with a development focus on oil and gas. In addition to the GMDs for access development (Section 5), the PWPC recommends that Eagle Plains sub-unit 10a follow the management recommendation made for the adjacent unit by the NYPC. Designation of IMZ IV allows highest level of land use, with access routing that minimizes impacts of access on areas under ecosystem protection and wilderness conservation. Water quality and quantity are management priorities for this sub-unit.

Key issues with respect to the conservation and management of Eagle Plains (10a):

- Recognize and minimize impacts of development on sectors dependent on ecosystem protection and wilderness conservation.
- Water quality and quantity are management priorities for this sub-unit

Recommendation	<ul style="list-style-type: none"> <li>• <i>10a, a sub-unit of LMU 10, should be designated a Integrated Management Zone IV (see Section 6 for location and description). This area includes non-settlement lands.</i></li> </ul>
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### 4.3 Land Withdrawal

Within the planning region, the recommended land withdrawal applies to all Tier I Recommended Protection Zones (15%). The proportion of the region with active tenures in Tier I is 0.4%. Lands recommended for withdrawal (i.e., not grandfathered) under Tier II Recommended Conservation Zones make up 44% of the planning region. With a land withdrawal, these lands are not available for future mineral and oil and gas disposition and exploration. All-season industrial infrastructure is discouraged. However, access development may take place in the Wind River Corridor Zone, across the Bonnet Plum Corridor Zone and within the IMZ and General Protection Zones to access grandfathered tenures.

*Key issues with respect to the status of the land withdrawal include:*

- Legislative amendments following approval of the Final Recommended Peel Regional Land Use Plan would be required to enable land withdrawal; there is need to have an Interim Action plan to enable this process.
- The area contains some of the highest wildlife, fish, cultural, and heritage values in the region, including important concentrated use areas for the Hart River caribou herd.
- The area also contains some of Yukon's highest mineral values.
- Adjacent lands in the Gwich'in Settlement Region have a strong conservation management focus.

Recommendation	<ul style="list-style-type: none"> <li>• <i>Should the applicable tenure holders decide to relinquish their tenured holdings in GCZ, these lands will be held in a land withdrawal and will not be available for mineral and oil and gas disposition.</i></li> <li>• <i>GCZ zones will be considered for Tier I designation for protection in future reviews of this Plan.</i></li> </ul>
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## 5. General Management Direction

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This section deals with general management direction to guide the permitting and management of land uses throughout the entire Peel Watershed Planning Region. For a discussion of how general management direction is applied to specific landscape management units (LMUs), see Section 6 of this Plan.

The management direction proposed here can be integrated into existing processes, such as the land application review process. Other management plans in effect or in preparation for the region should be consulted for additional direction and guidance (see Appendix 3).

An overview of identified ecological, cultural, and economic values and resources referenced in this section can be found in Maps 3-5, Appendix A. Detailed maps and descriptions of resource values are contained in the and the Conservation Priorities Assessment Report and Maps (Peel Watershed Planning Commission, 2008a and b) and Resource Assessment Report and Maps (Peel Watershed Planning Commission, 2008c and d). These materials are available from the PWPC website ([www.peel.planyukon.ca](http://www.peel.planyukon.ca)) and should be consulted when further information is required.

### **Strategies, Best Management Practices, and Recommendations**

This Plan assumes that, whenever possible and practical, the recommended strategies, best management practices, and recommendations will be considered and implemented. Operational decisions regarding general management directions are at the discretion of land users, assessment boards, and agencies. A summary of best management practices and recommendations from this section can be found in Appendix B.

### 5.1 Coordinated Land-Use Management

Integrated resource stewardship requires consideration of the economic, social, and ecological consequences of land-use decisions, and the management of lands and resources in an integrated and coordinated manner. Steps toward achieving this include establishing and refining land management objectives, designating lands for management priorities, and monitoring land-use change to minimize long-term impacts or conflicts between resource users. Without such an integrated policy and monitoring regime, significant issues can arise when new access and/or multiple land-use activities impact upon key ecological functions. In addition to this over-arching need for coordinated land-use monitoring, the PWPC therefore recognizes three important related issues that require management strategies: cumulative effects, human-caused land and water impacts, and climate change.

*Key issues related to resource-policy integration:*

- Land uses have impacts on other land uses. Complex land-use interactions should be managed to minimize negative impacts and promote positive impacts.
- The balance of risks and benefits accrued by respective land uses often shifts with their pace, scale, and cumulative effects.
- The relationships among land uses and the regional ecology are expected to shift with climate changes. Planning for these changes is difficult, but important;
- Considering the future anticipated land uses in the Peel watershed, increased opportunities for motorized access and predator movement as a result of new linear features will likely be larger management issues than direct habitat loss.

**Management Goal 1:** *Promote plan principles by ensuring social, cultural, economic, and environmental policies are applied to the management, protection, and use of land, water, and resources in an integrated and coordinated manner*

OBJECTIVES	STRATEGIES
1.1 Consider social, economic and ecological risks and benefits of land-use decisions.	1.1.1 Periodically evaluate the Peel region's management regime and future opportunities to understand social, economic, and ecological consequences of land-use decisions. 1.1.2 Evaluate land-use and development proposals to understand social, economic, and ecological consequences of climate change. 1.1.3 Establish acceptable limits of change and indicators of environmental condition. 1.1.4 Potential climate-change impacts should be considered in all land-management decisions.
1.2 Develop a landscape management framework that facilitates coordinated and integrated decision making.	1.2.1 Adopt the recommended landscape management units as defined in sections 4 to guide land-use conformity. Recognize land-use designation system defined in section 4 as applied to the landscape management units. 1.2.2 Develop and implement a results-based management framework for indicator monitoring and assessment. 1.2.3 Recognize and contribute to YLUPC's standardized, accessible regional database of identified resources and values.
<b>BEST MANAGEMENT PRACTICES</b>	<ul style="list-style-type: none"> <li>• <i>See individual ecological, heritage and culture, and economic sections below.</i></li> </ul>
<b>INDICATORS</b>	<ul style="list-style-type: none"> <li>• <i>See individual ecological, heritage and culture, and economic sections below. Further indicators to be determined through future research and plan implementation.</i></li> </ul>

## 5.2 Cumulative-Effects Management

Cumulative effects are changes to the environment and/or society that result from a land-use activity in combination with other past, present, and future activities. Negative effects are called cumulative impacts. While one activity may have only a small impact, the combined effect of a number of activities may have a significant impact.

Managing cumulative effects is best accomplished by applying a suite of integrated and coordinated actions to land management. Assessment, mitigation, government policy, legislation, and planning all play a role.

In the Yukon, no single agency or group is responsible for cumulative-effects management. Adherence to this Plan on its own is not sufficient to manage cumulative effects. However, the tools and approaches in this Plan provide responsible agencies and land users with a framework for cumulative-effects management.

*Among the key issues related to managing cumulative effects:*

- Assessing and mitigating land-use activities on a project-by-project basis are not effective strategies for managing cumulative effects
- Cumulative-effects management must consider both direct and indirect impacts to valued resources, resource users and affected communities
- Monitoring the impacts of multiple land-use activities is necessary to assess and evaluate potential cumulative effects.

Many of the recommended strategies and best management practices (related to industrial land-use activity) contribute to maintaining the amount of surface and hydrological disturbance below the recommended cautionary and critical cumulative-effects indicator levels. These strategies should be considered by both project proponents and decision makers.

The process for maintaining these cautionary or critical levels will involve communication between the implementing Parties. This process will recognize the discretion of the Parties to make final decisions informed by:

- selection of recommended indicators and levels;
- other land-use plan recommendations; and,
- advice from third parties, such as YESAB.

Maintaining surface and hydrological disturbance below these levels will also involve resource users, who will be expected to apply this Plan as a guide when developing project proposals, carrying out operations, and decommissioning projects. The mechanics for enforcing this recommendation will be at the discretion of the Parties and will be addressed by the Parties as part of implementation planning.

OBJECTIVES		STRATEGIES	
1.3	Minimize and manage the cumulative impact of multiple land-use activities on wildlife and fish habitat, water quality, and people.	1.3.1	Utilize results of Land Use Plan reviews to recommend measures for minimizing potential cumulative land-use impacts.
		1.3.2	Promote proactive land management through application of a results-based management framework.
		1.3.3	Develop appropriate tools, approaches, and indicators to monitor and manage cumulative impacts to land, water and ecosystems.
		1.3.4	Consider project-level contributions to regional cumulative impacts on land, water, fish, wildlife, and people.
		1.3.5	Manage location, scale, and intensity of land use.
		1.3.6	Potential climate-change impacts should be considered in all cumulative-impact assessments.
<b>BEST MANAGEMENT PRACTICES</b>		<ul style="list-style-type: none"> <li>• <i>No best management practices are recommended at this time.</i></li> </ul>	
<b>INDICATORS</b>		<ul style="list-style-type: none"> <li>• <i>Indicators to be determined through future research and plan implementation.</i></li> </ul>	

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>To be determined through future research and plan review/implementation.</i></li> </ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>To be determined through future research and plan review/implementation.</i></li> </ul>
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## 5.2.1 Human-caused Land and Water Impacts

### 5.2.1.1 Surface Disturbances

Human-caused surface disturbance is the physical human *footprint* on the land, the most visible legacy of land-use activities. Increasing levels of surface disturbance and habitat change represent increasing risks to native wildlife and fish populations and to the overall integrity of natural systems.

Approximately 7,000 kilometres of linear features, representing thousands of hectares of surface disturbance, were created in the region by historical oil and gas and mineral exploration, and transportation infrastructure (Map 5, Appendix A). Almost all historical linear features are seismic lines, tote roads, and winter trails.

Some historical features are relatively permanent and will remain in a disturbed condition for decades. Many historical linear features have recovered to the point where they are no longer functional surface disturbances. Very few of these linear features are actively used by people.

A human-caused surface disturbance is considered recovered, or returned to its natural state, when it no longer facilitates travel or access by wildlife and people<sup>1</sup>, when increased run-off and sediment loading is no longer significant, and when its contours roughly match the original contours. In forested or shrubby areas, a feature can be considered recovered when at least 25% is covered by woody vegetation (trees and shrubs) at least 1.5m in height. In areas mostly covered with low-growing vegetation (i.e., <1.5m), a feature can be considered recovered when it is vegetated with native species of approximately equal height to the surrounding dominant vegetation and the extent of cover by this vegetation is at least 50% that of surrounding undisturbed terrain. Re-contouring certain disturbances, such as bridge abutments or elevated road beds, may also be necessary before the site can be considered fully restored to natural conditions.

As human-caused surface disturbances, including linear features, recover through natural revegetation or active reclamation, they are subtracted from the total amount of disturbed area. Reclaiming surface disturbances upon completion of activities will allow higher levels of land use to occur in relation to recommended surface-disturbance and linear-density indicator levels.

*Among the key issues related to managing surface disturbances:*

- Surface disturbances create direct and indirect impacts on wildlife and fish.
- Visual quality of the landscape for human use and enjoyment can be affected for long periods of time.
- Comparisons of current levels of surface disturbance to recommended indicator levels are necessary to monitor and track the cumulative effects of land use.

<b>BEST MANAGEMENT PRACTICES – SURFACE DISTURBANCES</b>	<ul style="list-style-type: none"> <li>• <i>The size, intensity, and duration of all surface disturbances should be reduced.</i></li> <li>• <i>Native endemic plants should be used for active reclamation of disturbed sites.</i></li> </ul>
<b>INDICATORS</b>	<ul style="list-style-type: none"> <li>• <i>Surface disturbance.</i></li> <li>• <i>Linear density.</i></li> <li>• <i>Patch size/core area fragmentation.</i></li> </ul>

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<sup>1</sup> This part of the definition of recovered is closely linked with human and predator access and potential effects on caribou and moose, key values in the region.



<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>As a general guideline for decision makers and land users, the amount of surface disturbance in a landscape management unit should be maintained below the cumulative-effects indicator levels recommended in the Plan.</i></li> <li>• <i>Site closure/remediation plans should be developed, implemented, and monitored for large-scale industrial and/or infrastructure projects that create significant surface disturbance.<sup>2</sup></i></li> </ul>
<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>To provide a benchmark for the monitoring of cumulative-effects indicator levels, the status of existing surface disturbances should be documented.</i></li> <li>• <i>Determine the efficacy of the Plan’s definition of “ecosystem recovery” in addressing concerns about run-off and sediment loading, particularly for non-forested/shrubby areas.</i></li> </ul>

### 5.2.1.2 Hydrological Disturbances

Human-caused hydrological disturbances are less obvious than surface disturbances. Nevertheless, they were often the first issues to be raised at community consultations. Alterations to water quality and flow regime increase risks to populations of fish and other aquatic species, and to the overall integrity of natural systems. Reduced water quality also can impact the health of people living in camps or on the land downstream.

The current states of water quality and flow are thought to be essentially unaltered by people. Some future land uses could incrementally alter both. In general, these effects would be increasingly diluted with distance downstream. However, a single large effect or several smaller ones could alter water quality and/or flow beyond acceptable levels. Water indicators could provide a natural way to assess the cumulative impacts of dispersed-point impacts. Further, water indicators are applicable in mountainous terrain, where surface-disturbance indicators, which often assume an essentially even distribution of disturbance, may not be.

Flows have been measured for decades at a small number of gauging stations in the watershed. Water quality and chemistry have been assessed at a larger number of locations, but typically only once. These studies generally show that the water quality and flow in the Peel watershed are very dynamic. Winter flows are typically very low, but of good quality.

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<sup>2</sup> Land uses that do not result in the creation of functional disturbance are exempted from the requirement for site closure/remediation plans. Revegetation and reclamation of impacted sites should be considered in the preparation of these plans.

Flows spike in the summer, while quality declines. Water quality also varies naturally with the underlying rock formations. The dynamic nature of water in the Peel, the spotty baseline data, and the overarching effects of climate change may make water-based cumulative-effects indicators difficult to implement.

*Among the key issues related to managing hydrological disturbances:*

- Water quality and flows have large influences on culturally and economically important fish populations yet may be impacted by a number of land uses.
- The planning region is the only one in the Yukon based on hydrology. This underscores the local communities' concerns about water.
- Baseline data on water quality and flows is spotty and may not yet be sufficient for hydrological cumulative-effects indicators.
- The effects of climate change on top of natural variations from place to place or with time could make assessment of hydrological cumulative-effects indicators difficult.

<b>BEST MANAGEMENT PRACTICES – HYDROLOGICAL DISTURBANCES</b>	<ul style="list-style-type: none"> <li>• <i>The size, intensity, and duration of all disturbances in wetlands, peatlands, and riparian areas should be reduced.</i></li> <li>• <i>Waste water should be held to a high standard.</i></li> <li>• <i>Impoundments should be engineered and built to withstand more than foreseeable floods and earthquakes.</i></li> <li>• <i>Withdrawal of water should be kept to an absolute minimum, except possibly during peak-flow periods.</i></li> <li>• <i>Withdrawal of water should be avoided during winter.</i></li> </ul>
<b>INDICATORS</b>	<ul style="list-style-type: none"> <li>• <i>Water quality.</i></li> <li>• <i>Water flow.</i></li> </ul>

<b>POLICY RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>As a general guideline for decision makers and land users, the amount of hydrological disturbance from landscape management units above a monitoring station should be maintained below the cumulative-effects indicator levels recommended in the Plan.</i></li> </ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>To provide a benchmark for the monitoring of cumulative-effects indicator levels, ongoing water quality and flow monitoring programs should be supported and, if feasible, expanded to every major tributary.</i></li> <li>• <i>Interim critical-indicators levels may need to be redefined using available baseline data. They may need to be defined as a percent deviation from normal, or in absolute terms.</i></li> </ul>
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### 5.2.1.3 Contaminated Sites

Several contaminated sites have been identified in the region. Based upon existing information, three sites (two associated with the old Hart River Mine and one with the Crest iron deposit) require remediation, and eleven require assessment. One or more sites have been decontaminated. Most documented sites consist of empty fuel drums and assorted refuse resulting from historical oil and gas or mineral exploration activities.

At this time, the number and nature of the identified sites do not appear to represent a major threat to regional ecological integrity or the health of wildlife and fish populations. Nonetheless, contaminated sites are a concern for the regional communities and local land users, and have been shown to impact the feeling of wilderness coveted by the tourism and big game outfitting sectors.

The most important strategy to minimize potential contaminated-site impacts in the region is prevention of new contaminated sites through careful mitigation, operating practices, and monitoring.

<b>POLICY RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Contaminated sites should be cleaned up with those sites with most potential to impact on water quality or tourism and big game outfitting a priority.</i></li> </ul>
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### 5.2.2 Climate-Change Effects

The Peel watershed is expected to experience some of the largest climate-related changes in Canada. Residents of the general region are concerned about the impacts of future climate change on the land, water, wildlife, and fish, and the resulting changes to the culture and traditional economy of the First Nations.

*Among the key issues related to managing climate-change effects:*

- Biophysical changes are expected<sup>3</sup>, but with uncertain magnitude.
- Three general habitat types are at significant risk of change due to vegetation conversion and permafrost degradation:
  - high-elevation habitats used by Porcupine caribou and sheep;
  - low- and mid-elevation non-forested tundra habitats; and,
  - major wetland complexes.
- Slope stability in areas underlain with permafrost is expected to decrease. This would have negative repercussions for local water quality or any human infrastructure like

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<sup>3</sup> Predicted changes include increasing and more variable winter snow depths, increasing summer drought indices, decreased in-stream water flow, increasing fire rates, and vegetation-community change and conversion.

roads or pipelines. Several failed slopes have been detected in the Peel Plateau – an area underlain with permafrost and with large steep slopes.

- In-stream water flow rates may decrease, resulting in reduced water availability for fish overwintering and industrial land uses.
- Changing winter snow and ice conditions may affect caribou distribution, migration patterns, and range use.
- People's ability to travel on the land and by river may be affected by decreasing summer flow rates and changing winter snow and ice conditions.
- Significant deposits of coal, natural gas, and possibly oil are thought to occur in the region. If developed, these resources would contribute to climate change.

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>In the Peel Watershed Planning Region, potential climate-change impacts should be considered in all land management decisions.</i></li> <li>• <i>Due to the potential cumulative effects of climate change and land-use impacts, sensitive wetland habitats and caribou habitats at risk of significant change should be managed cautiously and with a high level of conservation focus.</i></li> <li>• <i>When evaluating choice of fuel sources for development projects in the region follow mitigation measures for volume of greenhouse gases discharged into the atmosphere outlined in Government of Yukon Climate Change Strategy (July 2006): a) increase energy efficiency, b) shift from high carbon to low carbon fuels, c) increase use of renewable energy sources, and) investigate carbon sequestration in vegetation and soils.</i></li> </ul>
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**Climate Change**

A land use plan cannot manage climate-change effects. It is critical to consider and account for any climate change effects through both scientific investigation, traditional and local ecological knowledge/observations. The precautionary principle and adaptive management are relevant concepts for managing and adapting to climate change.

The Plan considers and accounts for potential climate-change effects by recommending a higher level of conservation-management focus in important caribou habitats, major wetland complexes, and major river corridors. These areas are at greatest risk from climate-change impacts.

Setting aside large intact ecosystems has been identified as being a good way to help ensure the persistence of ecological values in the face of climate change. This strategy was an important consideration for the Recommended Conservation Zones of this Plan. Climate change was also considered when selecting recommended cumulative-effects indicator levels for Integrated Management Zones (e.g., Richardson Mountains).

## 5.3 Aquatic Resources

### 5.3.1 Wetlands, Lakes, and Rivers

Wetlands, lakes, and rivers are ecologically and culturally significant and sensitive areas that provide a variety of goods and services, such as wildlife and fish habitat, carbon storage, and clean drinking water. They are also important travel and use corridors for a variety of socio-cultural and wilderness/cultural tourism activities.

In this Plan, wetlands<sup>4</sup> are defined as “all open water aquatic environments, both lentic (still water) and lotic (moving water) features, and their adjacent environments.” Environments adjacent to wetlands include riparian and peatland (bogs and fens) habitats, although peatlands are likely underestimated by this definition. Wetland complexes are concentrated groupings of individual wetlands and may include both wetland and non-wetland habitats. Wetland complexes, and their associated peatlands, function as an integrated hydrologic system.

The Peel, Ogilvie, Blackstone, Wind, Bonnet Plume, and Snake rivers are identified as Major River corridors. The Road, Trail, and Caribou rivers are Minor River Corridors. The spatial extent of the River Corridors includes both the river channel and incised, sloped terrain with a high percentage of colluviums of major streams and rivers that flow through mountains, plateaus, or basin valleys. We used existing terrain mapping to define the River Corridors.

Various agencies have mapped known key wetlands. These wetlands are very large wetland complexes that provide habitat for wildlife, particularly waterfowl. A comprehensive and accurate map showing all wetland, lake, and river habitats in the region is not currently available. Habitat mapping is particularly lacking for fish. Known locations of spawning, occupancy, and traditional use are incompletely inventoried. We used both the 1:50,000 and 1:250,000 National Topographic Database (NTDB) to map wetlands, lakes, and rivers. We used the Yukon Key Wetlands and waterbird habitat mapping to define habitat associated with these spatial elements. Fish-habitat-potential mapping was used as a proxy for the limited fish-habitat mapping that current exists for the Peel.

Objectives for water stewardship were developed to provide land-use guidance around aquatic systems and species dependent on them. Management focus is given for fish and waterbirds. Specific strategies are aimed at minimizing human disturbances in significant or sensitive habitat, with special focus on riparian connectivity to terrestrial systems and overwintering and spawning habitat for fish.

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<sup>4</sup> The National Wetlands Working Group (1988) defines wetlands as “land that has the water table at, near, or above the land’s surface or which is saturated for a long enough period to promote wetland or aquatic processes as indicated by hydric soils, hydrophytic vegetation, and various kinds of biological activity that are adapted to the wet environment.” Permafrost conditions can create poor soil drainage conditions across broad geographic areas, resulting in hydric soil conditions for much of the growing season with possible seasonal standing water. Such areas would typically not be considered wetlands.

*Key issues related to managing wetlands, lakes, and rivers:*

- Lack of baseline hydrological and water quality data in the tributaries of the Peel Watershed are limits to establishing threshold/indicator levels for land-use management.
- Available water flow rates and storage capacity considered inadequate to support industrial activities.
- Insufficient research on climate-change effects on watershed resources (permafrost, glacier melt, winter and peak flows) to evaluate effects from industrial activities (e.g., mine, gas developments).
- Minor alterations to wetland hydrology through construction of all-season roads, well pads, and similar features can result in significant impacts.
- Large volumes of aggregate are typically required to support all-season infrastructure in wetland environments, making reclamation difficult.
- Land-use conflicts might arise between multiple uses of wetlands, lakes and rivers: a) travel along river corridors (both adjacent and along rivers), or b) fly-in lakes.

The need to identify ecologically sensitive wetland areas should be reviewed on an ongoing basis in consideration of industrial activity levels. There is currently no wetlands policy in the Yukon to provide additional management guidance for the Plan. Several policy, management objectives, and indicators used in the Plan are identified from the Mackenzie River Basin Transboundary Water Management Agreement.

**Management Goal 2:** *Provide for the management, protection, and use of water and related ecosystems and the species they support for the future.*

**Desired Future State**

- Viable fish populations that continue to support the sustenance, cultural, economic, and recreational needs of First Nations and local residents.
- Healthy riparian and aquatic ecosystems and the species that they support, within their natural range of population size and habitats.
- Unaltered hydrological connectivity.
- Water flows and qualities that are within their natural range of variation.

OBJECTIVES	STRATEGIES
2.1 Minimize amount of human-caused surface disturbance within and adjacent to lakes, rivers, wetlands.	2.1.1 Avoid or minimize industrial land-use activities in wetlands and riparian areas. 2.1.2 Coordinate and manage road and trail access. 2.1.3 Reduce amount and minimize effect of surface and vegetation impacts in riparian areas.

<p>2.2 Maintain wetland and riparian integrity (NF) and connectivity.</p>	<p>2.2.1 Avoid or minimize industrial land-use activities in wetlands and riparian areas.</p> <p>2.2.2 Coordinate and manage road and trail access.</p> <p>2.2.3 Reduce surface and vegetation impacts in riparian zones.</p> <p>2.2.4 Minimize alteration of drainage patterns, and water flow.</p> <p>2.2.5 No permanent alteration of drainage patterns or waterflow will result from human-caused surface disturbance. If alteration of waterflow must occur, the proponent must indicate the alteration results in zero-impact to aquatic ecosystems.</p>
<p>2.3 Maintain visual quality and aesthetics of Major River corridors.</p>	<p>2.3.1 Avoid or minimize industrial land-use activities in wetlands and riparian areas.</p> <p>2.3.2 Coordinate and manage road and trail access.</p> <p>2.3.3 Reduce surface and vegetation impacts in riparian and sensitive permafrost areas.</p> <p>2.3.4 Avoid large-scale industrial and/or infrastructure projects within Major River corridors.</p>
<p>2.4 Maintain significant seasonal habitats for wetland-dependent organisms.</p>	<p>2.4.1 Avoid or reduce activities in wetland habitat during important biological periods or seasons for breeding waterbirds and other wetland-dependent organisms (e.g., utilize timing windows).</p> <p>2.4.2 Prohibit all-season infrastructure in designated wetland complexes<sup>5</sup> (NF).</p> <p>2.4.3 Avoid in-stream aggregate (gravel) extraction (NF from fish).</p>
<p>2.5 Maintain quantity, quality, and rate of water flow, including seasonal rate of flow.</p>	<p>2.5.1 Avoid or reduce water withdrawals in sensitive wetland areas.</p> <p>2.5.2 Conforming to Yukon Government Policy, bulk removal of water from the Peel Watershed is prohibited.</p> <p>2.5.3 Surface disturbance within and adjacent to wetlands and lakes should not result in diminished water quality or quantity (BMP).</p>
<p>2.6 Minimize stream crossings and/or stream crossing impacts as a result of roads and trails.</p>	<p>2.6.1 Coordinate and manage road and trail access.</p>
<p>2.7 Maintain significant fish over-wintering and spawning habitat.</p>	<p>2.7.1 Avoid direct disturbance to sensitive over-wintering habitats.</p> <p>2.7.2 Avoid significant sea-run fish spawning habitat.</p> <p>2.7.3 Avoid or reduce activities in fish habitat during important biological periods or seasons (e.g., utilize timing windows).</p> <p>2.7.4 Avoid or reduce winter in-stream water withdrawals in, or upstream of, sensitive overwintering fish habitat.</p>
<p>2.8 Maintain fish migration routes and access to required seasonal habitats.</p>	<p>2.8.1 Avoid direct or indirect blocking of identified fish migration routes.</p>
<p>2.9 Manage wild fish stocks (sea-run, and non-sea-run) to be a sustainable, renewable resource.</p>	<p>2.9.1 Continue to promote effective fisheries management.</p> <p>2.9.2 Continued coordination of information and studies among federal, First Nation, and both territories' agencies.</p>

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<sup>5</sup> The Yukon Government adopted the Department of Indian and Northern Affairs' Policy Statement respecting the Prohibition of Bulk Removal from the Northwest Territories and Nunavut in December, 2003. This policy defines bulk water as any water transferred out of a river basin in any individual container greater than 40 litres, or removal by any means that involves permanent out-of-basin transfer, whether by diversion, tanker, or other mechanism.



	2.9.3 Encourage research on the spawning habitat and populations of anadromous fish species in the Peel Watershed.
<b>BEST MANAGEMENT PRACTICES – WETLANDS &amp; LAKES</b>	<ul style="list-style-type: none"> <li>• <i>All-season infrastructure should be discouraged in key wetland complexes.</i></li> <li>• <i>All-season infrastructure should be located a minimum distance of 100m from wetlands and lakes.<sup>6</sup></i></li> <li>• <i>Activities in the vicinity of wetlands and wetland complexes should be carried out during the winter.</i></li> <li>• <i>If land-use activities are required in wetlands, hydrology, water flow, and natural drainage patterns should be maintained.</i></li> <li>• <i>If required, surface disturbance within and adjacent to wetlands and lakes should not result in diminished water quality or quantity.</i></li> </ul>
<b>BEST MANAGEMENT PRACTICES – MAJOR RIVERS &amp; RIVER VALLEYS</b>	<ul style="list-style-type: none"> <li>• <i>To maintain visual quality and aesthetics, all-season infrastructure should be discouraged within Major River corridors (see Map 2, Appendix A).</i></li> <li>• <i>Minimize construction of new permanent river crossing structures and routing of new all-season access roads through RCZ (see Map 2, Appendix A).</i></li> <li>• <i>Where new all-season or winter access roads and/or trails are required to cross Major River and riparian corridors, these should be designed, constructed, and used in a manner that minimizes direct and indirect impacts to fish, wildlife, and their habitats.</i></li> <li>• <i>Surface disturbance and land-use activities within and adjacent to Major River and other riparian corridors should not result in diminished water quality, quantity, or flow.</i></li> <li>• <i>Whenever possible, avoid aggregate (gravel) mining activities in Major River Corridors.</i></li> </ul>
<b>INDICATORS</b>	<ul style="list-style-type: none"> <li>• <i>Surface disturbance.</i></li> <li>• <i>Stream crossing density.</i></li> <li>• <i>Other indicators to be determined through future research and Plan implementation.</i></li> </ul>

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<sup>6</sup> Source: Petrula (1994).

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Water withdrawals in ecologically sensitive wetland areas should be prohibited.</i></li> <li>• <i>Water withdrawals in sensitive<sup>7</sup> fish overwintering areas should be prohibited (see CPAR map 7 for known locations).</i></li> <li>• <i>To minimize potential impacts to regional fish populations, in-stream and lake overwintering habitat should be identified in advance of the assessment process for large-scale industrial and/or infrastructure projects.</i></li> </ul>
<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Peel wetlands should mapped using a Yukon Wetland Classification based on the Canadian Wetland Classification System. This wetland inventory should be done in advance of any significant development.</i></li> <li>• <i>Support research on long-term water quality and quantity changes and their influences on key fish habitat including possible climate-change effects.</i></li> </ul>

### 5.3.2 Focal Species Management

#### 5.3.2.1 Fish

Fish populations are susceptible to a variety of impacts that can affect both population health and the integrity of habitat. The level of understanding of fish and fish habitat in the region is generally considered poor.

Whitefish, arctic grayling, lake trout, and Dolly Varden char are highly valued subsistence food for First Nation people and anglers. The fish fauna of the Peel River is unique in Yukon as it includes Mackenzie River drainage species. Aberdeen Canyon is a barrier to fish downstream of it. This has created populations of resident and isolated fish populations. Chum salmon are rarely found in the region, although rare occurrences have been reported downstream of Aberdeen Canyon. However, for the Tetlit Gwich'in, sea-running whitefish have a cultural importance akin to that of salmon for other Yukon First Nations. Therefore, whitefish spawning grounds have a high cultural value. Non-sea-run fish are present

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<sup>7</sup> The sensitivity of fish habitat to water withdrawals depends on a variety of factors. Significant overwintering habitats in some of the Major Rivers may be relatively resilient to water withdrawals, due to their size and rate of flow. The sensitivity of overwintering fish habitats requires additional assessment.

throughout the watershed, and many important stocks migrate between summer and overwintering habitats.

*Key issues related to managing fish habitat:*

- Industrial land-use activities may create direct fish-habitat impacts, including habitat loss, degradation, and barriers to fish passage.
- Linear features related to industrial land-use activity (seismic lines, trails, and winter and all-season roads) may increase human access and opportunities for harvesting, potentially leading to decreased fish populations.
- Rates of fish harvest could become unsustainable, although current rates of fish harvest are considered sustainable. Fish harvesting has been fairly high on some lakes and on stocks of whitefish and Dolly Varden char in the lower Peel, but generally appears to be sustainable.
- Climate-change effects are anticipated to result in decreased peak stream-flow rates, potentially impacting fish habitats and populations.

*Management issues specific to sea-run fish (anadromous):*

- Whitefish, Dolly Varden char, herrings and inconnu are of immense current and historical importance as a food source for people along the Peel River and into the Mackenzie Delta.
- The population size of sea-run fish is limited by spawning habitat. Spawning habitat is localized and requires specific gravel deposition and channel complexity that is poorly understood.

*Management issues specific to non-sea-run fish (potadromous):*

- In-stream water withdrawals required for industrial land uses may lead to impacts on fish overwintering habitat.
- Arctic grayling and lake trout are of immense current and historical importance as a food source for people along the Peel River and into the Mackenzie Delta.
- The population size of potadromous fish is limited by overwintering habitat.
- Overwintering habitat is strongly associated with surface groundwater (aufeis is a good indicator of surface groundwater), major confluences, and lakes.

<b>BEST MANAGEMENT PRACTICES</b>	<ul style="list-style-type: none"> <li>• <i>To minimize potential impacts on regional fish populations, aggregate (gravel) mining should be prohibited in and about significant fish habitats.</i></li> <li>• <i>If aggregate mining is required in significant fish habitats, appropriate operational timing windows should be utilized to minimize activities during important biological periods.</i></li> </ul>
<b>INDICATORS</b>	<ul style="list-style-type: none"> <li>• <i>Water quality.</i></li> <li>• <i>Water flow.</i></li> </ul>

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Given the current level and type of land-use activity, the use of ice roads or winter roads as river crossings—if conducted in accordance with best management practices—is generally considered adequate to mitigate potential impacts on fish stocks or habitats.<sup>8</sup></i></li> </ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>The need to identify sensitive fish habitat (particularly spawning and overwintering sites) should be reviewed on an ongoing basis in consideration of industrial activity levels.</i></li> <li>• <i>Develop capacity to monitor fish harvest to track general trends and inform adaptive management.</i></li> </ul>
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#### 5.3.2.2. Waterbirds

Waterbirds (ducks, geese, swans, loons, and grebes) are an indicator of the health of taiga lakes and wetlands, and many have important cultural and subsistence value to local First Nations. Their key migratory and nesting habitats include wetlands, lakes, and riparian areas – places that are relatively uncommon in this generally mountainous region.

##### *Key issues related to managing waterbird habitat:*

- Waterbirds are highly dependent on wetlands and therefore are sensitive to wetland disturbances.
- The connectivity between open water, vegetated wetlands, and riparian areas are key elements for waterbirds, for feeding, nesting, raising young, and moulting.
- Lakes and wetlands are fairly uncommon elements in the planning region.
- Migratory waterbirds use wetlands in the planning region as staging and stop-over sites, a seasonal but significant use.
- Several waterbird species are regulated under the Migratory Bird Act. Particular provisions for management of migratory birds under this act may identify areas for protection or provide management guidance.
- Many waterbird species are declining in western North America.

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<sup>8</sup> Al von Finster, Department of Fisheries and Oceans, pers. comm., February 2008.

<b>BEST MANAGEMENT PRACTICES</b>	<ul style="list-style-type: none"><li>• <i>Identify timing windows to avoid disturbance to waterfowl during sensitive stages of their lifecycles (e.g., nesting, breeding, and moulting).</i></li></ul>
<b>INDICATORS</b>	<ul style="list-style-type: none"><li>• <i>Indicators to be determined through future research and plan implementation.</i></li></ul>

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"><li>• <i>Water withdrawals in ecologically sensitive wetland areas should be prohibited.</i></li></ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"><li>• <i>Peel wetlands should be mapped using a Yukon Wetland Classification based on the Canadian Wetland Classification System. This wetland inventory should be done in advance of any significant development.</i></li></ul>
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## 5.4 Terrestrial Resources

The region contains significant ecological resources and sensitive habitats for a variety of species. Several First Nations have relied on the wildlife and fish resources of the region for thousands of years, and First Nations and non-First Nations people continue to rely on them today.

Sustaining regional wildlife requires the maintenance of regional habitat integrity and management of significant habitats. Ecologically important areas that support wildlife populations are shown in Map 3, Appendix A. Strategies to maintain terrestrial habitat integrity for wildlife populations are directed at focal species (Porcupine caribou, moose, marten, and sheep). Some of these strategies also work towards other management goals (e.g., aquatic resource goals, heritage and cultural goals).

**Management Goal 3:** *Provide for the management, protection, and use of land and related ecosystems and the species they support for the future.*

### Desired Future State

- Viable wildlife populations that continue to support the sustenance, cultural, economic, and recreational needs of First Nations and local residents.
- Healthy terrestrial ecosystems and the species that they support within their natural range of population size and habitats.
- Maintain existing unaltered habitat connectivity

#### 5.4.1. General Terrestrial Wildlife Management

Wildlife populations are susceptible to a variety of impacts that can affect both population health and the integrity of habitat.

#### *Key issues related to managing wildlife and their habitat:*

- Industrial land-use activities may create direct wildlife-habitat impacts including habitat loss, alteration, and fragmentation. Potential indirect wildlife-habitat effects include avoidance or reduced use of habitat around areas actively being used.
- Human and predator access facilitated by linear features associated with industrial land-use activity (seismic lines, trails, and winter and all-season roads) may provide increased opportunities for harvesting and/or predation, potentially leading to higher rates of mortality.
- The effects of climate change on wildlife habitats and populations are uncertain and require a precautionary and adaptive management approach.

OBJECTIVES	STRATEGIES
3.1 The full complement of indigenous plant and wildlife species will continue to flourish in their natural habitats at viable population sizes, within the range of natural variations, for future generations.	3.1.1 Where the affected First Nation(s), relevant biologists, or RRCs express concern that the locations of ecologically important areas have not been adequately determined, the applicant will be required to survey the area in question to identify and delineate these important locations.
3.2 Minimize direct and indirect human-caused habitat disturbance and alteration.	3.2.1 Reduce size, intensity, and duration of human-caused physical surface disturbances (e.g., utilize low impact seismic <sup>9</sup> , winter roads, and enhanced reclamation).  3.2.2 Consider restrictions on motorized recreational use (e.g., ATVs)  3.2.3 Existing habitat data, knowledge, and expertise should be used when laying out new developments in order to minimize the size, extent, duration, and level of disturbances to important habitats.  3.2.4 At the appropriate scale, map habitats critical for wildlife movement, reproduction, forage, and cover, and apply this information in YESAA Proposals and other relevant development plans.  3.2.5 Adopt relevant management recommendations from the Boreal Caribou Recovery Plan, the Northern Mountain Caribou Management Plan, and the Porcupine Caribou Management Board.
3.3 Minimize habitat fragmentation resultin from human activity.	3.3.1 Coordinate, manage, and minimize new road and trail access.  3.3.2 Existing habitat data, knowledge, and expertise should be used when laying out new developments to minimize fragmentation.  3.3.3 Avoid disruption of any identified migration routes, especially when confined to a narrow area (e.g., mountain passes).
3.4 Minimize potential habitat avoidance that results from human features and activities.	3.4.1 Avoid or reduce activities in significant wildlife habitats during important biological periods (i.e., utilize timing windows).
3.5 Minimize increases in hunting pressure as a result of new development.	3.5.1 Employees of proponents must agree not to hunt at any time while on, or travelling to or from, a work assignment, including during off-time at a work camp.  3.5.2 Public access should be restricted on all new roads by use of strategically placed gates (e.g., on a bridge). If a strategically placed gate is not an option, a gate with a full-time guard and/or full-time road patrols should be in place. These measures should remain in place until the road has been deactivated.  3.5.3 Public access should be restricted on all new roads that are no longer active by aggressively deactivating and restoring them, such that they are no longer accessible to all-terrain vehicles (incl. snowmobiles).

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<sup>9</sup> Including: meandering, GPS assisted, cutlines; doglegs at junction of roads to decrease visibility to hunters; narrow cutlines (<=1.5m); heliportable cutlines. See also “Seismic Exploration Best Management Practices” by the Oil and Gas Resources Branch of the Yukon Government.

<b>BEST MANAGEMENT PRACTICES – GENERAL</b>	<ul style="list-style-type: none"> <li>• <i>To the extent practicable, avoid or minimize the creation of new access roads and trails.</i></li> <li>• <i>To the extent practicable, avoid or minimize the size, extent, duration, and level of activities (including air traffic) in concentrated seasonal-use areas.</i></li> <li>• <i>Use appropriate operational timing windows in significant wildlife habitats to minimize activities, whenever possible, during periods of wildlife use.</i></li> <li>• <i>When new access creation is necessary: 1) non-permanent winter access routes should be developed and utilized, versus all-weather access routes; 2) where possible, new access routes should be directed through less significant or sensitive wildlife habitat; 3) gates or other measures should be used to restrict hunting along new access routes.</i></li> </ul>
<b>INDICATORS</b>	<ul style="list-style-type: none"> <li>• <i>Surface disturbance.</i></li> <li>• <i>Linear density.</i></li> <li>• <i>Patch size/core area fragmentation.</i></li> </ul>

<b>POLICY RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>As a general guideline for decision makers and land users, the amount of surface disturbance in a landscape management unit should be maintained below the cumulative-effects indicator levels recommended in the Plan.</i></li> </ul>
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<b>RESEARCH RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Habitats critical for wildlife movement, reproduction, forage, and cover should be mapped at the scale appropriate to the scale of a proposed development. This information should be applied in YESAA proposals and other relevant development plans.</i></li> <li>• <i>Critical levels for patch size/core area fragmentation should be determined by qualified government biologists.</i></li> </ul>
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## 5.4.2. Focal Species Management

### 5.4.2.1. Porcupine Caribou

The Porcupine caribou herd is the most important and valued ecological and socio-cultural terrestrial resource in the region. Particular emphasis on Porcupine caribou protection has been expressed by affected Gwich'in First Nations governments. Caribou management priorities are focused on areas showing concentrated and general use by animals over many years (mid-1980s to present), or where animals occupy the same area during many seasons



within a year, suggesting a high intensity of caribou use. There are many such areas of concentrated use during the winter, fall migration, rut, and spring migration. However, historically, the majority of the planning region has been used during these seasons.

The herd has been declining since 1989 and, as of March 2008, there is no evidence that the decline is reversing. Managing concentrated-use areas with a higher level of conservation focus will support the Yukon, First Nations, and federal governments in their national and international efforts to conserve the herd. The effects of hunting pressure will likely become more significant as the herd size decreases. Road access, currently limited to the Dempster Highway, will therefore become more significant to herd health.

This herd, of the barren-ground ecotype, has large seasonal ranges, long migrations, and typically high variability from season to season and year to year in how the herd utilizes its range. Nonetheless, the current concentrated-use assessment is based on the best available information. Consistent with the precautionary principle, a high degree of harvest and management caution is warranted across the herd's range. Range use may change over time in response to many factors, including changing climate and human activities.

More specific areas of concentrated use, by season, are shown in the North Yukon Resource Assessment map series (see Maps 19-24 of North Yukon Planning Commission, 2007b) and in the PWPC's Conservation Priorities Assessment Report (see Maps 8&9 of Peel Watershed Planning Commission 2008b).

<b>BEST MANAGEMENT PRACTICES – PORCUPINE CARIBOU</b>	<ul style="list-style-type: none"> <li>• <i>Design and locate roads to minimize impacts to high-value caribou habitat, particularly in caribou winter range.</i></li> <li>• <i>Avoid or minimize the size, extent, duration, and level of activities in concentrated seasonal use areas (see Map 3, Appendix A).</i></li> <li>• <i>Avoid using or crossing seasonal migration corridors with new access routes.</i></li> <li>• <i>Consider the following seasons when determining appropriate operational timing windows (seasons when Porcupine caribou occupy the region as reported by McNeil et al., 2005):</i> <ul style="list-style-type: none"> <li>Winter: December 1 to March 31</li> <li>Spring migration: April 1 to May 31</li> <li>Early summer: July 1 to July 15</li> <li>Mid to late summer: July 16 to August 7</li> <li>Fall migration: August 8 to October 7</li> <li>Rut: October 8 to November 30</li> </ul> </li> </ul>
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<b>POLICY RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Define and implement safe operating distances from the Porcupine caribou herd.</i></li> <li>• <i>In light of the difficulty of excluding development from the herd's entire extensive winter range, all relevant recommendations by the PCMB pertaining to the conservation of the Porcupine caribou herd should be endorsed, including measures designed to reduce hunting pressure.</i></li> </ul>
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<b>RESEARCH RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Research the extent to which linear corridors increase predation of or habitat avoidance by Porcupine caribou.</i></li> <li>• <i>Continue current monitoring programs.</i></li> </ul>
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#### 5.4.2.2. Northern Mountain Caribou

The planning region includes overlapping ranges of three herds of the northern mountain ecotype of caribou – the Bonnet Plume, Hart, and Redstone herds. Caribou of these herds are important to the big-game outfitting industry in this region. The status of this ecotype is classified as “special concern,” indicating that populations will likely decline without adequate management. However, the current status of the herds in the region is not well known. A draft general management plan is to be released in May 2009 by Environment Canada.

It has been demonstrated that other herds of this ecotype (beyond the region) have been impacted by loss, alteration, and fragmentation of important habitat. Hunting of caribou along some parts of the Dempster Highway has already been closed out of concern for the over-harvesting of the Hart River herd, whose winter range is bisected by the Dempster Highway. On a more positive note, the Bonnet Plume herd is one of the largest and most remote of all northern mountain caribou. Almost its entire range is within the planning region.

These caribou do not migrate long distances like the Porcupine herd, and tend to use wintering areas more consistently year to year. Wintering habitat is typically forested valley bottoms – areas where roads tend to be routed. Key areas for these herds have been defined in the Yukon Key Areas Database and are more complete than those of other species in the region. However, these areas may need refining before they are sufficient for use in management decisions.

Key areas and habitat suitability are provided in the Conservation Priorities Assessment Report (see Maps 12-15 of Peel Watershed Planning Commission 2008b).

<b>BEST MANAGEMENT PRACTICES – NORTHERN MOUNTAIN CARIBOU</b>	<ul style="list-style-type: none"> <li>• <i>Design and locate roads to minimize impacts to high-value caribou habitat, particularly in caribou winter range</i></li> <li>• <i>Avoid or minimize the size, extent, duration, and level of activities in key areas (see Map 3, Appendix A for locations).</i></li> <li>• <i>Avoid using or crossing seasonal migration corridors with new access routes.</i></li> <li>• <i>Operational timing windows may be used to avoid seasonal habitat.</i></li> </ul>
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<b>POLICY RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Carefully review the upcoming Northern Mountain Caribou Management Plan and incorporate all relevant recommendations from it in PWRLU implementation planning.</i></li> </ul>
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<b>RESEARCH RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Critical habitats (over and above those in key-area database) need detailed mapping prior to any significant industrial developments.</i></li> <li>• <i>Continued monitoring of the interaction between the Hart River herd and the Dempster Highway informs the current caribou hunting closure in Game Management Subzone 2-28 (this GMS straddles the Dempster Highway at the north end of Tombstone Park) and any potential similar closures within the PWPR.</i></li> </ul>
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#### 5.4.2.3. Boreal Caribou

The broad range of boreal caribou extends across the country, but the only portion of this range within the Yukon Territory is in the northeastern corner of the PWPR. This herd is not currently considered an important socio-cultural resource, owing in part to the discrete nature of its movement behaviour. However, it may become more socially important as hunting success with adjacent herds declines.

This woodland caribou species is distinct from the other ecotypes in the region and has been listed by the Federal *Species at Risk Act* (SARA) as a threatened species. These caribou have declined elsewhere in their range in response to habitat destruction, hunting, disturbance by humans (including construction of roads and pipelines), and predation. Relative to other parts of this herd's broader range, there is relatively little habitat disturbance in the PWPR. A draft Boreal Caribou Action Plan specific for NWT has been developed. Most recommendations in this document are relevant for the Yukon portion of this herd's range.

The winter habitat of these caribou includes the wet forests and adjacent peatlands common in the northeastern corner of the planning region. There are no key areas for this herd in the Yukon Key Areas Database. However, current research may help to define key areas. Range

locations and habitat suitability are provided in the Conservation Priorities Assessment Report (see Maps 10&11 of Peel Watershed Planning Commission 2008b).

<b>BEST MANAGEMENT PRACTICES – BOREAL CARIBOU</b>	<ul style="list-style-type: none"> <li>• <i>Design and locate roads to minimize impacts to high-value caribou habitat, particularly in caribou winter range.</i></li> <li>• <i>Avoid or minimize the size, extent, duration, and level of activities in concentrated-use areas (likely around Jackfish Lakes and Brown Bear Creek).</i></li> <li>• <i>Operational timing windows may be used to avoid seasonal habitat (once clearly defined).</i></li> </ul>
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<b>POLICY RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Carefully review upcoming Boreal Caribou Recovery Plan specific for NWT (or the current draft version until it is released) and incorporate all relevant recommendations from it in PWRLU implementation planning.</i></li> </ul>
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<b>RESEARCH RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Critical areas need detailed mapping prior to any significant industrial developments.</i></li> </ul>
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#### 5.4.2.4. Moose

Moose use most of the planning region at various times of year. Areas of importance on a seasonal or annual basis are the region's lakes, wetlands, and river valleys. Moose are not subjected to as high a harvesting pressure as Porcupine caribou, but they are an important alternative subsistence species when caribou are not available.

Moose are fairly tolerant of disturbance from land-use activities, but they are susceptible to increased harvest as a result of new road and trail access. Management of linear features for design and activity level (including roads, trails, and seismic lines) is an important consideration for this species. During certain periods of the year, moose prefer younger forest and shrub habitats. Habitat conditions may therefore improve as a result of increased fire activity and regenerating land-use disturbances.

The moose key-areas database is incomplete because there have been few moose studies in the region. Key areas and habitat suitability are provided in the Conservation Priorities Assessment Report (see Maps 16-17 of Peel Watershed Planning Commission 2008b).

<b>BEST MANAGEMENT PRACTICES – MOOSE</b>	<ul style="list-style-type: none"> <li>• <i>Avoid seasonal use/concentration areas, areas with high habitat suitability and migration corridors.</i></li> <li>• <i>Avoid using or crossing seasonal migration corridors with new access routes.</i></li> </ul>
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<b>RESEARCH RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Critical areas need detailed mapping prior to any significant industrial developments.</i></li> <li>• <i>Support research on moose population structure.</i></li> </ul>
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#### 5.4.2.5. Marten

Marten use most of the forested portions of the planning region at various times of year. Areas of importance on a seasonal or annual basis include older growth stands of mixed-wood or coniferous forest, particularly within river/stream valleys. Marten are an important trapping resource for First Nation and non-First Nation residents.

Marten are generally fairly tolerant of and resilient to disturbance. However, documented information on marten in the region is limited, and the species is poorly understood in northern environments.

More specific areas of suitable winter habitat for marten are provided in the Conservation Priorities Assessment Report (see Map 21 of Peel Watershed Planning Commission 2008b).

<b>RESEARCH RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Support research on impacts of sensory disturbance from industrial activities on marten population and behaviours.</i></li> </ul>
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#### 5.4.2.6. Sheep

Sheep generally use high-elevation and alpine habitats, including those found in the Richardson, Ogilvie, and Wernecke mountains. Sheep hunting is a traditional part of First Nation subsistence harvest activities in the region and is the single most important species for the big game outfitting industry.

Sheep winter range is an important and sensitive habitat. Critical winter habitat for sheep generally characterized as relatively snow-free, wind-swept, south or southwest-facing slopes. Sheep have strong fidelity to specific areas, and tend to use those areas around the same time each year. Sheep populations are vulnerable to direct habitat loss and disturbance from various activities.

More specific areas of suitable habitat for sheep are provided in the Conservation Priorities Assessment Report (see Maps 18&19 of Peel Watershed Planning Commission 2008b).

<b>BEST MANAGEMENT PRACTICES – SHEEP</b>	<ul style="list-style-type: none"> <li>• <i>Avoid sensitive sheep habitats and key areas, with emphasis on winter and lambing range avoidance (see Map 3, Appendix A for locations), or use timing windows.</i></li> <li>• <i>Avoid helicopter or airplane disturbance to sheep – see the document “Flying in Sheep Country” (MERG, 2002).</i></li> </ul>
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The recommended draft sheep management plan for the Northern Richardson Mountains (Working Group for Northern Richardson Mountains Dall's Sheep, 2008) noted that "Dall's sheep in the Southern Richardson Mountains is a shared population between the Northwest Territories and the Yukon. This population is small, isolated, and at risk to overharvest and other factors that could cause numbers to decline." This population straddles the NYPR and the PWPR boundaries.

<b>POLICY RECOMMENDATION</b>	<ul style="list-style-type: none"> <li><i>A co-operative management plan for Dall sheep in the Southern Richardson Mountains should be developed following the principles outlined in the "Management Plan for Dall's Sheep In the Northern Richardson Mountains"</i></li> </ul>
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#### 5.4.2.7. Grizzly Bear

Grizzly bears range throughout the planning region, though less frequently in the Peel Plateau and Fort McPherson Plains in the northeast of the planning region. Grizzly bears are important to big game outfitters and are indicators of healthy and large wilderness areas. This species has been listed as a species of special concern, owing largely to its particular sensitivity to human-caused mortality (including poaching, hunting, accidents, and nuisance kills). Biologists have not studied grizzly bears in detail in the Peel watershed, and few key areas have been catalogued. Patterns of their habitat suitability indicate that broad valley bottoms are key for grizzly bears in the mountains.

More specific areas of suitable habitat for grizzly bears are provided in the Conservation Priorities Assessment Report (see Map 20 of Peel Watershed Planning Commission 2008b).

<b>BEST MANAGEMENT PRACTICES – GRIZZLY BEAR</b>	<ul style="list-style-type: none"> <li><i>Minimize bear/human conflicts, using various "bear aware" strategies including clean camps, garbage management, and electric fencing for seasonal camps.</i></li> </ul>
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<b>RESEARCH RECOMMENDATION</b>	<ul style="list-style-type: none"> <li><i>Support mapping and ranking of feeding-season habitats, cover habitat for nursing females, and denning habitats to inform environmental assessments.</i></li> </ul>
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#### 5.4.2.8. Peregrine Falcon

In taiga regions Peregrine Falcons prey mainly on wetland birds, so they can be considered an indicator of wetland ecosystem health. Their nesting habitat, however, is primarily found on cliffs. Peregrine Falcons, therefore, must be managed as both an aquatic and terrestrial resource. The species is no longer considered endangered, but is rated as threatened under SARA. This general situation probably holds for the Peel planning region. Recent inventories indicate that the population has been growing.

There are a number of aeries (nesting areas) along the Dempster Highway, which are prone to disturbance. Further development elsewhere in the region may also disturb these birds.

OBJECTIVES	STRATEGIES
3.6. Minimize disturbance to Peregrine nest sites during the nesting cycle.	3.6.1. Education of tourists and highway maintenance crews on how to avoid disturbance to nesting Peregrines.
<b>BEST MANAGEMENT PRACTICES – GENERAL</b>	<ul style="list-style-type: none"> <li><i>Disturbance, including road maintenance and other industrial activities, should be avoided near nesting sites during the nesting cycle (May to mid-August). (YFWMB: Protecting Wildlife Habitat)</i></li> </ul>

<b>POLICY RECOMMENDATION</b>	<ul style="list-style-type: none"> <li><i>Several management recommendations for Peregrine Falcons are discussed in the document “Protecting Wildlife Habitat in the Yukon” (YFWMB, 2000). Many of these recommendations are at too fine a scale for a regional land use plan. Nonetheless, the recommendations are generally aligned with the goals of this plan.</i></li> </ul>
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<b>RESEARCH RECOMMENDATION</b>	<ul style="list-style-type: none"> <li><i>Safe operating distances and timing windows should be determined and communicated to relevant highway crews.</i></li> </ul>
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More specific areas of suitable habitat for Peregrine Falcons are provided in the Conservation Priorities Assessment Report (see Map 22 of Peel Watershed Planning Commission 2008b).

#### 5.4.2.9. Other Terrestrial Species

The region contains several other important mammal species, including black bear, wolverine, wolf, fox, and beaver. Most of these species are occasionally hunted or trapped. The Federal Species at Risk Act (SARA) lists wolverine as species with special concern status.

The majority of bird species in the region are migratory and present only during the breeding season, which extends from approximately May to September. There are twelve bird species listed on various watch-lists including four listed by COSEWIC: the Rusty Blackbird (Special Concern), the Short-eared Owl (Special Concern), Peregrine Falcon (Special Concern), and the Olive-sided Flycatcher (Threatened). Regional patterns in the number of most of these species are shown in the Conservation Priorities Assessment Report (see Map 26 of Peel Watershed Planning Commission 2008b).

There are currently no specific SARA guidelines or required management prescriptions for the species listed in the section above. There are also no immediate conservation or management concerns regarding these species in the region.

### 5.2.3 Rare and/or Endemic Plants

There is a nationally significant concentration of endemic plant species (i.e., species not found anywhere else) on the western portion of the planning region. However, the locations and extent of these species are poorly documented.

<b>RESEARCH RECOMMENDATION</b>	<ul style="list-style-type: none"><li>• <i>A detailed survey of rare or endemic plants should be completed prior to any significant industrial development.</i></li></ul>
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## 5.5 Special Features Management

The region contains a diverse assortment of significant features many with their own management strategies or recommendations. They may be important for cultural, ecological, and/or economic reasons, and yet many are relatively small features.

*Key issues related to regionally significant special features:*

- Extensive areas of the planning region are underlain by permafrost. Associated terrestrial and aquatic species, their habitats, human infrastructure, and potentially the carbon balance of the region all rely on the permafrost's continued stability. Surface disturbances and climate change both threaten to melt affected areas of permafrost.
- For associated animals (primarily caribou and sheep), mineral licks are far more valuable per unit area than other habitats. Disturbance to licks and trails to them will disproportionately disturb wildlife.
- Similarly, disturbance to certain mountain passes and associated trails could disproportionately disturb wildlife movements.
- Very local terrain features have high cultural, ecological, and/or potentially touristic values. Development in these areas could diminish these values.

**Management Goal 4:** *Promote long-term integrity of sensitive/important landforms or biophysical features.*

### Desired Future State

- Use of mineral licks continues unaltered.
- Use of animal movement corridors and trails continues unaltered.
- Scenic terrain features retain their cultural, ecological, and aesthetic values.
- Degradation of permafrost is not accelerated by local actions.
- Water flows and qualities are within their natural range of variation.

OBJECTIVES	STRATEGIES
4.1 Minimize negative consequences of permafrost failure to terrestrial and aquatic habitats and human infrastructure.	4.1.1 Coordinate, manage, and minimize new road and trail access and other infrastructure on permafrost.  4.1.2 Significant development on permafrost should not occur before detailed mapping of existing and predicted permafrost depth and/or ground temperatures. ( <a href="http://adaptation.nrcan.gc.ca/perspective/transport_5_e.php">http://adaptation.nrcan.gc.ca/perspective/transport_5_e.php</a> )  4.1.3 Avoid new surface disturbances in permafrost areas whenever possible (e.g., utilize low impact seismic <sup>10</sup> and winter roads with sufficient snowbase)

<sup>10</sup> Especially including narrow cutlines (<=1.5m) and avoidance of steeper terrain

<p>4.2 Minimize direct and indirect human-caused disturbance and alteration to mineral licks.</p>	<p>4.2.1 Use timing windows to when working around mineral licks or trails/corridors to them (i.e., no human activity between mid-May to mid-July).</p> <p>4.2.2 Surface disturbance should not occur near mineral licks. Minimum setback for winter roads, all-season roads, and industrial should be progressively larger.</p> <p>4.2.3 All new developments should not alter the hydrology of mineral licks, regardless of setback distance.</p> <p>4.2.4 Discourage wildlife viewing near mineral licks along the Dempster Highway.</p> <p>4.2.5 Education of tourists and highway maintenance crews on how to avoid disturbing mineral licks.</p>
<p>4.3 Minimize direct and indirect human-caused disturbance and alteration to areas with high importance to animal movement.</p>	<p>4.3.1 Coordinate, manage, and minimize new road and trail access that crosses or parallels movement corridors.</p> <p>4.3.2 Surface access between drainages should be coordinated so that only one mountain pass connecting watersheds is used over time.</p> <p>4.3.3 Avoid or reduce activities in significant wildlife movement corridors during migration periods (utilize timing windows).</p>
<p>4.4 Minimize alteration to the spiritual, ecological, and/or scenic values of localized terrain features.</p>	<p>4.4.1 Development within sight of scenic landmarks, including canyons or hoodoos, should be discouraged.</p>
<p><b>BEST MANAGEMENT PRACTICES – GENERAL</b></p>	<ul style="list-style-type: none"> <li>• <i>To the extent practicable, avoid or minimize the creation of new access roads and trails on terrain underlain with permafrost.</i></li> <li>• <i>Avoid surface disturbance in permafrost areas.</i></li> <li>• <i>Alter project plans so infrastructure is not on or exposed to steep slopes in permafrost areas.</i></li> <li>• <i>When surface access over or near a concentrated movement corridor cannot be avoided, use of the road should be timed not to coincide with animal movement.</i></li> <li>• <i>Avoid development within sight or earshot of terrain features with high spiritual, ecological, and/or scenic values (e.g. canyons, hoodoos).</i></li> </ul>
<p><b>INDICATORS (Plateau/Plain)</b></p>	<ul style="list-style-type: none"> <li>• <i>Indicators to be determined through future research.</i></li> </ul>
<p><b>INDICATORS (Mountain)</b></p>	<ul style="list-style-type: none"> <li>• <i>Indicators to be determined through future research.</i></li> </ul>

<b>POLICY RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Surface access between drainages should be coordinated so that only one mountain pass connecting watersheds is used over time.</i></li> <li>• <i>Significant development on permafrost should not occur before detailed mapping of existing and predicted permafrost depth and/or ground temperatures at an appropriate scale.</i></li> </ul>
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<b>RESEARCH RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>Detailed mapping of wildlife movement corridors and trails should be completed in advance of significant levels of industrial activity.</i></li> <li>• <i>The general extent of permafrost within the entire planning region should be mapped prior to any development.</i></li> <li>• <i>General permafrost mapping should be refined to include existing and predicted permafrost depth and/or ground temperatures in advance of significant levels of industrial activity on previously identified permafrost areas.</i></li> <li>• <i>Minimum setback distances for industrial activity and all-season and winter roads from mineral licks should be established using both scientific and traditional knowledge.</i></li> </ul>
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## **5.6 Heritage and Cultural Resources**

Maintaining and conserving heritage, social, and cultural resources and values are important objectives of the Plan. Significant heritage resources and First Nation culturally important areas, subsistence-use areas, and travel routes are shown in Map 4, Appendix A. Although there are currently no settlements in the PWPR, several communities are connected to the region through historic and current travel routes and through the Dempster Highway and development area.

Significant heritage, traditional-use areas, and cultural resources were identified and mapped from local and traditional knowledge, with the focus on areas of importance to the First Nations that have traditional territory (Nacho Nyak Dun, Trondëk Hwëch'in, Vuntut Gwitchin) or primary/secondary use areas (Tetlit Gwich'in) in the region.

### **5.6.1 Heritage Resources**

Heritage resources include: (i) historic sites, (ii) historic objects, and (iii) any work or assembly of works of nature or of human endeavour over 45 years old that is of value for its archaeological, palaeontological (fossil and other remains of extinct or prehistoric plants and animals), prehistoric, historic, scientific, or aesthetic features.

Historic objects include: (i) objects more than 45 years old and abandoned, (ii) archaeological objects, (iii) palaeontological objects, and (iv) objects designated under subsection (2) of the Historic Resources Act as historic objects.

Important First Nation heritage resources include First Nation camps/cabins, historical fish traps, travel routes (see also cultural resources), hunting/fishing/trapping areas, and caribou fences.

Heritage resources are scattered throughout the region with many heritage-related or culturally important camps and cabins located on S-sites (see Map 4, Appendix A). S-sites are site-specific Yukon First Nation settlement lands of heritage, cultural, or traditional economic significance to the First Nation. Similarly, many other camps and cabins are found on larger blocks of settlement land and within non-settlement land.

### **5.6.2 Cultural Resources**

Cultural resources include places and locations associated with events, stories, and legends. Culturally important sites may include graveyards, spiritual areas (thermal springs, special places), and cabins. Culturally important areas also overlap with areas used to pursue a traditional economy according to First Nation values. Cultural identity is intrinsically linked to those areas that support a First Nation traditional economy. Many cultural sites are also linked to travel routes, traditional hunting areas, and heritage sites.

*Key issues related to the maintenance of heritage sites and current traditional use areas:*

- Conservation and maintenance of significant heritage and traditional use areas are important to maintain the First Nations traditional economy.
- Lack of local knowledge of cultural and heritage values in resource planning.
- First Nation communities desire continued support of resource stewardship monitoring programs for cultural and wildlife areas.
- First Nations opportunities to participate in traditional economic activities and other cultural pursuits depend on the continued availability of and access to heritage and cultural areas.
- Conflicts might arise regarding cultural resources (primarily gravesites) along the Dempster Highway Corridor and future industrial land-use impacts within these areas.
- Fish, wildlife, and the land in general have a spiritual and cultural significance that needs to be reflected in land use planning.
- Archeological research and traditional use mapping is important for more localized planning, yet is often insufficient.

**Management Goal 5:** *Recognize, conserve, and promote the heritage and cultural resources and the values of affected First Nations and the Yukon.*

**Desired Future State**

- Increase the level and extent of protection for heritage and cultural resources.
- Integrate First Nation traditional knowledge and local knowledge into resource planning to minimize impacts.

OBJECTIVES	STRATEGIES
5.1 Apply appropriate protection and conservation measures to identified heritage and cultural resources.	5.1.1 Conduct an assessment of heritage or cultural values in areas targeted for development, before approving activities.  5.1.2 Maintain the physical integrity of historic and cultural features as well as associated aesthetic values (i.e., visual quality, lack of debris, etc.) when undertaking any activities on or adjacent to known heritage or culturally important sites.  5.1.3 Parties will pursue formal cultural protection designations in consultation with local First Nations and non-aboriginal residents.  5.1.4 Before deciding whether to authorize a land use or on what terms, applicants are required to document any relevant traditional knowledge and scientific information. The level of data collection required will be appropriate to the scale and nature of the activity and the potential to impact traditional land

		<p>use and occupancy. Responsible Authorities will consider the information presented when making their decisions.</p> <p>5.1.5 Demonstrate meaningful community involvement of affected First Nation(s), and individuals identified by the affected First Nation(s) in the development of appropriate avoidance buffers and mitigation measures that ensure the protection of important sites.</p> <p>5.1.6 Avoid developments near heritage trails (including road development). Only consider exceptions to this strategy after fairly assessing and weighing all implications (ecological, economic, safety, etc.)</p>
5.2	Provide opportunities for the continuation of First Nations subsistence lifestyles and harvesting on the land.	<p>5.2.1 Maintain the physical integrity of historic and cultural features as well as associated aesthetic values (i.e., visual quality, lack of debris, etc.) when undertaking any activities on or adjacent to known heritage or culturally important sites.</p> <p>5.2.2 Consistent with current policy, consult with First Nations before approving activities on non-settlement land to determine whether there might be an impact on traditional use areas or culturally important sites. Where impacts are identified, work co-operatively with the First Nations to minimize impacts.</p> <p>5.2.3 Avoid or reduce activities in significant cultural and current subsistence and traditional-use areas during important seasonal-use periods (e.g., utilize timing windows).</p> <p>5.2.4 Avoid developments near heritage trails (including road development). Only consider exceptions to this strategy after fairly assessing and weighing all implications (ecological, economic, safety, etc.).</p> <p>5.2.5 Support efforts to document, preserve, and promote First Nation culture.</p> <p>5.2.6 Integrate traditional skills camps with monitoring cultural or wildlife areas.</p>
5.3	Minimize impact of development on First Nations' traditional-use areas.	<p>5.3.1 Before deciding whether to authorize a land use or on what terms, applicants are required to document any relevant traditional knowledge and scientific information. The level of data collection required will be appropriate to the scale and nature of the activity and the potential to impact traditional land use and occupancy. Responsible authorities will consider the information presented when making their decisions.</p> <p>5.3.2 Assess the impact of the proposed activities on known heritage, historical, archaeological, cultural, and traditional land-use areas and culturally important sites as identified by the affected FNs</p> <p>5.3.3 Minimize land-use conflicts by avoiding or reducing activities in significant heritage and current traditional use areas during important seasonal-use periods (e.g., utilize timing windows).</p> <p>5.3.4 Minimize land-use impacts in the vicinity of identified historic resources, subsistence harvesting, and current traditional use areas.</p> <p>5.3.5 Where impacts to identified heritage and cultural sites and resources are unavoidable, implement appropriate mitigation practices.</p> <p>5.3.6 Where the affected First Nation(s) express concern and locations of important wildlife or plant gathering areas have not been adequately determined, the applicant will be required to survey the area in question to identify these culturally important locations.</p> <p>5.3.7 Conduct an assessment of heritage or cultural values in areas targeted for development before approving activities.</p>

	<p>5.3.8 Maintain the physical integrity of historic and cultural features as well as associated aesthetic values (i.e., visual quality, lack of debris, etc.) when undertaking any activities on or adjacent to known heritage or culturally important sites.</p> <p>5.3.9 Where impacts to identified heritage and cultural sites and resources are unavoidable, implement appropriate mitigation practices.</p> <p>5.3.10 Avoid developments near heritage trails (including road development). Only consider exceptions to this strategy after fairly assessing and weighing all implications (ecological, economic, safety, etc.).</p>
<b>BEST MANAGEMENT PRACTICES – GENERAL</b>	<ul style="list-style-type: none"> <li>• <i>Work camps associated with resource exploration and development activity should be sited near areas of resource production, away from identified heritage routes, historic sites, and current traditional-use areas.</i></li> <li>• <i>Additional best management practices related to heritage and historic resources are available from Yukon Department of Energy, Mines and Resources, Oil and Gas Management Branch (2007a).</i></li> </ul>
<b>INDICATORS</b>	<ul style="list-style-type: none"> <li>• <i>Indicators to be determined through future research and plan implementation.</i></li> </ul>

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>TBD</i></li> </ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>TBD</i></li> </ul>
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### 5.6.3 Traditional-Use Sites and Areas

Traditional-use areas are associated with activities such as hunting, fishing, trapping, wood cutting, berry picking, and general travel. First Nations and other residents of the region spend a considerable amount of time on the land, participating in various seasonal activities. The use and enjoyment of traditional areas depends on the continued health of the land, water, and ecosystems. The long-term availability and health of traditional-use areas contributes to the maintenance of First Nation culture and assists in providing economic opportunities within the regional mixed economy.

Traditional-use areas are shown in Figure 2.1 Section 2. Most of the PWPR has been used for traditional purposes, either currently or historically. Tetlit Gwich'in and Tr'ondëk Hwëch'in show overland travel routes on Map 4, Appendix A. Travel routes generally occur along and between the River Corridors and the Peel River. Travel within the PWPR is primarily by snowmobile in the winter season and, for short distances, walking. Dogsleds are still used

occasionally for travel, as are horses. From late spring to late fall, areas close to the Dempster Highway can be accessed by ATV via designated access and egress points. The THFN Final Agreement has specific provisions regarding heritage routes (Section 13.4.6.3 and Chapter 13, Schedule C). Within the PWPR, one THHR route was identified as per Chapter 13, Schedule C. The identified heritage route extends from Dawson to Fort McPherson.

Summer boat travel between Aberdeen Canyon and Fort McPherson is common. Some Yukon First Nation citizens and Yukon residents of Mayo, Dawson City, Keno, and Elsa, as well as NWT residents and Tetlit Gwich'in of Aklavik, Tsiigehtchic, Fort McPherson, and Inuvik travel by snow machine between Yukon and NWT (see Map 4, Appendix A). The timing of these activities, particularly related to harvesting, varies in response to the availability of resources and travel conditions. Proponents and land users are encouraged to contact the First Nation governments for further information regarding traditional-use areas and travel routes.

### *Key issues related to Traditional-Use Sites and Areas*

- Designation of proposed Tetlit Gwich'in Historical Sites<sup>11</sup> along the Peel (Teetl'it njik and Tshuu tr'adaojich'uu).
- Conservation and maintenance of significant heritage and traditional use areas are important to maintaining the First Nations traditional economy (e.g., fishing sites, springs).
- Need to support further historical research and traditional-use mapping.
- Integration of traditional-skills camps with monitoring cultural or wildlife areas.
- Recognition of the spiritual and cultural value of fish and wildlife.
- Potential for conflict between industrial land-use impacts along the Dempster Highway and cultural values (e.g., medicinal plant sites and grave sites)

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<sup>11</sup> Fafard, M. and Kritsch I. 2003. *At the Heart of the Teetl'it Gwich'in Cultural Landscape: Application for the Designation of a National Historic Site, Teetl'it Gwich'in First Nation*. Gwich'in Social and Cultural Institute.



<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Management guidelines for identified routes and sites within the Plan should be developed jointly by the TH and Yukon governments<sup>12</sup> (proposed in relation to specific provisions of the THFN Final Agreement, Section 13.4.6.3 and Chapter 13, Schedule C).</i></li> <li>• <i>Designation of proposed Tetlit Gwich'in Historical Sites along the Peel (Teetl'it njik and Tshuu tr'adaojìch'uu)</i></li> </ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Traditional-use mapping should be researched and collected.</i></li> </ul>
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#### 5.6.4 Archaeological and Palaeontological Sites

Priority areas for heritage resource conservation were identified during the Peel Watershed Planning Commission's community consultations and research. Locations of identified historic, archaeological, and palaeontological sites were obtained from Yukon Department of Tourism and Culture, Cultural Services Branch.

##### *Key issues related to Archaeological and Palaeontological sites*

- Continuous monitoring of key target areas for archaeological (Western Richardson Mountains, Snake/Peel River confluence, Upper Ogilvie, Blackstone River, and Mackenzie Mountains) and palaeontological sites (eroded river banks, Snake River, and Hungry Creek, etc.).
- Need to ensure protection of significant palaeontological and archaeological resources.

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Known palaeontological and archaeological sites and resources should be protected from disturbance.</i></li> </ul>
<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Support palaeontological and archaeological research and inventory to inform assessment processes and regulatory enforcement.</i></li> </ul>

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<sup>12</sup> Existing standards and guidelines for the management of heritage resources (Standards and Guidelines for Conservation of Historic Places in Canada) could be adopted for the management of identified routes and sites (Parks Canada, 2003).

### 5.6.5 Post-Contact Heritage

Documented sites and areas are not currently considered at risk from land-use activities. Project proponents should contact heritage offices of the First Nations and Yukon governments for information on the location of heritage sites of concern for a proposed development.

#### *Key issues related to Post-Contact Heritage*

- Continuous monitoring of historic sites in key target areas (old town sites, trading posts, and trading routes).

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Known historic camps/cabins, historical fish trap locations, and other heritage resources should be protected from disturbance.</i></li> </ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Known historic camps/cabins, historical fish trap locations, and other heritage resources should be identified prior to exploration and development activities.</i></li> </ul>
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## 5.7 Access Management

Transportation networks and infrastructure have a major influence on the pattern of land use and economic development in remote northern jurisdictions. Many of the impacts that result from industrial land uses, particularly to wildlife and fish populations, are a result of the direct and indirect effects of roads and people's use of them.

Transportation and access-management considerations are closely linked with maintaining regional ecological integrity and socio-cultural values. The management approaches advocated by the Plan are intended to provide opportunities to create required road and access routes, while mitigating potential impacts. All-season roads are required for extraction of mineral and hydrocarbon resources.

### All-season Access

All-season access in the context of this plan is gravel roads and associated roadbed under the highways act. All-season roads in the context of the Plan are temporary roads. Once extraction and reclamation operations have been completed, all access development will be reclaimed. No new permanent roads are contemplated in this Plan.

Road, air, and water are all important modes of transportation in the region, but transportation and access options are currently very limited. Road access, outside the all-season Dempster Highway corridor, typically relies on construction of ice roads or winter roads. Major Rivers, particularly the Peel, Wind, and Snake, are important transportation corridors for residents and tourism/recreation users in the region.

### Access to Resources

The Plan considered the maintenance of access to resources across the working landscape through land-use designation and cumulative-effects indicators. One of the Terms of Reference for the Plan was to define potential corridor routes. Based on the oil and gas and mining resource sectors' social acceptability and impacts to existing and potential value in other economic sectors, the Plan has proposed some general access corridors to be considered for future all-season road and access routes. The Plan does not prescribe road construction techniques.

As a general guideline, in order to minimize potential impacts to valued ecological and heritage/cultural resources, it is recommended that where road access is required, winter roads, ice roads, and other temporary access techniques be utilized preferentially over all-season roads.

Requirements and locations for new road and access construction are at the discretion of a project proponent in consideration of the strategies, best management practices, and recommended access corridors proposed in the Plan.

*Key issues related to transportation and access:*

- The construction and use of linear features may result in direct loss and fragmentation of wildlife habitat, and indirect impacts on wildlife, including avoidance of such features, increased harvest pressures, and/or increased levels of predation.
- Construction and use of roads may not be socially acceptable because of perceived impacts to wilderness experience.
- Roads may impact First Nations' traditional cultural-use activities and sites.
- Roads will likely result in a decrease in high-value wilderness tourism, according to industry representatives and government.
- Where roads and access routes cross rivers, improperly constructed stream crossings may impact fish directly through habitat disturbance or indirectly through increasing harvesting pressures or blockage of fish passage/migration.
- Significant water and gravel withdrawals for road building or maintenance may cause direct disturbance to fish and wildlife habitat.
- Where all-season roads and access routes become permanently established, they are likely to persist for long periods of time, making full decommissioning and reclamation difficult, if not virtually impossible, in any foreseeable future.
- Suitable soil conditions, topography, and accessibility to aggregate (gravel) are serious challenges to road construction in the region. In much of the region, aggregate is scarce and poorly mapped.
- Road construction in mountainous terrain typically has a disproportionate impact on surrounding habitats because roads and quality habitats tend to concentrate in valley bottoms.
- There is little local experience in complete restoration of all-season roads in similar ecological conditions (e.g., terrain, substrate, permafrost).
- Off-road vehicle activity cannot likely be controlled and therefore can have serious detrimental impacts on wildlife from sensory or habitat disturbance, and/or on other resource users due to noise or other aesthetic impact

**Management Goal 6:** *Land, water, and air access is managed so as to respect ecological, cultural heritage, and wilderness values of the areas, while providing for the full range of user needs as deemed compatible for specific sustainable development opportunities.*

**Desired Future State**

- Access infrastructure creates a minimum of disturbance for other land users and values.
- Access infrastructure is completely restored following use, such that disturbed areas are ecologically and aesthetically indistinguishable from their previous state.

<b>Access – Land based</b>	
<b>OBJECTIVES</b>	<b>STRATEGIES</b>
6.1 New access must minimize disturbance to species listed under SARA (at risk, threatened, or special concern).	<p>6.1.1 Refer to access-management recommendation in the Boreal Caribou Recovery Plan (see wildlife management focal species) and in the Northern Mountain Caribou Management Plan (see wildlife management focal species).</p> <p>6.1.2 Map critical wildlife habitat for the Bonnet Plume, Hart, and Redstone caribou herds currently listed as species of special concern under SARA.</p>
6.2 Maintain opportunities to access lands and resources for economic development needs while minimizing direct and indirect human-caused habitat-disturbance impacts on environmental, social, cultural, heritage, wildlife habitat, tourism, and recreation values.	<p>6.2.1 No new access infrastructure or development within identified Tier I Protection Zones and Remote Access Zones.</p> <p>6.2.2 No new access infrastructure or development within identified River Corridor Zones, except for absolutely necessary for access to pre-existing claims.</p> <p>6.2.3 Map wetlands that are hydrologically connected to identified river corridors.</p> <p>6.2.4 Map the riparian zone of identified river corridors.</p> <p>6.2.5 Map wetlands and riparian zones of any other possible access corridors.</p> <p>6.2.6 Locating roads to minimize disturbance (e.g., noise, dust, etc.) to backcountry facilities, trails and activity areas.</p> <p>6.2.7 Managing public motorized access (off-road vehicles, ORVs) to minimize human and wildlife impacts.</p> <p>6.2.8 Reduce size, intensity, and duration of access and exploration access (e.g., utilize low-impact seismic, winter roads, and enhanced reclamation).</p> <p>6.2.9 Coordinate, manage, and minimize new road and trail access to minimize habitat fragmentation.</p> <p>6.2.10 Minimize access by using centralized access routes as designated (see Section 4 and 6 – sub-units for LMUs 2 &amp; 3).</p> <p>6.2.11 Avoid or minimize the size, extent, duration, and level of activities in concentrated seasonal-use areas or during important biological periods (e.g., utilize timing windows).</p> <p>6.2.12 Avoid or minimize the creation of new access roads and trails. Utilize existing routes unless their use will cause additional long-term environmental impacts (e.g., permafrost degradation).</p> <p>6.2.13 Non-permanent winter-access routes should be developed and utilized versus summer- and/or all-season access routes.</p> <p>6.2.14 Gate routes or otherwise restrict hunting along new access routes.</p> <p>6.2.15 Where possible, direct new access routes through less significant wildlife habitats (i.e., avoid mapped key wildlife areas) (see Map 3, Appendix A).</p> <p>6.2.16 Prioritize delineation of critical wetland habitat in LMUs where access development is possible.</p> <p>6.2.17 Where effects of access cannot be mitigated through seasonal operating periods, all access routes will avoid critical wetland habitats.</p>
6.3 Minimize potential habitat avoidance that results from human activities.	<p>6.3.1 Avoid or reduce activities in significant wildlife habitats during important biological periods (e.g., utilize timing windows, off-road vehicle mgt plan).</p> <p>6.3.2 No new access infrastructure or development within identified river corridor zones.</p>
6.4 Maintain visual quality and aesthetics for	6.4.1 No new access infrastructure or development within identified

<p>tourism and recreation activities that are consistent with objectives for these values</p>	<p>river corridor zones.</p> <p>6.4.2 Delineate the viewshed for areas of high visual aesthetic value.</p> <p>6.4.3 Avoid or reduce activities in areas of high aesthetic value.</p> <p>6.4.4 Avoid or minimize industrial land-use activities in wetlands and riparian areas.</p> <p>6.4.5 Reduce surface and vegetation impacts in riparian and sensitive permafrost areas.</p>
<p>6.5 Conserve archaeological resources and heritage trails, minimize impacts on First Nations' traditional use sites, and maintain the integrity and historic features of identified heritage sites.</p>	<p>6.5.1 Minimize land-use conflicts by avoiding road construction or reducing road density in important subsistence harvesting areas and current traditional use areas.</p> <p>6.5.2 Avoid road construction near cultural sites and places.</p> <p>6.5.3 Assess potential impacts of access and related infrastructure to identified cultural and traditional use activities, and develop appropriate access strategies</p> <p>6.5.4 No new access infrastructure or development within river corridor zones identified as First Nation travel corridors.</p>
<p>6.6 Avoid impacts to sensitive terrain due to land-access construction and use.</p>	<p>6.6.1 Delineate sensitive terrain (risk of surface erosion and slumping) and permafrost prior to an access management plan in the region.</p> <p>6.6.2 No new access infrastructure or development within identified river corridor zones.</p> <p>6.6.3 Reduce surface and vegetation impacts in riparian and sensitive permafrost areas.</p>
<p>6.7 Assess potential risk and benefits of new surface access (including seasonal roads, all-weather roads, and railways) and related infrastructure (gravel pits, maintenance camps etc) to identified cultural and ecological values, and resource use activities and develop appropriate access strategies.</p>	<p>6.7.1 All future access proposals will use the Peel Watershed Planning Region and affected communities as the scope for socioeconomic and environmental risk benefit assessment</p> <p>6.7.2 Where identified heritage, economic, or ecological values extend beyond the range of the planning region (e.g., Porcupine caribou herd), the cumulative-impact assessment and risk/benefit analysis to said values may be extended to include other planning regions and/or affected communities.</p> <p>6.7.3 Conduct a transportation planning study that will demonstrate consideration of reasonably foreseeable transportation needs for the affected zones. Strategies for such a study follow below.</p> <p>6.7.4 The transportation planning study will demonstrate that the proposed transportation corridor is the most appropriate type and/or level for the affected zones and will compare and contrast to the corridor access route designated in Section 4 and 6 – sub-units for LMUs 2 &amp; 3.</p> <p>6.7.5 The transportation planning study will demonstrate meaningful community involvement with the affected First Nation(s) on the construction, operation, and abandonment of the transportation corridor.</p> <p>6.7.6 The transportation planning study will demonstrate discussions with other potential users of the proposed transportation corridor to identify additional considerations.</p> <p>6.7.7 The routing study will consider alternative routings and demonstrate that first consideration was given to routing the corridor through Integrated Management Zones.</p> <p>6.7.8 The routing study will consider alternative routings and demonstrate that, where there is no reasonably feasible alternative to routing the corridor through a Recommended Conservation Zone, the route follows existing transportation corridors and</p>

	<p>avoids Tier I Protection Zones.</p> <p>6.7.9 The transportation planning study will demonstrate that the proposed transportation corridor maintains indicators below critical levels.</p> <p>6.7.10 Responsible Authorities will consider the information obtained when making their decisions and will not authorize a land use except in accordance with the conditions above.</p>
6.8 Maintain wetland and riparian connectivity	<p>6.8.1 Minimize number of stream crossings and/or stream crossing impacts as a result of roads and trails.</p> <p>6.8.2 Avoid stream crossings and road impacts on identified fish migration routes, access, or use of seasonal habitats</p>
6.9 Ensure that all surface disturbance resulting from access and related surface disturbance is restored.	<p>6.9.1 All access development plans will include plans to decommission roads.</p> <p>6.9.2 All access development plans will include plans to restore surface disturbance to pre-disturbance vegetation coverage.</p>
<b>BEST MANAGEMENT PRACTICES</b>	<ul style="list-style-type: none"> <li>• <i>Establish no-access and related infrastructure development zones around significant cultural and ecological features.</i></li> <li>• <i>To maintain visual quality and aesthetics, all-season infrastructure should be discouraged within River Corridor Zones (see Map 2, Appendix A).</i></li> <li>• <i>Minimize construction of new permanent river-crossing structures and route new all-season access roads through River Corridor Zones and riparian corridors (see Map 2, Appendix A).</i></li> <li>• <i>Where new all-season or winter access roads and/or trails are required to cross Major River and other riparian corridors, these should be designed, constructed, and used in a manner that minimizes direct and indirect impacts to fish, wildlife, and their habitats.</i></li> <li>• <i>Surface disturbance and land-use activities within and adjacent to Major River and other riparian corridors should not result in diminished water quality, quantity, or flow.</i></li> <li>• <i>Whenever possible, avoid aggregate (gravel) mining activities in Major River Corridors.</i></li> </ul>
<b>INDICATORS</b>	<ul style="list-style-type: none"> <li>• <i>Surface disturbance.</i></li> <li>• <i>Linear density.</i></li> <li>• <i>Number of river crossings / km of river.</i></li> <li>• <i>Fragmentation thresholds.</i></li> </ul>

Access – Water-based	
OBJECTIVES	STRATEGIES
6.10 Maintain the remote quality of identified lakes and rivers by restricting motorized recreational and commercial boat use where required.	<p>6.10.1 On a periodic basis and where necessary, assess the ecological impacts of motorized boat use on lakes and rivers.</p> <p>6.10.2 Where ecological impacts are occurring, consider restricting motorized boat use on specific lakes and rivers using the appropriate zoning tool.</p>
BEST MANAGEMENT PRACTICES	<ul style="list-style-type: none"> <li>• TBD</li> </ul>
INDICATORS	<ul style="list-style-type: none"> <li>• TBD</li> </ul>

Access – Air-based	
OBJECTIVES	STRATEGIES
6.11 Minimize disturbance to wildlife due to aircraft use, particularly during sensitive periods.	<p>6.11.1 Identify and map sheep populations.</p> <p>6.11.2 Consult with regional biologists to determine other sensitive species of interest that may be impacted by air access.</p> <p>6.11.3 To the extent possible, avoid repeated flights in or near sheep areas during biologically important timing windows. This strategy applies to air access for mining activities, recreation, and sightseeing.</p> <p>6.11.4 Inform local pilots of known sheep areas and provide information on flying practices that minimize disturbance of sheep. Refer to the document “Flying in Sheep Country” (MERG, 2002)</p>
6.12 Minimize disturbance to remote land- and water-based recreation and tourism activities due to aircraft use.	<p>6.12.1 Review levels of helicopter and plane use and take steps to address conflicts and develop Best Management Practices to address remote recreation and tourism activities as they arise.</p> <p>6.12.2 Where conflicts with air-based access arise, consider setting limits on the number of allowable flights.</p> <p>6.12.3 Where conflicts with other users arise, consider providing information to other aircraft users (local pilots, exploration companies, etc.) about areas of concern and encouraging them to avoid those areas where possible.</p> <p>6.12.4 Wherever possible, develop MOU between tourism operators and high-volume aircraft operators to avoid or mitigate conflicts and evaluate adequacy of existing BMPs. For example, periodization of flight schedules, concentration of flights to agreed to days of the week or weeks of the year, consultation and communication protocols to minimize land-use conflicts.</p>
BEST MANAGEMENT PRACTICES	<ul style="list-style-type: none"> <li>• <i>To the extent possible, avoid repeated flights in or near sheep areas during biologically important timing windows. This strategy applies to air access for mining activities, recreation, and sightseeing.</i></li> </ul>
INDICATORS	<ul style="list-style-type: none"> <li>• TBD</li> </ul>



<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Adopt existing or upcoming management plans to guide access planning in region. Examples are:</i> <ul style="list-style-type: none"> <li>• <i>Northern Mountain Caribou Management Plan</i></li> <li>• <i>Porcupine Caribou Herd Management Plan</i></li> <li>• <i>Boreal Caribou Recovery Plan</i></li> </ul> </li> </ul>
<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Collect baseline information on biologically important season for focal species to inform timing windows for access development and related activities.</i></li> <li>• <i>Delineate the viewshed for areas of high visual aesthetic value.</i></li> <li>• <i>Support mapping for remote land- and water-based recreation and tourism high-value areas.</i></li> <li>• <i>Delineate sensitive terrain (risk of surface erosion and slumping) and permafrost prior to an access-management plan in the region.</i></li> </ul>

Specific discussions are provided below for issues related to the Dempster Highway and access for resource development.

### 5.7.1. Dempster Highway

The Dempster Highway provides an important corridor for many activities, including transportation, tourism, subsistence harvesting, and communications. The highway is recognized as critical infrastructure for future regional economic development. Uninterrupted operation and maintenance of the Dempster Highway is therefore a regional priority. A co-operative Yukon Government and northern Yukon First Nations (VGFN, THFN, and NNDFN) effort to create an economic development plan for the highway area is ongoing. In 2005, the highway was designated a Northern and Remote Route under the National Highway System (Council of Ministers Responsible for Transportation and Highway Safety, 2005).

The Dempster Highway corridor is intended to encourage the location of land-use activities within the existing zone of influence of the highway. Under this recommendation, surface-disturbance and linear-density indicator reporting and evaluation would be considered only for new activities outside of the two-kilometre corridor buffer. Numerous archaeological sites exist within the corridor, and these would need to be identified and protected prior to additional development, as per existing regulations. Detailed assessment and planning of new developments within the corridor should also carefully consider visual impacts and mitigate to the extent practicable.

New potential access routes off the Dempster Highway will likely be one of the most important management issues facing the region in the future.

This recommendation and the need for more detailed management direction within the Dempster Highway corridor should be evaluated during future Plan reviews.

*Key issues related to management of activities within the Dempster Highway corridor:*

- The highway is a multiple-use corridor. A development corridor must be maintained to support current and future land-use activity without undermining the heritage, social, and ecological resource values in the vicinity of the highway.
- The highway is promoted as both a scenic tourism route and an industrial/transportation infrastructure corridor important to both the Yukon and Northwest Territories. It is also used for subsistence activities.
- Access to adequate gravel resources in close proximity to the highway is required for regular maintenance and potential future upgrades.
- Suitable soil conditions, topography, and accessibility to aggregate (gravel) for new all-season road location and construction are priorities along the highway
- A potential future pipeline and related infrastructure and telecommunications would likely parallel the highway.
- Wildlife viewing along the Dempster Highway is a draw for tourists, but has demonstrated impacts on wildlife.
- Need to maintain Dempster Highway as corridor for serving NWT communities, supporting rubber-tire tourism and recreation, First Nation subsistence harvesting, exploration, and potential oil & gas/mineral development, including aggregates
- Socio-economic and environmental feasibility of construction and reclamation of new all-season access and infrastructure corridors for post-exploration extractive resource industries (oil & gas and mining)
- There is potential to develop infrastructure for tourism, such as lodges, within the Dempster Development Area.

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>In recognition of the strategic importance of the Dempster Highway and its designation as a Northern and Remote Route under the National Highway System, surface-disturbance and linear-density indicator reporting and evaluation are exempt within a distance of 1 km on each side of the highway centre line (2-km total corridor width).</i></li> <li>• <i>Continue to recognize the tourism potential (wildlife viewing scenic landscapes, hiking opportunities) of the Dempster development area when considering current and industrial development or highway maintenance.</i></li> <li>• <i>Develop access restrictions within the Dempster development area where habitat and use of habitat may be impacted by human activity during certain times of the year.</i></li> </ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Continue to monitor use of the Dempster Highway Development Area for tourism development potential.</i></li> <li>• <i>Identify areas along the Dempster Highway of most importance to the tourism industry.</i></li> </ul>
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### 5.7.2. Access Development Scenarios for Resource Development

The Eagle Plain oil and gas basin may receive significant levels of future industrial activity, particularly from the energy sector. There are also several mineral deposits that may be economically feasible. We have proposed, along with several General Management Directions, possible access corridors that may be more or less feasible, given the resource development scenario. We recommend that all access corridors are evaluated in a resource management plan for economically feasible resource-development opportunities in the Peel Watershed. We also recommend that opportunities to share access development across the Northwest Territories border be considered. This recommendation is intended to foster a coordinated approach to new road and access route development in an area where focused oil and gas, and mineral exploration and development activities are probable.

The timing and scope of this recommendation will be at the discretion of the Parties and will be addressed by the Parties as part of implementation planning. Specific strategies and best management practices related to road and access-route siting may be included as part of this future access-management plan.

<p><b>POLICY RECOMMENDATION</b></p>	<ul style="list-style-type: none"> <li>• <i>All new all-season access should be restored using state-of-the-art techniques once activity has halted. A road restoration bond, levied on the proponent, is strongly recommended to ensure complete restoration.</i></li> <li>• <i>In advance of significant levels of resource development activity, an access-management plan should be developed using General Management Direction for Access provided in the Plan.</i></li> <li>• <i>All access-management plans should consider future access needs of economically feasible development opportunities using General Management Direction for Access provided in the Plan Scope the feasibility of a cross-territory shared access route.</i></li> <li>• <i>Significant development on permafrost should not occur before detailed mapping of existing and predicted permafrost depth and/or ground temperatures at an appropriate scale.</i> (<a href="http://adaptation.nrcan.gc.ca/perspective/transport_5_e.php">http://adaptation.nrcan.gc.ca/perspective/transport_5_e.php</a>)</li> </ul>
<p><b>RESEARCH RECOMMENDATION</b></p>	<ul style="list-style-type: none"> <li>• <i>All-season road restoration techniques in other similar jurisdictions should be examined in advance of new road construction.</i></li> </ul>

## 5.8 Current and Potential Economic Activity:

Maintaining regional economic development opportunities and benefits that do not result in unacceptable impacts to valued ecological and cultural resources are important objectives of the Plan. The region has a mixed economy that includes both traditional First Nation pursuits, and commercial resource-use activities. Resource users of the Peel region desire to maintain opportunities in both spheres of economic activity. Areas of economic development interest and potential are shown in Map 5 - Appendix A. Areas where traditional economic activities occur are shown in Map 4 - Appendix A.

The Plan proposes management strategies related to regional sectors of interest: transportation and access, the traditional economy, tourism, recreation, guiding/outfitting, oil and gas, minerals, and aggregate (gravel) resources. Forestry and renewable energy are also discussed.

Region-wide strategies and best management practices focus on mitigating the potential land-use impacts that transportation and access might have on valued heritage, socio-cultural, and ecological values.

### *Key issues related to current and potential economic activity:*

- Economically-beneficial activities of some sectors may be economically detrimental to others.
- Industrial activities require all-season roads or railways for full development. Surface access has implications on all values in the region.
- Economic activities bring variable economic benefits and variable increases in social infrastructure (e.g., hospitals, jails, etc.) to local communities and the Yukon as a whole.
- The ecological impact of some activities may be impossible to mitigate completely.
- All economic sectors in the region have expressed a clear desire for greater land-use certainty.

**Management Goal 7:** *Facilitate sustainable development opportunities and activities that result in socio-economic benefits to the affected First Nations, northern communities, and the Yukon as a whole.*

### **Desired Future State**

- Economic activities have a minimum of disturbance to other land users and values and a maximum of benefit to local residents.
- Infrastructure is completely restored following use, such that disturbed areas are ecologically and aesthetically restored as close to natural conditions as possible.

OBJECTIVES	STRATEGIES
7.1 Maintain opportunities to access lands and resources for a variety of land users and uses, including but not limited to transportation, subsistence harvesting, cultural pursuits, tourism, recreation, oil and gas, minerals, and gravel extraction.	7.1.1 Minimize land-use conflicts by avoiding or reducing the level of land-use activities in important subsistence-harvesting areas and current community-use areas.
7.2 Create land-use status certainty to the greatest extent possible.	7.2.1 Provide clear and consistent land-management direction and recommendations linked to Plan objectives. 7.2.2 Develop clear guidelines and process links to YESAA.
7.3 Maintain opportunities for a mixed economy to continue, where traditional subsistence harvesting and cultural activities and wage-based economic activities co-exist, ensuring long-term maintenance of First Nation culture, people's connection with the land, and their well-being.	7.3.1 Minimize land-use conflicts by avoiding or reducing the level of land-use activities in important subsistence-harvesting areas and current community-use areas. 7.3.2 Avoid or reduce activities in significant heritage and current community-use areas during important seasonal-use periods (e.g., utilize timing windows).
<b>BEST MANAGEMENT PRACTICES – GENERAL</b>	<ul style="list-style-type: none"> <li>• <i>See individual sector discussions below.</i></li> </ul>
<b>INDICATORS</b>	<ul style="list-style-type: none"> <li>• <i>Indicators to be determined through future research and plan implementation.</i></li> </ul>

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>TBD</i></li> </ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Develop and maintain a database of socio-economic activities by sector of interest, including total regional economic impact (employment, business multiplier).</i></li> </ul>
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Specific recommendations are provided below for issues related to:

- First Nations Traditional Economy and Community Development;
- Tourism and Recreation;
- Guide Outfitting and Trapping;
- Mineral and Energy Resources;
- Aggregate (Gravel) Resources;
- Forest Resources; and,
- Renewable Energy.

### **5.8.1 First Nations Traditional Economy and Community Development**

In the Peel region, a limited level of economic activity is still focused on subsistence harvesting. Residents from all four neighbouring First Nation communities spend varying amounts of time on the land, participating in traditional economic pursuits such as hunting, fishing, and berry harvesting in order to provide staple food items for themselves and feed (e.g., chum salmon) for dog teams. Trapping is still a main or supplementary economic activity when fur prices warrant. Traditional economic activities are strongly linked to the maintenance of First Nations culture and community well-being. Important subsistence harvesting and trapping areas are shown on Map 4, Appendix A.

#### *Key issues related to maintenance and pursuit of traditional economic activities:*

- The traditional economy is vital to maintaining First Nations' culture, community well-being, and ties to the land.
- Subsistence harvesting and traditional economic activities are important means of offsetting the high cost of food in northern communities.
- Subsistence harvesting opportunities may benefit from construction of new roads and trails, resulting in increased harvest of wildlife and fish resources.
- Land-use conflicts might arise between traditional economic activities and (i) industrial land uses, (ii) wilderness/cultural tourism, and (iii) Porcupine caribou herd conservation.

OBJECTIVES	STRATEGIES
<p>7.4 Maintain the ability of First Nations to obtain country food, plants, and other cultural-use resources.</p>	<p>7.4.1 Use best practices (e.g., minimal-impact seismic) for geophysical operations</p> <p>7.4.2 First Nations should undertake an annual analysis of food harvest levels within the Region to develop data on normal ranges and to report issues (particularly respecting fish and wildlife health) to the implementation and monitoring committee.</p> <p>7.4.3 First Nations should develop an inventory for country food harvest species.</p>

<p>7.5 First Nations are able to share in economic opportunities.</p>	<p>7.5.1 Before deciding whether to authorize a land use or on what terms, Responsible Authorities will require applicants to demonstrate meaningful community involvement with affected communities and individuals.</p> <p>7.5.2 The degree and nature of community involvement required will be appropriate to the scale and potential impacts of the proposed land use.</p> <p>7.5.3 Community involvement will begin prior to the application and will continue throughout the life of the proposed land use at intervals appropriate to the nature of activities.</p> <p>7.5.4 Maintain or enhance bilateral relations between communities and industrial proponents.</p> <p>7.5.5 First Nations will consider providing information on employment profile, skills, and training needs to industry on a regular basis.</p> <p>7.5.6 A First Nations wildlife monitoring program would help mitigate industrial activity or inappropriate activities at important cultural sites, provide employment, and could be integrated with a traditional skills program.</p> <p>7.5.7 Industry proponents to work with First Nations to develop a strategy that identifies and develops economic opportunities for First Nations in oil and gas or mining, where appropriate,.</p> <p>7.5.8 First Nations should develop an interpretive cultural/environmental program for aboriginal tourism.</p> <p>7.5.9 Encourage developers/proponents operating within the Peel region to report their contribution to the local economy (Keno City, Mayo, Fort MacPherson, Dawson City).</p> <p>7.5.10 Increase the level of aboriginal input into development planning and implementation by meeting with Chief/Council, Elders, or affected individuals or their representatives, as issues and opportunities arise (may include open houses, for example).</p> <p>7.5.11 Development proponents should support investigations into the impacts of development activities on plant and animal species traditionally used by First Nations people.</p>
<p><b>BEST MANAGEMENT PRACTICES – FIRST NATIONS TRADITIONAL ECONOMY AND COMMUNITY DEVELOPMENT</b></p>	<ul style="list-style-type: none"> <li>• <i>Consultation protocols should be developed between proponent and local communities and First Nations, and should be drafted in advance of development.</i></li> <li>• <i>Direct hire/contracting policies should be developed between proponent and local communities and First Nations, and should be drafted in advance of development.</i></li> </ul>
<p><b>INDICATORS</b></p>	<ul style="list-style-type: none"> <li>• <i>Indicators to be determined through future research and plan implementation.</i></li> </ul>

<p><b>POLICY RECOMMENDATIONS</b></p>	<ul style="list-style-type: none"> <li>• <i>TBD</i></li> </ul>
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<p><b>RESEARCH RECOMMENDATIONS</b></p>	<ul style="list-style-type: none"> <li>• <i>TBD</i></li> </ul>
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### 5.8.2 Tourism and Recreation

Tourism has been a consistent foundation to Yukon's economy for many decades and remains so today. The Peel watershed, in particular, has been a draw for river paddlers since the 1960s. Current tourism and recreation activity in the region is significant with annual revenues estimated to be over six hundred thousand dollars (estimate is based on guided and non-guided tourist data from Yukon Tourism and Culture and Yukon Parks Branch, 2008), for a range of tourism products and services that serve local, regional, national, and international clientele. The PWPR has experienced a growth in visitations during the past five years. The expansive wilderness in the region supports tourism products that attract visitors from around the world, and provides recreation opportunities for Yukon residents. The Dempster Corridor also continues to attract many visitors for sight-seeing tours and wildlife viewing, as well as people interested in a variety of highway-accessible outdoor-recreation activities. Approximately 7,000 tourists travel the Dempster Highway annually.

Recent tourism research shows continued demand in Yukon's primary tourism markets for high-quality wilderness-tourism products. There is room for the growth of existing remote-tourism products in the Peel watershed, within carrying capacity, and opportunities for road-accessible tourism. The First Nations have had a limited role in the tourism sector in the Peel watershed thus far. However, there are opportunities for the First Nations to direct, manage, participate in, and benefit from existing or new tourism products in the region.

#### *Key issues related to tourism and recreation:*

- High co-incidence of wilderness tourism activities and outfitting services within the Ogilvie, Wernecke, and Mackenzie mountains, requiring appropriate large, intact, and road-less areas through zoning and management for sustained use.
- Recognition and implementation of Bonnet-Plume Heritage River designation and management objectives.
- Carrying capacity and compatibility of expanded remote-access tourism based on ecological, cultural, sociological, and tourism-sector factors (eco-tourism, guide-outfitting).
- Lack of visual landscape inventory to enable sub-unit planning and management.
- Limited data regarding recreation (self-guided) visitation and economic impact of tourism by residents and non-residents to the Peel watershed.
- Wildlife viewing along the Dempster Highway is a draw for tourists, but has demonstrated impacts on wildlife.

## Desired Future State

- A world-class tourism destination based on the area’s globally significant natural features, supported by well-designed tourism/recreation infrastructure.
- A viable local tourism industry.
- Sustainable recreation and tourism activities sensitive to environmental and cultural values.
- Resource planning and management compatible with tourism needs.
- Opportunities for a wide range of recreation activities.
- Certainty of land base for recreation and tourism activities.

OBJECTIVES	STRATEGIES
<p>7.6 Identify opportunities for tourism and recreation development.</p>	<p>7.6.1 Update and continue to develop tourism-resource inventories for a range of front- and back-country tourism activities.</p> <p>7.6.2 Recognize the need for facilities to support tourism (front-country and backcountry), where appropriate.</p> <p>7.6.3 Provide opportunities for backcountry recreation and tourism development.</p>
<p>7.7 Provide a secure land base to support environmentally and culturally sensitive tourism/ recreation development.</p>	<p>7.7.1 Make non-settlement land available to support development of commercial recreation.</p>
<p>7.8 Manage natural, cultural, and recreation resources in front-country (e.g., along the Dempster Highway) and backcountry areas to support world-class wilderness-tourism opportunities</p>	<p>7.8.1 Design and locate tourism/recreation facilities and activities to minimize impacts on sensitive ecosystems, cultural/heritage sites, and recreation features.</p> <p>7.8.2 Manage levels of commercial recreation use in areas with potential carrying capacity limitations (e.g., Remote Access Lakes, Snake River Corridor).</p> <p>7.8.3 Design and locate facilities (front-country and backcountry) to respect scenic/aesthetic qualities, ecological values, and public use. Specific examples follow.</p> <p>7.8.4 Locate facilities to avoid displacement of public use.</p> <p>7.8.5 Design facilities to be aesthetically compatible with the surrounding area.</p> <p>7.8.6 Avoid disturbance to sensitive aquatic and terrestrial ecosystems (see Section 4 GMDs of Aquatic Ecosystems, Terrestrial Resources, and Special Features).</p> <p>7.8.7 Avoid proliferation of trails and, where possible, concentrate access along a single trail.</p> <p>7.8.8 Integrate tourism/recreation values and inventories into other resource planning and approval processes (e.g., sub-regional planning, environmental assessment, access management, or recommended protected area plans, etc.).</p> <p>7.8.9 Promote environmentally and culturally sensitive tourism and recreation through the following methods.</p> <p>7.8.10 Hold public consultation in the awarding of commercial recreation tenures.</p> <p>7.8.11 Encourage voluntary compliance initiatives with operators (e.g., Best Management Practices).</p> <p>7.8.12 Make information available on low-impact camping/trekking practices (e.g., “Leave no Trace”)</p> <p>7.8.13 Monitor recreational activities, including wildlife viewing activities, and, where necessary, take appropriate actions to prevent seasonal or chronic</p>

		harassment of wildlife.
	7.8.14	Coordinate strategic planning and management for recreation and tourism between Recommended Protected Zones and the adjacent land base.
7.9	Retain the natural character of high-value recreation features during access design to maintain wilderness-tourism-experience management.	<p>7.9.1 Manage road development and other forms of access (e.g., air) near high-value recreation features to avoid/reduce impacts on those features. Methods could include the following.</p> <p>7.9.1a Delineate the viewshed for areas of high visual aesthetic value.</p> <p>7.9.1b Avoid or reduce activities in areas of high aesthetic value.</p> <p>7.9.1c Locate roads to minimize disturbance (e.g., noise, dust, etc.) to backcountry facilities, trails, and activity areas.</p> <p>7.9.1d Manage public motorized access (off-road vehicles and ATVs).</p> <p>7.9.1e Include, in all access development plans, plans to decommission roads.</p> <p>7.9.1f Include, in all access development plans, plans to restore surface disturbance to pre-disturbance vegetation coverage.</p>
7.10	Maintain visual quality and aesthetics of Major River corridors.	<p>7.10.1 Avoid or minimize industrial land-use activities in wetlands and riparian areas.</p> <p>7.10.2 Coordinate, manage, and minimize new road and trail access to minimize habitat fragmentation.</p> <p>7.10.3 Reduce surface and vegetation impacts in riparian and sensitive permafrost areas.</p> <p>7.10.4 No new access infrastructure or development within identified River Corridor Zones except for absolutely necessary for access to existing claims.</p>
7.11	Promote development of locally based, viable tourism opportunities consistent with long-term tourism goals for the area.	<p>7.11.1 Incorporate local knowledge into tourism/ recreation inventories, opportunity studies, etc.</p> <p>7.11.2 Emphasize local employment and business creation as criteria for awarding commercial recreation tenures.</p> <p>7.11.3 Plan and promote development of front-country attractions and infrastructure (e.g., heritage and cultural attractions, trails, wildlife viewing sites, interpretive sites, signs, trail, etc.) so that there is little or no impact on habitats or animal behaviour.</p>
7.12	Maintain or increase opportunities for local recreation use.	<p>7.12.1 Develop, manage, and maintain new and existing recreation sites, facilities, trails, etc., while maintaining wilderness character.</p> <p>7.12.2 Consider local recreation use areas during project-level planning.</p> <p>7.12.3 Identify resources and develop mechanisms for managing public recreation sites and facilities (e.g., user fees, multi-party partnerships, etc.).</p>
<b>BEST MANAGEMENT PRACTICES – TOURISM</b>		<ul style="list-style-type: none"> <li><i>Memorandums of Understanding (MOUs) should be drafted between regional tourism operators and regionally active industrial operators to minimize conflicts.</i></li> </ul>
<b>INDICATORS</b>		<ul style="list-style-type: none"> <li><i>Visitor numbers to remote access lakes.</i></li> </ul>

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li><i>Implement policy for commercial wilderness-recreation tenures.</i></li> </ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Collect and analyze recreational activity data (self-guided and guided) in the Peel watershed, with priority given to frequently travelled rivers and Dempster Highway.</i></li> <li>• <i>Monitor use of remote access lakes.</i></li> </ul>
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### 5.8.3. Guide-Outfitting and Trapping

Big-game outfitting has been an economic generator in the Peel watershed for decades. In order to be economically viable and ecologically sustainable, the industry requires large areas of intact wilderness and healthy wildlife populations. Big-game outfitting activities, and their associated concessions, occur in the southern half of the PWPR where wilderness tourism, mineral exploration, and some traditional harvesting also occur.

#### *Key Issues related to big game outfitting and trapping:*

- The marketing advantage of big-game outfitters in the region is that they offer clients a relatively unique experience of large, healthy, intact ecosystems that are largely roadless. When other land uses diminish the high wilderness quality, clients may opt for more accessible locales that are comparatively unimpacted. Wilderness experience of sport-hunting clientele will be impacted by:
  - Excessive traffic by tourism and recreational users. Carrying capacity, therefore, is a management concern.
  - Excessive air traffic or inappropriately located exploration camps linked to mineral exploration.
  - Development of roads and other infrastructure.
- Land-use patterns of outfitters in all concessions, including but not limited to the locations of camps and trails, is poorly documented, making outfitting and trapping consideration during project-level planning difficult.
- Big-game outfitters and trappers rely on healthy wildlife populations and, indirectly, on functional ecosystems.

#### **Desired Future State**

- Viable fish, game, and furbearer populations that continue to support the needs of outfitters and trappers.
- Large areas that can provide a quality wilderness experience.

OBJECTIVES	STRATEGIES
7.13 Maintain wilderness characteristics valued by big-game outfitters.	<p>7.13.1 Avoid or minimize industrial land-use activities in landscapes of importance to outfitters.</p> <p>7.13.2 Coordinate and manage road and trail access.</p>
7.14 Manage game wildlife populations to be a sustainable renewable resource.	<p>7.14.1 Survey and monitor game populations to ensure natural population structures are maintained.</p> <p>7.14.2 Continued coordination of information and studies between federal, territorial, and provincial jurisdictions, as well as international and non-governmental organizations.</p> <p>7.14.3 Continued monitoring of waterfowl and small game harvest through hunter surveys.</p> <p>7.14.4 Monitor harvest levels of game species by First Nations members, residents, and guide outfitters.</p> <p>7.14.5 Continue to support the work of the Renewable Resource Councils to review and provide input on wildlife management decisions and research.</p> <p>7.14.6 Apply timely hunting restrictions when there is substantiated evidence that game populations are at risk or declining (this includes verifiable local information and scientific/biological studies).</p> <p>7.14.7 Prevent unmitigated public access on new roads or trails.</p> <p>7.14.8 Coordinate strategic planning and management for wildlife and fish populations between Recommended Protected Zones and the adjacent land base.</p>
7.15 Maintain opportunities for local, resident, and non-resident hunting.	<p>7.15.1 Recognize the importance of the country food harvest for local residents.</p> <p>7.15.2 Provide opportunities for resident and non-resident hunters.</p> <p>7.15.3 Hunting restrictions will only occur when there is substantiated evidence that game populations are at risk or declining (this includes verifiable local information and scientific/biological studies).</p>
7.16 Manage furbearer populations to be a sustainable renewable resource.	<p>7.16.1 Develop and disseminate best management practices for trapping.</p> <p>7.16.2 Encourage use of humane trapping techniques, as appropriate to the species, and periodically update information.</p> <p>7.16.3 Tenure holders should consult trapline license holders and First Nations trappers before commencing development that could impact trapping activities (e.g., road development, mine development, and, where possible, mineral exploration).</p>
7.17 Provide and maintain commercial opportunities for hunting, fishing, and trapping.	<p>7.17.1 Maintain the rights of existing tenure holders and provide new opportunities where appropriate.</p> <p>7.17.2 Maintain and, if needed, manage grazing activities associated with guide outfitting.</p> <p>7.17.3 Consult commercial tenure holders before commencing development (road development, mine development, and, where possible, mineral exploration).</p>

7.18	Manage wild fish stocks (sea-run, and non-sea-run) to be a sustainable, renewable resource.	7.18.1	Continue to promote effective fisheries management.
		7.18.2	Continued coordination of information and studies between federal, First Nation, and both territorial agencies.
		7.18.3	Encourage research on the spawning habitat and populations of anadromous fish species in the Peel Watershed.
7.19	Maintain opportunities for local, resident, and non-resident fishing.	7.19.1	Recognize the importance of the country food harvest to local residents.
		7.19.2	Provide opportunities for resident and non-resident fishers, as long as fish populations are not at risk or declining.
<b>BEST MANAGEMENT PRACTICES – GUIDE OUTFITTING &amp; TRAPPING</b>		<ul style="list-style-type: none"> <li>• <i>Memorandums of Understanding (MOUs) or similar documents should be drafted between oil and gas proponents and the First Nation(s) whose traditional territory is involved in potential exploration or development.</i></li> <li>• <i>Memorandums of Understanding (MOUs) should be drafted between regional big-game outfitters and regionally active industrial operators to minimize conflicts.</i></li> <li>• <i>Where possible, Memorandums of Understanding (MOUs) should be drafted between local trappers (or a representative) and regionally active industrial operators to minimize conflicts.</i></li> </ul>	
<b>INDICATORS</b>		<ul style="list-style-type: none"> <li>• <i>Indicators to be determined through future research and plan implementation.</i></li> </ul>	

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Use of off-road vehicles by outfitters over large areas should be discouraged.</i></li> </ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Land-use patterns of outfitters in all concessions, including but not limited to the locations of camps and trails, should be documented in a secure way that respects outfitters' desires for privacy while facilitating future planning.</i></li> </ul>
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#### **5.8.4 Mineral Resources**

Mining has been a cornerstone of the Yukon economy since the Gold Rush era. The Plan is intended to assist in establishing land-use certainty for mineral exploration and development activities. Mineral interest and activity in the region has recently been high, despite lack of land-use certainty, remoteness, and limited road infrastructure. This interest was spurred by recent high mineral prices and by generally high mineral potential and resulted in an estimated forty-eight million dollars having been spent in exploration activity between 2000 and 2008.

Currently, exploration and development activities are subject to comprehensive review processes as stipulated in various territorial and federal legislation. Exploration activities are administered by a comprehensive referral process among government agencies in association with First Nations. The YESAA process is intended to ensure all technical, social, and environmental aspects are completely assessed, including consistency with the management direction in the Plan.

Individual stakeholder companies and industry representatives have voiced strong concern about a need to utilize best management practices, existing review processes, little/no zoning, and guaranteed access for exploration and development throughout the entire Peel region. In contrast, many view mine development as incompatible with wilderness values. As previously stated, the Commission has had to view these positions in the context of its Guiding Documents, which ask that the plan ensure the long-term maintenance of wilderness values.

In letters to the Commission, legal concerns were raised by individual mining firms concerning the issue of compensation, based upon their interpretation of tenure rights and regulatory guarantees concerning “reasonable access” to such existing mineral claims. Given the polarity of positions around this central land-use management issue, the Commission sought guidance from its Senior Liaison Committee (SLC), which has representation of all the Parties (First Nations and Yukon government). Since responsibility for mineral tenures on non-settlement lands rests with the Yukon government, a statement was provided by the SLC on current policy direction recommending “no compensation and no expropriation” regarding existing claims.

In shaping its response to the mineral-access issue, the Commission considered a number of matters as part of its planning and decision-making process. In applying its Decision-Making Filters (PWPC 2008c) to the selection of a land-use scenario for the Peel region, the Commission developed a set of “required” criteria that included due regard to both the retention of wilderness characteristics and legal considerations affecting land-use management. In that process, it examined the following factors:

- Estimation of known mineral-resource potential (high-medium-low), and extent of existing mineral claims.
- Extent of pre-feasibility analysis for mine development, concerning access requirements, water and energy supply, mine operations.

- Lack of cost/benefit analysis for all sectors, including mine development and other resource-based industries (e.g., traditional subsistence economy, guide/outfitting, wilderness tourism).
- Understanding of potential land-use management issues arising from the impact of new, all-season access development upon existing resource sectors within the Peel region.
- Risk assessment on known environmental management issues affecting the feasibility of access and mine development (impacts on listed fish and wildlife species at risk, terrain stability, water quality, cultural resource use).

Based upon its review of the information, Commission members unanimously elected to adopt a “precautionary and adaptive management” approach to land-use management within the Peel region, and the accommodation of the mineral sector. The Plan, therefore, endeavored to provide a measure of certainty to the greatest extent possible for mineral exploration and development, and has recommended the following key directions in addition to earlier outlined management strategies:

- Within Integrated Management Zones, mineral exploration can proceed based upon the recommended management strategies of that zone and the Plan in general, and subject to regulatory approval processes.
- Immediate withdrawal of new mineral staking is recommended in all Recommended Protected Zones.
- Continued exploration on mineral claims in good standing within Tier II Recommended Protected Zones will be allowed during the first period of Plan implementation (i.e., “grandfathered access” to existing claims) with strict conditions concerning access planning, management, and reclamation.
- Within RCZs, any feasible mine development proposal on existing mineral claims would be subject to future Plan review according to provisions of UFA Chapter 11 concerning resolution of Land Use Plan conformance. This would enable a thorough review of all related public- and private-interest concerns.

### **Coal Development**

The most likely scenario for coal development in the region is to provide thermal grade coal for an on or off-site coal-fired power plant for mine operations in the planning region. The likely location for such a mine site is most likely at the Crest deposit (LMU #1b) or at a nearby Wernecke Breccia deposit (Gartner Lee 2006).

Due to the high levels of surface disturbance from open-cast coal mining, and linear disturbance associated with coal transport, coal mining in LMU sub-units 2a, 3a and 3b would likely will not remain under the proposed critical indicator levels for linear and surface disturbance for these LMUs.

In addition, further research into reclamation of surface disturbance with open-cast mining techniques in areas underlain with permafrost is required.



*Among the key issues related to mineral exploration/development activities:*

- Mineral activities require access to large areas of land, and substantial exploration efforts are required to identify economically viable deposits.
- The construction and ongoing operations of large-scale mining activity would bring many new workers to the region.
- Mine-site operations can lead to local and downstream water impacts and localized wildlife/habitat disturbance.
- Land-use conflicts might arise between mineral activities and: (i) wilderness/cultural tourism, (ii) traditional economic activities and cultural pursuits, and (iii) ecological processes, including use of important habitats and movement.
- According to industry sector representatives and some individual firms, existing mineral claims provide some legal rights to claim holders.

**Desired Future State**

- An economically and environmentally sound mining industry that provides long-term benefits to the local community.
- Appropriate level of certainty of access to support a viable exploration industry.
- Responsible mineral projects approved in an efficient and timely manner and carried out with high standards of environmental management, including access and mine-site reclamation.

OBJECTIVES	STRATEGIES
7.20 Provide a secure land base to support the exploration and development of mineral resources.	<p>7.20.1 At all levels of planning, provide management direction that is clear, practical, and economically feasible.</p> <p>7.20.2 During formal Plan review, evaluate designation for lands closed to mineral tenures (no-staking reserves) and note the reasons for the reserve and, where appropriate, request the reserve be lifted or amended.</p>
7.21 Provide opportunities for appropriate access for exploration and development.	<p>7.21.1 To the extent possible, coordinate operational time windows for mineral exploration and mine development and associated access needs with the needs of other resource values, such as wildlife habitat and existing commercial activities (e.g., guide-outfitting).</p> <p>7.21.2 Consult with mineral tenure holders or industry representatives as well as First Nations and relevant stakeholder/interest groups during government access-management planning, in accordance with applicable review and referral procedures.</p> <p>7.21.3 Allow for infrastructure access, such as transmission lines and pipelines, outside Recommend Conservation Zones, subject to environmental review processes.</p> <p>7.21.4 Consider concerns for safety, the environment, and economic viability in the determination of appropriate access.</p>
7.22 Ensure security of mineral and energy resource tenures.	7.22.1 All mineral tenures outside of Recommend Conservation Zones are secure, providing the holder complies with applicable Acts and Regulations.

<p>7.23 Minimize impacts to the land base and meet environmental regulatory standards.</p>	<p>7.23.1 All proposals (including restoration and closure) will follow the procedures for environmental assessment applicable to the size and type of project.</p> <p>7.23.2 Reclaim “orphaned” sites in cases of environmental hazard or threat to public safety. This strategy would be the responsibility of government.</p> <p>7.23.3 Control traffic on new roads, and deactivate and restore according to existing policy and legislative requirements and access-management directions in the Plan.</p> <p>7.23.4 Monitor exploration sites for compliance with environmental standards for activities on site.</p>
<p><b>BEST MANAGEMENT PRACTICES – MINERAL RESOURCES</b></p>	<ul style="list-style-type: none"> <li>• <i>Best management practices specifically for the mineral sector in the Yukon have not yet been developed. However, BMPs from other sectors (e.g., oil and gas industry) are often applicable.</i></li> <li>• <i>Memorandums of Understanding (MOUs) should be drafted between mineral exploration and development companies and regional big-game outfitters, trappers, and tourism operators before substantial fieldwork begins. These MOUs should be updated yearly or as needed.</i></li> </ul>
<p><b>INDICATORS</b></p>	<ul style="list-style-type: none"> <li>• <i>Indicators to be determined through future research and plan implementation.</i></li> </ul>

<p><b>POLICY RECOMMENDATIONS</b></p>	<ul style="list-style-type: none"> <li>• <i>In light of the impossibility of balancing other land uses and ecological values with the massive transportation, processing, and extraction infrastructures associated with coal mining, coal mining should not be considered within the region.</i></li> <li>• <i>Prioritize research, public consultation and government policy development on coal as an energy source within the Region. This policy will consider economic, environmental and social implications of Yukon’s energy choices (refer to Energy Strategy for Yukon, January 2009)</i></li> <li>• <i>Significant consultation with Yukon residents and especially with residents of communities around the region should occur prior to development of uranium deposits.</i></li> </ul>
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<p><b>RESEARCH RECOMMENDATIONS</b></p>	<ul style="list-style-type: none"> <li>• <i>Further research into reclamation of surface disturbance with open-cast mining techniques in areas underlain with permafrost</i></li> </ul>
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### 5.8.5 Oil and Gas Resources

The Plan is intended to assist in establishing land-use certainty for oil and gas activities. While oil and gas activity in the region is currently low, the region holds moderate oil and significant natural gas potential. Access to pipeline infrastructure is considered to be a major factor limiting natural gas development in this region.

*Among the key issues related to oil and gas exploration/development activities:*

- Oil and gas exploration and development activities and associated land uses (transportation, gravel extraction, and water withdrawal) can cause cumulative and adverse change over large landscapes.
- Impacts could affect valued ecological resources, including the Porcupine caribou herd and other caribou populations, moose, marten, wetlands, lakes, and rivers.
- The construction and ongoing operations of large-scale oil and gas infrastructure would bring many new workers to the region.
- Coordinated and effective management of the various caribou habitats and populations requires an integrated management approach, in advance of increasing industrial land use.
- Land-use conflicts might arise between oil and gas exploration and development and: (i) wilderness/cultural tourism, (ii) traditional economic activities and cultural pursuits, and (iii) use of winter range and movement of caribou, including the Porcupine caribou herd.
- Improper oil and gas drilling waste materials or their disposal can have negative impacts.
- Almost all projected oil and gas operations occur on terrain underlain with permafrost. Damage to permafrost could result in dramatic changes in hydrology and slope failures.
- Some oil and gas basins are poorly understood and very inaccessible.
- Oil and gas exploration can proceed with winter road or air access. However, development of these resources requires all-season roads and pipelines.

Specific recommendations relating to the management of oil and gas exploration and development activities are not required at this time, as there are well-established management practices available within the Yukon government. Current standard oil and gas industry practices have a much smaller footprint and impact on ecological values than historical practices, and significantly reduce the potential for major long-term impacts. Given anticipated low levels of activity based upon industry analyses (Fakete, 2005) and little overlap with tourism values, big-game outfitting activities and key habitats, current site-

specific best management practices and recommended Plan strategies and zoning should be adequate to mitigate potential impacts of oil and gas activity.

*Desired Future State oil and gas exploration and development activities*

- An economically and environmentally sound energy industry that provides long-term benefits to the local community.
- Certainty of access to support a viable exploration industry.
- Responsible energy projects approved in an efficient and timely manner and carried out with high standards of environmental management, including access and well-site reclamation.

OBJECTIVES	STRATEGIES
7.24 Provide a secure land base to support the exploration and development of energy resources.	7.24.1 At all levels of planning, provide management direction that is clear, practical, and economically feasible.
7.25 Provide opportunities for appropriate access for exploration and development.	7.25.1 To the extent possible, coordinate operational time windows for energy exploration and development and associated access needs with the needs of other resource values, such as wildlife habitat and existing commercial activities.  7.25.2 Consult energy tenure holders or industry representatives as well as relevant First Nations and stakeholder/interest groups during government access-management and deactivation planning, in accordance with applicable review and referral procedures.  7.25.3 Allow for infrastructure access such as transmission lines and pipelines outside Protected Areas, subject to environmental review processes.  7.25.4 Consider concerns for safety, the environment, and economic viability in the determination of appropriate access.
7.26 Ensure security of mineral and energy resource tenures.	7.26.1 All energy tenures outside of Protected Areas are secure, providing holder complies with applicable Acts and Regulations.
7.27 Minimize impacts to the land base and meet environmental regulatory standards.	7.27.1 All proposals (including reclamation and closure) will follow the procedures for environmental assessment applicable to the size and type of project.  7.27.2 Reclaim “orphaned” sites in cases of environmental hazard or threat to public safety. This strategy would be the responsibility of government.  7.27.3 Control traffic on new roads, and deactivate and restore according to existing policy and legislative requirements and access-management directions in the plan.  7.27.4 Monitor exploration sites for compliance with environmental standards for activities on site.
7.28 Improve the understanding of geological resources to support the discovery and development of mineral and energy resources and for informed resource-management decision making.	7.28.1 Maintain and upgrade the territorial geoscience databases for assisting mineral and energy exploration and for land-planning decision making.  7.28.2 Encourage studies (e.g., scientific research, geological mapping, geochemical and geophysical programs, extraction and reclamation technological advances, technical workshops, and prospector training) to support opportunities for geological-resource discovery and development and for informed resource-management decision making.
<b>BEST MANAGEMENT PRACTICES – OIL AND GAS</b>	<ul style="list-style-type: none"> <li>• <i>Best management practices have been developed specifically for the oil and gas sector in the Yukon.</i></li> <li>• <i>Memorandums of Understanding (MOUs) or similar</i></li> </ul>

	<i>documents should be drafted between oil and gas proponents and the First Nation(s) whose traditional territory is involved in potential exploration or development.</i>
<b>INDICATORS</b>	<ul style="list-style-type: none"> <li>• <i>Indicators to be determined through future research and plan implementation.</i></li> </ul>

<b>POLICY RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Significant consultation with Yukon residents and especially with residents of communities around the region should occur prior to development of coal-bed methane deposits.</i></li> </ul>
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<b>RESEARCH RECOMMENDATIONS</b>	<ul style="list-style-type: none"> <li>• <i>Impacts of linear features and infrastructure on wildlife populations (e.g., Porcupine caribou herd) should be determined.</i></li> <li>• <i>The relationship between the rate of revegetation of disturbed areas, time since disturbance, and biophysical characterization should be determined to track footprint and linear-density levels.</i></li> </ul>
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### 5.8.6 Aggregate (Gravel) Resources

Gravel is an important but scarce resource in the Peel region. Several existing gravel pits supply the requirements of the Dempster Highway, many within one kilometre of the highway.

Aggregate along the portion of the Dempster Highway within the planning region is in limited supply, largely because of the unique glacial history of the area.

The oil and gas and transportation sectors anticipate that substantial volumes of aggregate will be required to support the development of industrial infrastructure, particularly for road development. These future requirements would be in addition to existing required volumes utilized by Dempster Highway maintenance and upgrades.

A regional aggregate assessment has not been completed outside of the Dempster Highway corridor. However, there is an ongoing aggregate mapping project in the region. Until the results of this project are released, there is little aggregate mapping available. Potential sources of new aggregate materials are high terraces above rivers, exposed ridges and bedrock, and dry river/creek beds. Some river valleys offer potential sources of aggregate but also contain some of the most important ecological and cultural values in the region.

*Key issues related to aggregate extraction activities:*

- Obtaining required volumes of aggregate to support regional infrastructure development may disturb large areas of land, in some cases nearly as large as the direct infrastructure footprint itself.
- Impacts from activities on ecological, socio-cultural, and economic values include long-term habitat disturbance and visual impacts.
- Land-use conflicts might arise between aggregate extraction activities and: (i) wilderness/cultural tourism, (ii) traditional economic activities and cultural pursuits, and (iii) various ecological values.

<b>BEST MANAGEMENT PRACTICES – AGGREGATE EXTRACTION</b>	<ul style="list-style-type: none"> <li>• <i>To minimize potential impacts to regional fish populations, aggregate (gravel) mining should be prohibited where it might affect significant fish habitats.</i></li> <li>• <i>Minimize gravel requirements for necessary infrastructure through coordinated access, feature reduction, and geo-technical engineering.</i></li> <li>• <i>Ensure efficient use of identified aggregate resources.</i></li> </ul>
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<b>RESEARCH RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>To mitigate potential impacts on significant and/or sensitive ecological or cultural resources and values, the identification and mapping of potential sources of aggregate should be continued.</i></li> </ul>
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**5.8.7 Forest Resources**

There is very limited or no commercial forestry potential and interest in the region. Management of forest resources for fuelwood and building materials is a local issue for the residents of Fort McPherson, especially those with cabins or camps upstream. Forest harvesting generally occurs along the Peel and Satoh river corridors. Future developments may also use building materials derived from local wood. The southwest portion of the region falls within a forest management area. The forest management committee charged with this region has thus far designated it as a Hinterland Forest Zone, implying it has no commercial potential beyond local uses.

*Key issues related to forest management and community harvest:*

- Securing an adequate and accessible long-term wood supply for cabins, and camps.
- Trees grow very slowly in the region.
- Extensive commercial harvesting could impact other land users.

The Plan does not directly address forest-management or forest-harvesting strategies and did not consider best management practices for community forest-harvesting activities.

### 5.8.8. Renewable Energy

Through the Northern Canada Power Commission, a potential large-scale hydro site was identified in the planning region in the 1960s and 70s at Aberdeen Canyon. Given the scale of the conceptual project, it is not likely to be economic.

*Key issues related to renewable energy production:*

- Most potential mine developments will require a local power source. Probable alternatives for all but the largest mines include costly and polluting combustion of diesel fuel or hydrologically-disruptive hydroelectric power.

<b>POLICY RECOMMENDATION</b>	<ul style="list-style-type: none"><li>• <i>Given the strong interests in maintaining unaltered water quality and quantity in the Peel watershed, large and medium-scale hydroelectric projects should not occur.</i></li></ul>
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Addressing renewable energy issues was not a major focus of the Plan.

## 6. Landscape Management Units

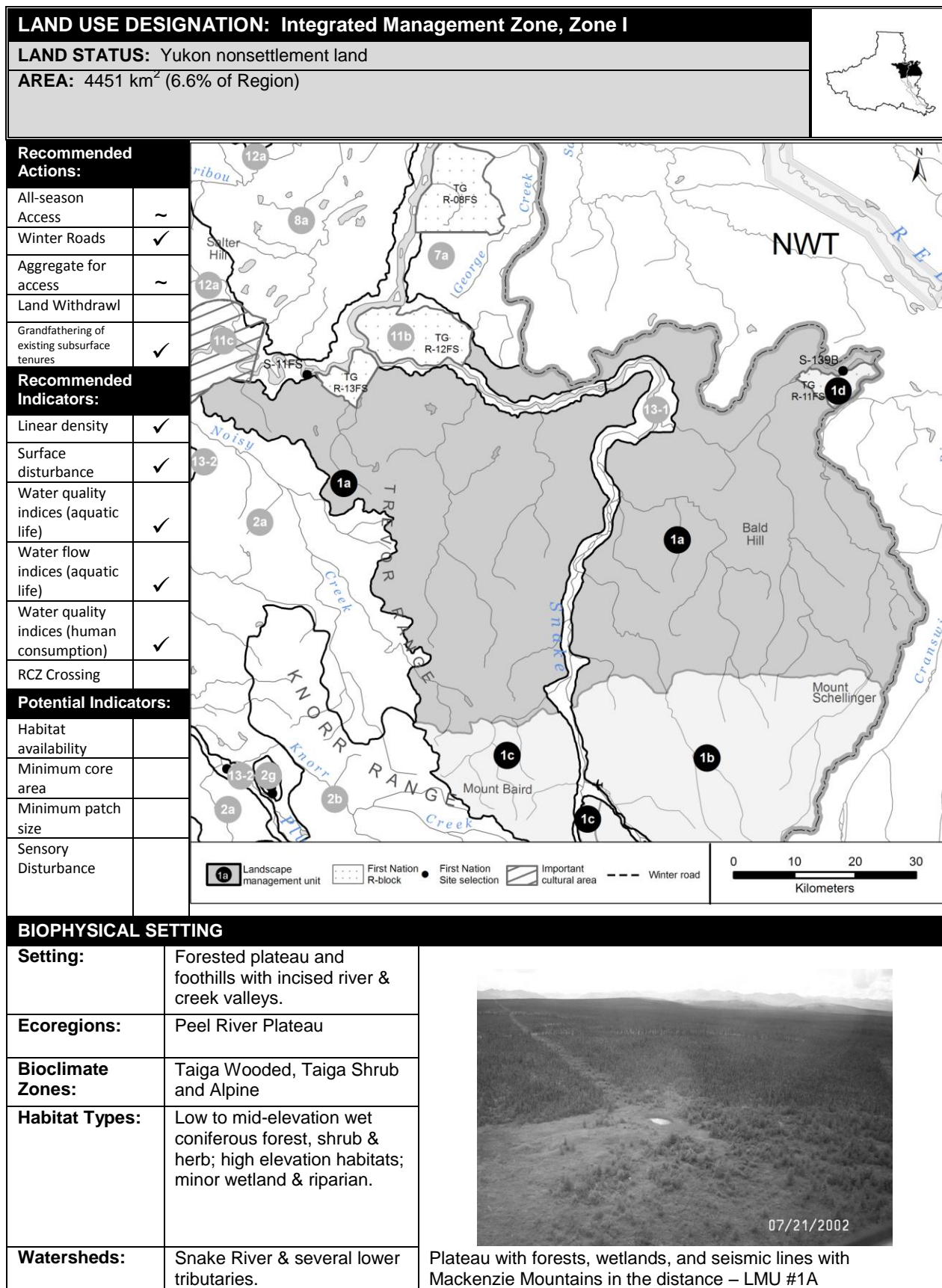
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This section describes the values and management issues associated with specific landscape management units (LMUs) in the Peel Watershed Planning Region. 13 LMUs and a number of sub-units are identified. A summary of the LMUs is provided in Appendix B.

The general management direction described in Section 4 applies to the entire planning region, subject to LMU-specific recommendations described in this section, and Section 3. Recommended actions and indicators are summarized with checkboxes below. A checkmark (✓) indicates that the action or indicator is allowable or recommended, respectively, for each LMU. A tilde (~) indicates that an action may be permitted in the LMU, but only under certain circumstances or variances.

An overview of LMUs and identified ecological, cultural and economic values and resources referenced in this section can be found in Maps 2-5, Appendix A. Detailed maps and descriptions of resource values are contained in the Peel Watershed Resource Assessment Report and Conservation Priorities Assessment Report (Peel Watershed Planning Commission, 2008). The resource and conservation reports are available from the PWPC website (<http://www.peel.planyukon.ca>) and should be consulted when further information is required.



**LMU #1: Snake River Watershed****Sub-unit #1A: Lower Snake Watershed**

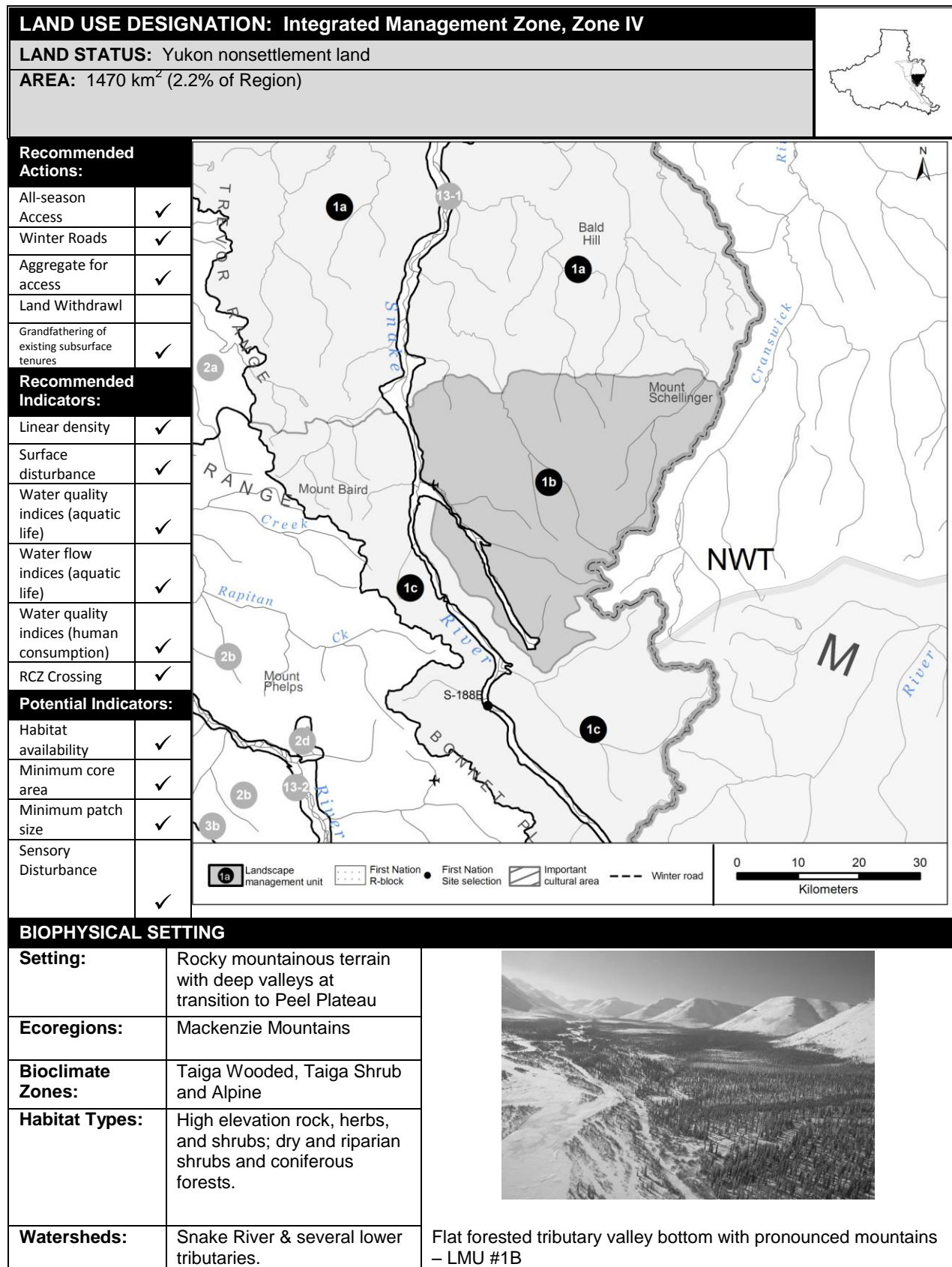
<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Extensive high value winter habitat and key winter use areas of the Bonnet Plume herd; moderate winter habitat for the Porcupine herd - little use in recent decades.
<b>Moose:</b>	High habitat suitability along bottoms of incised creeks; low-moderate late winter habitat suitability elsewhere.
<b>Marten:</b>	The most extensive high quality winter habitat in the region, mostly in plateau taiga forests.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Most streams likely have fish present.
<b>Grizzly Bear:</b>	Mix of low to high grizzly bear habitat suitability.
<b>Birds:</b>	High potential for peregrine falcon nesting and foraging habitat; moderate - high waterbird habitat; high breeding birds species richness; moderate to high species of concern.
<b>Vegetation:</b>	Low-mid elevation dry/wet shrub and coniferous forest, subalpine shrub.
<b>Wetlands and Lakes:</b>	Pockets of small wetlands and lakes throughout the unit.
<b>Riparian Areas:</b>	Several large tributary streams to the lower Snake River.
<b>Major River Corridors:</b>	Snake River (LMU 13-1).
<b>Special Features:</b>	One recorded mineral lick, Bonnet Plume herd migration route.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Very few cabins, travel routes on the Snake River to Peel River confluence.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Old winter road; float plane landing on Popcorn Lake; old seismic lines; a conceptual access route has been identified in this unit <sup>1</sup> near Popcorn Lake.
<b>Traditional Economy:</b>	Most of unit covered by TG primary use area
<b>Recreation and Tourism:</b>	Low current use, though high potential along some tributaries.
<b>Big Game Outfitters:</b>	No registered outfitting concessions.
<b>Trapping:</b>	TG group trapping concession.
<b>Oil and Gas Resources:</b>	Peel Plateau and Plain Basin, moderate oil and gas potential. Two abandoned wells.
<b>Mineral Resources:</b>	Moderate mineral potential (zinc); small area of coal potential; some existing claims <sup>2</sup> .
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Recommended access route to the Crest deposit would run north through this unit, east of the Snake and Peel Rivers.</li> <li>2. NND Traditional Territory (all of unit), TGFN Primary Use Area (most of unit)</li> </ol>	

<sup>1</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>2</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

## LMU #1: Snake River Watershed

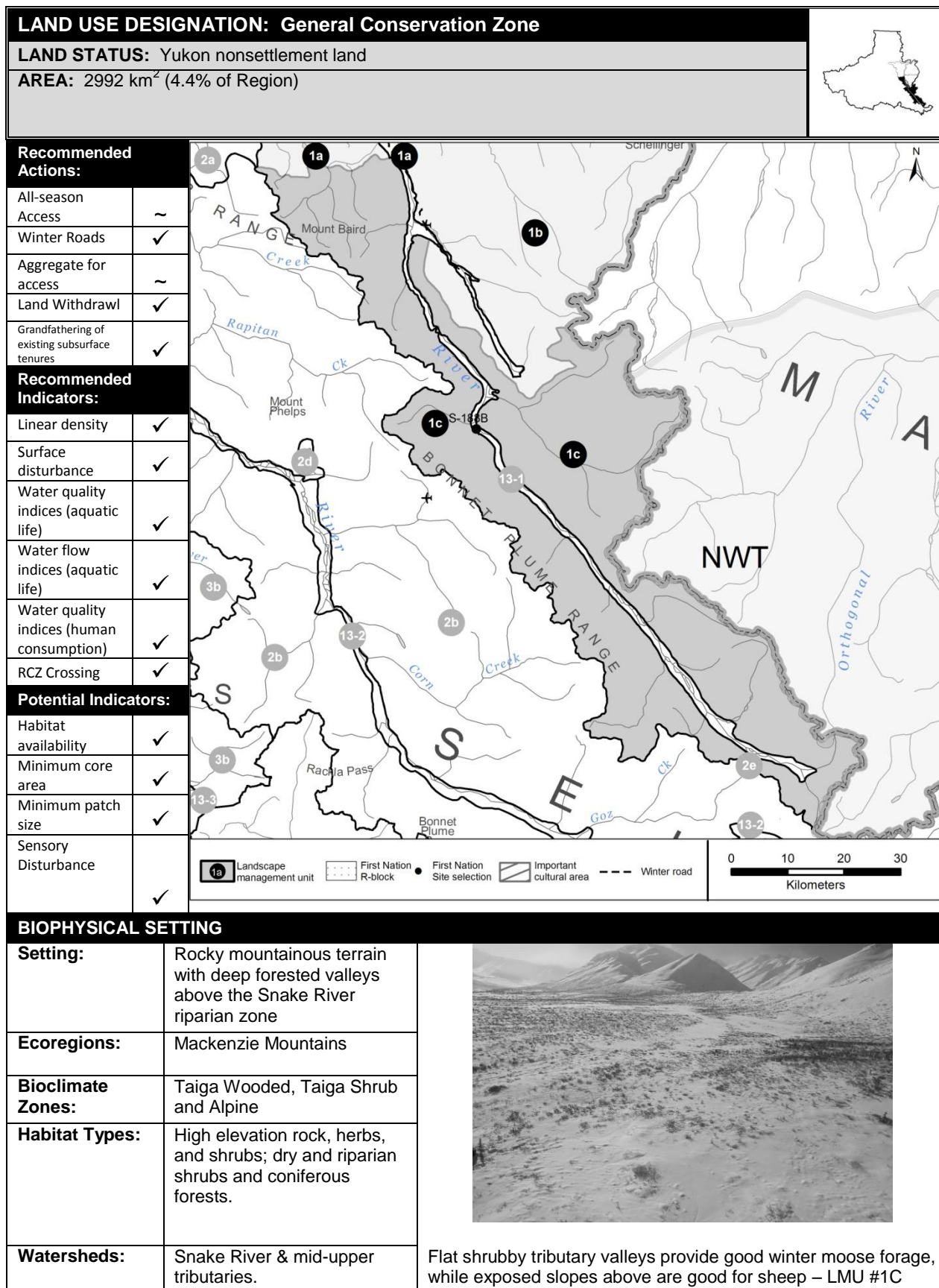
### Sub-unit #1B: Snake Watershed – Crest



<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat, and some fall key areas of the Bonnet Plume herd concentrated along forested valley bottoms; moderate-low winter habitat for the Porcupine herd – little use in recent decades.
<b>Moose:</b>	High habitat suitability in valley bottoms; low-nil late winter habitat suitability elsewhere.
<b>Marten:</b>	High value winter habitat in valley-bottom forests, poor elsewhere.
<b>Sheep:</b>	Large concentration of high value winter habitat and documented habitat use (all seasons).
<b>Fish:</b>	Fish presence potential in larger rivers, several known fish occupancy and winter open water sites.
<b>Grizzly Bear:</b>	High grizzly bear habitat suitability in riparian corridors and valleys.
<b>Birds:</b>	High potential for peregrine falcon foraging habitat; moderate - high waterbird habitat in riparian areas; low - moderate breeding birds species richness; several species of conservation concern.
<b>Vegetation:</b>	Alpine exposed rock and low/riparian to subalpine dry shrub and coniferous forests.
<b>Wetlands and Lakes:</b>	No significant wetlands and lakes.
<b>Riparian Areas:</b>	Several large tributaries to the Snake River.
<b>Major River Corridors:</b>	Snake River (LMU 13-1 to the west).
<b>Special Features:</b>	Bonnet Plume caribou migratory corridor.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	No documented routes or sites.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Some winter road access on the Snake; A conceptual access route has been identified in this unit <sup>3</sup> along the Snake River
<b>Traditional Economy:</b>	TG seasonal use area and NND traditional harvesting and wildlife areas, especially sheep.
<b>Recreation and Tourism:</b>	Very high value wilderness recreation and views on western edge. High value hiking areas. High potential for tourism.
<b>Big Game Outfitters:</b>	Some high value hunting. Bonnet Plume Outfitters Ltd.
<b>Trapping:</b>	Single trapping concessions 11, 17.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Very large proven iron deposit <sup>4</sup> ; low-moderate mineral potential otherwise.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. The Crest iron deposit is considered one of the largest iron deposits in the world. This plan enables its development.</li> <li>2. All-season access to this unit must be routed northward towards Ft McPherson.</li> <li>3. NND Traditional Territory (all of unit).</li> </ol>	

<sup>3</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>4</sup> Crest deposit and associated claims.

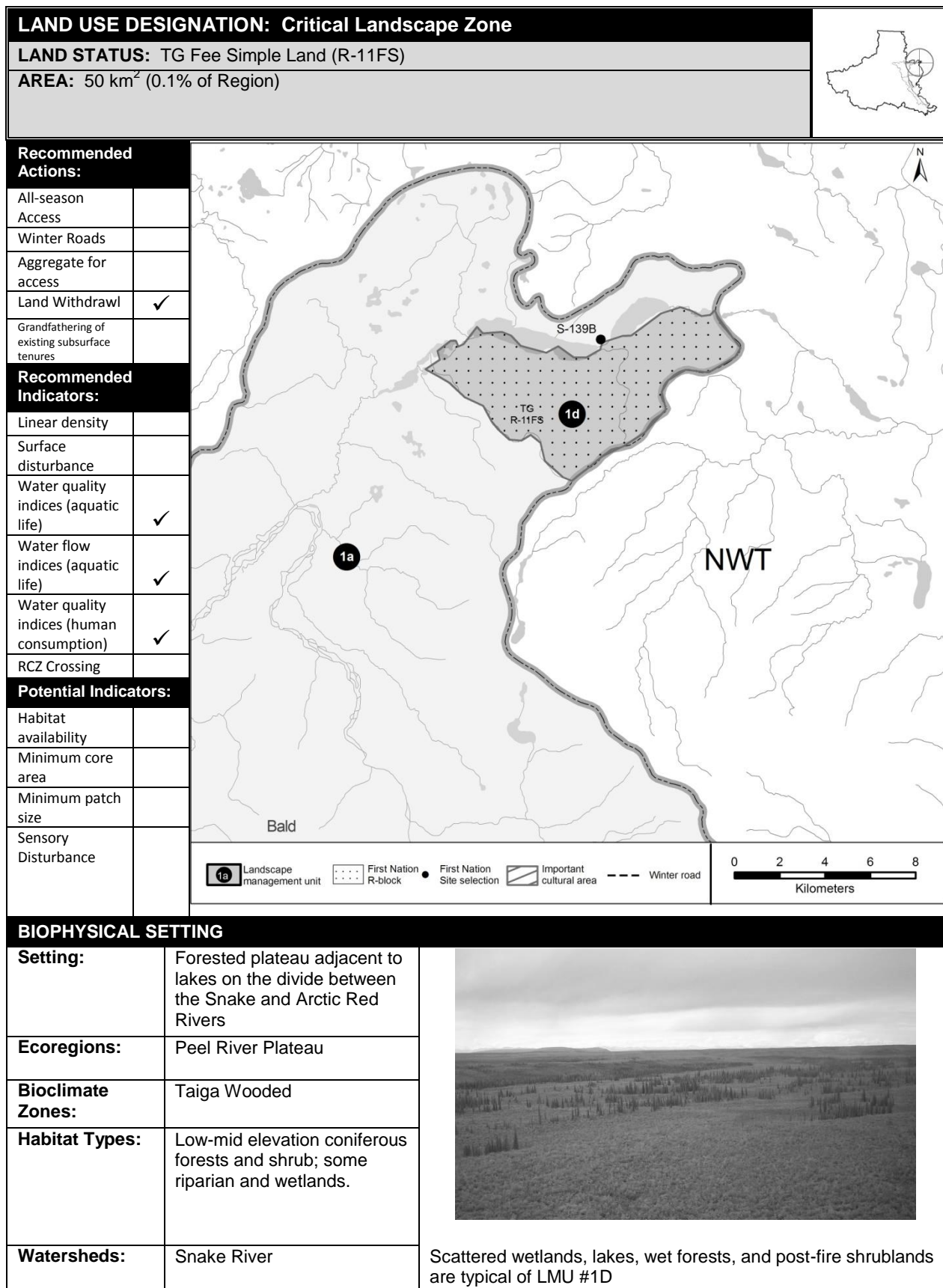
**LMU #1: Snake River Watershed****Sub-unit #1C: Upper Snake Watershed**



<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat, and some key areas of the Bonnet Plume herd concentrated along forested valley bottoms; moderate-low winter habitat for the Porcupine herd – little use in recent decades.
<b>Moose:</b>	High habitat suitability in valley bottoms; low-nil late winter habitat suitability elsewhere.
<b>Marten:</b>	High value winter habitat in valley-bottom forests, poor elsewhere.
<b>Sheep:</b>	Regionally significant concentration of mineral licks and associated movement corridors (good for viewing by tourists). Concentration of moderate value winter habitat and documented habitat use (winter and lambing seasons) and great importance to big game outfitters.
<b>Fish:</b>	Fish presence potential in larger rivers, several known fish occupancy and winter open water sites.
<b>Grizzly Bear:</b>	High grizzly bear habitat suitability in riparian corridors and valleys.
<b>Birds:</b>	High waterbird habitat in riparian areas; low - moderate breeding birds species richness; several species of conservation concern.
<b>Vegetation:</b>	Alpine exposed rock and low to subalpine dry shrub and coniferous forests.
<b>Wetlands and Lakes:</b>	A few scattered small wetlands and lakes.
<b>Riparian Areas:</b>	Several large tributaries of the Snake River.
<b>Major River Corridors:</b>	SNAKE RIVER (LMU 13-1 down middle of unit).
<b>Special Features:</b>	Numerous mineral licks; several possible wildlife passes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Few identified sites outside of Snake River valley bottom.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Some winter road access on the Snake; A conceptual access route has been identified in this unit <sup>5</sup> along the Snake River with connectivity via Duo Lakes towards Goz Creek and into the Bonnet Plume Watershed.
<b>Traditional Economy:</b>	NND traditional harvesting and wildlife areas, fishing site in headwaters, especially sheep.
<b>Recreation and Tourism:</b>	Very high value wilderness recreation and views. High value hiking areas. High potential for tourism. One primitive campsite identified. Air access put-in identified at Duo Lakes and Goz Lake.
<b>Big Game Outfitters:</b>	Bonnet Plume Outfitters Ltd. and Widrig Outfitting Ltd. Extensive high value hunting.
<b>Trapping:</b>	Single trapping concessions 10, 11, 12, 46, 47 & 48.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Few existing claims <sup>6</sup> ; low to high zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. This unit provided the views and valued hiking to the most important wilderness tourism corridor in the region.</li> <li>2. NND Traditional Territory (all of unit).</li> </ol>	

<sup>5</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

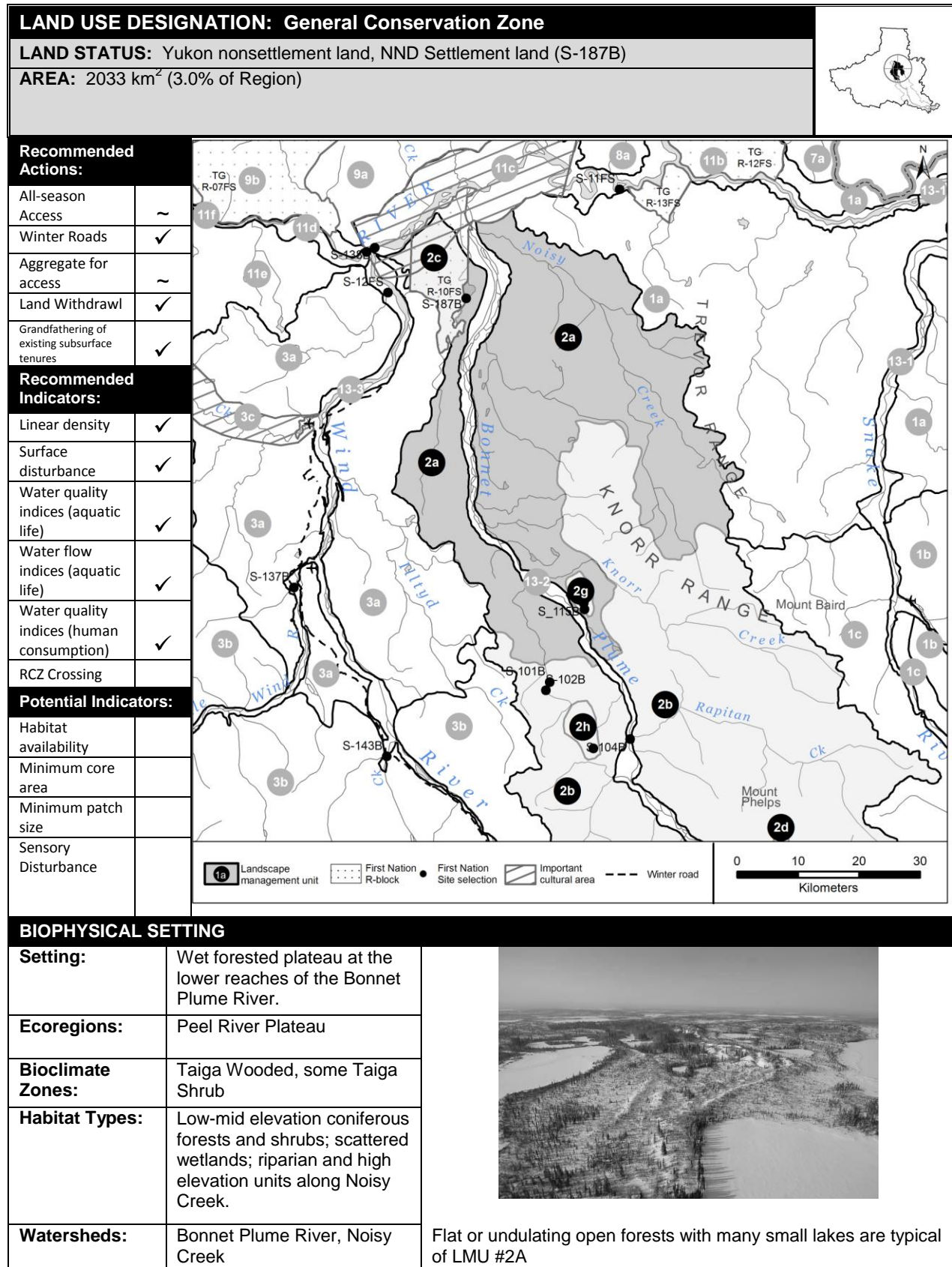
<sup>6</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LMU #1: Snake River Watershed****Sub-unit #1D: Nihtavan diniinlee**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat of the Bonnet Plume herd.
<b>Moose:</b>	Low-moderate late winter habitat suitability.
<b>Marten:</b>	High quality winter habitat.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Lakes were an important source of fish in winter.
<b>Grizzly Bear:</b>	Mix of moderate to high grizzly bear habitat suitability.
<b>Birds:</b>	Moderate - high waterbird habitat; high breeding birds species richness; moderate to high species of concern.
<b>Vegetation:</b>	Low-mid elevation dry/wet shrub and coniferous forest, some riparian and wetlands.
<b>Wetlands and Lakes:</b>	Chain of culturally important lakes to the north. Some scattered small wetlands.
<b>Riparian Areas:</b>	Some riparian along lakes and creek.
<b>Major River Corridors:</b>	None
<b>Special Features:</b>	Important fishing lakes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Area was used by the Gwitchyaa Gwich'in for winter fishing and habitation. Historic travel route to Arctic Red River.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Historic travel route to Arctic Red River. Oil & gas related trail passes N-S.
<b>Traditional Economy:</b>	Winter lake fishing.
<b>Recreation and Tourism:</b>	Low current use, though high potential travel route.
<b>Big Game Outfitters:</b>	No registered outfitting concessions.
<b>Trapping:</b>	TG group trapping concession.
<b>Oil and Gas Resources:</b>	Peel Plateau and Plain Basin, moderate oil and gas potential.
<b>Mineral Resources:</b>	Lowest mineral potential; no existing claims <sup>7</sup> .
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory and TGFN Primary Use Area (all of unit).	

<sup>7</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.



**LMU #2: Bonnet Plume River Watershed****Sub-unit #2A: Lower Bonnet Plume Watershed – Noisy Creek****BIOPHYSICAL SETTING**

<b>Setting:</b>	Wet forested plateau at the lower reaches of the Bonnet Plume River.
<b>Ecoregions:</b>	Peel River Plateau
<b>Bioclimate Zones:</b>	Taiga Wooded, some Taiga Shrub
<b>Habitat Types:</b>	Low-mid elevation coniferous forests and shrubs; scattered wetlands; riparian and high elevation units along Noisy Creek.
<b>Watersheds:</b>	Bonnet Plume River, Noisy Creek

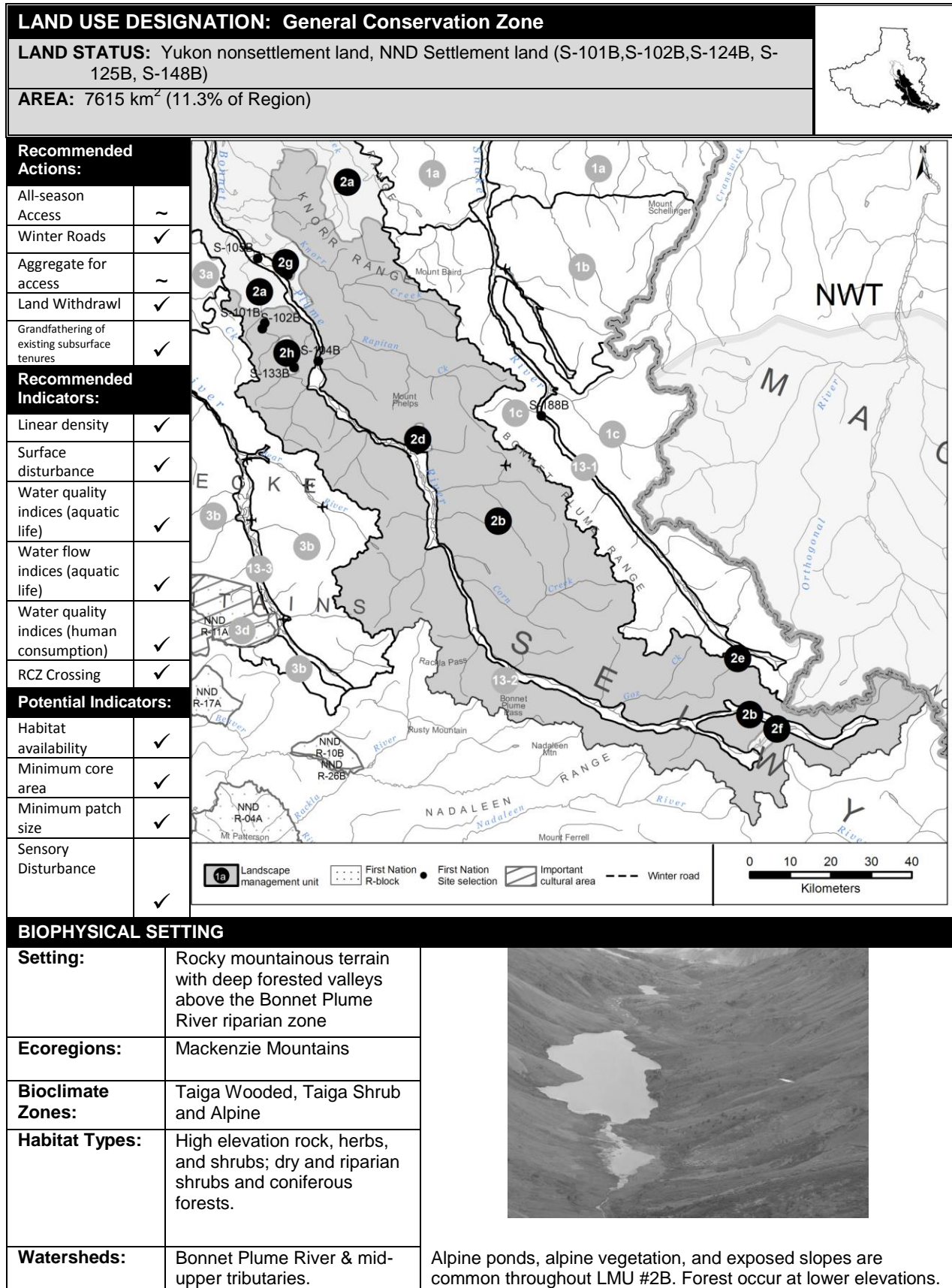


Flat or undulating open forests with many small lakes are typical of LMU #2A

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High potential winter habitat and key winter use areas of the Bonnet Plume herd in Noisy Ck; extensive moderate winter habitat potential for the Porcupine herd – little use in recent decades.
<b>Moose:</b>	High habitat suitability and use in valley bottoms; moderate-low late winter habitat suitability elsewhere.
<b>Marten:</b>	Extensive, concentrated high quality winter habitat.
<b>Sheep:</b>	Culturally important pocket of sheep habitat on mountain west of Margaret Lk.
<b>Fish:</b>	Fish presence potential in most rivers and streams, known fish occupancy and winter open water sites and surface ground water.
<b>Grizzly Bear:</b>	Moderate habitat suitability.
<b>Birds:</b>	High potential for peregrine falcon foraging and some nesting habitat; fairly extensive waterbird habitat with key area around Chappie Lake; moderate to high breeding birds species richness; moderate species of concern.
<b>Vegetation:</b>	Low-mid elevation wet herb/shrub/coniferous forest, some dry coniferous forest and shrub.
<b>Wetlands and Lakes:</b>	High concentration of small to large wetland complexes in Bonnet Plume drainage; many large lakes and hundreds of scattered small lakes.
<b>Riparian Areas:</b>	Noisy Creek.
<b>Major River Corridors:</b>	Bonnet Plume River (LMU 13-2 down middle of unit).
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Several cabins (NND,TG) around Chappie Lake; TG culturally important sites on lower Bonnet Plume River and lower Noisy Creek; travel routes throughout.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	A conceptual access route has been identified in this unit <sup>8</sup> between Noisy Creek and Bonnet Plume River.
<b>Traditional Economy:</b>	TG traditional harvesting and wildlife areas around Chappie Lake and lower Bonnet Plume River and seasonal land use throughout.
<b>Recreation and Tourism:</b>	Generally low potential beyond site of Bonnet Plume River, except for hiking area west of Margaret Lake.
<b>Big Game Outfitters:</b>	Southern end of LMU within concession of Bonnet Plume Outfitting Ltd.
<b>Trapping:</b>	Single trapping concessions 9 & 10; partially in TG group trapping concession.
<b>Oil and Gas Resources:</b>	Noisy Creek drainage is part of the Peel Plateau and Plain Basin and has moderate potential; Bonnet Plume mainstem is within the Bonnet Plume basin and is low potential.
<b>Mineral Resources:</b>	Many existing quartz claims and coal license <sup>9</sup> ; some high iron potential; low to high zinc-lead potential; highest coal potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Surface access to existing claims must be routed via the Wind valley.</li> <li>2. NND Traditional Territory (all of unit) and TGFN Primary Use Area (northern portion).</li> </ol>	

<sup>8</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>9</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LMU #2: Bonnet Plume River Watershed****Sub-unit #2B: Upper Bonnet Plume Watershed**

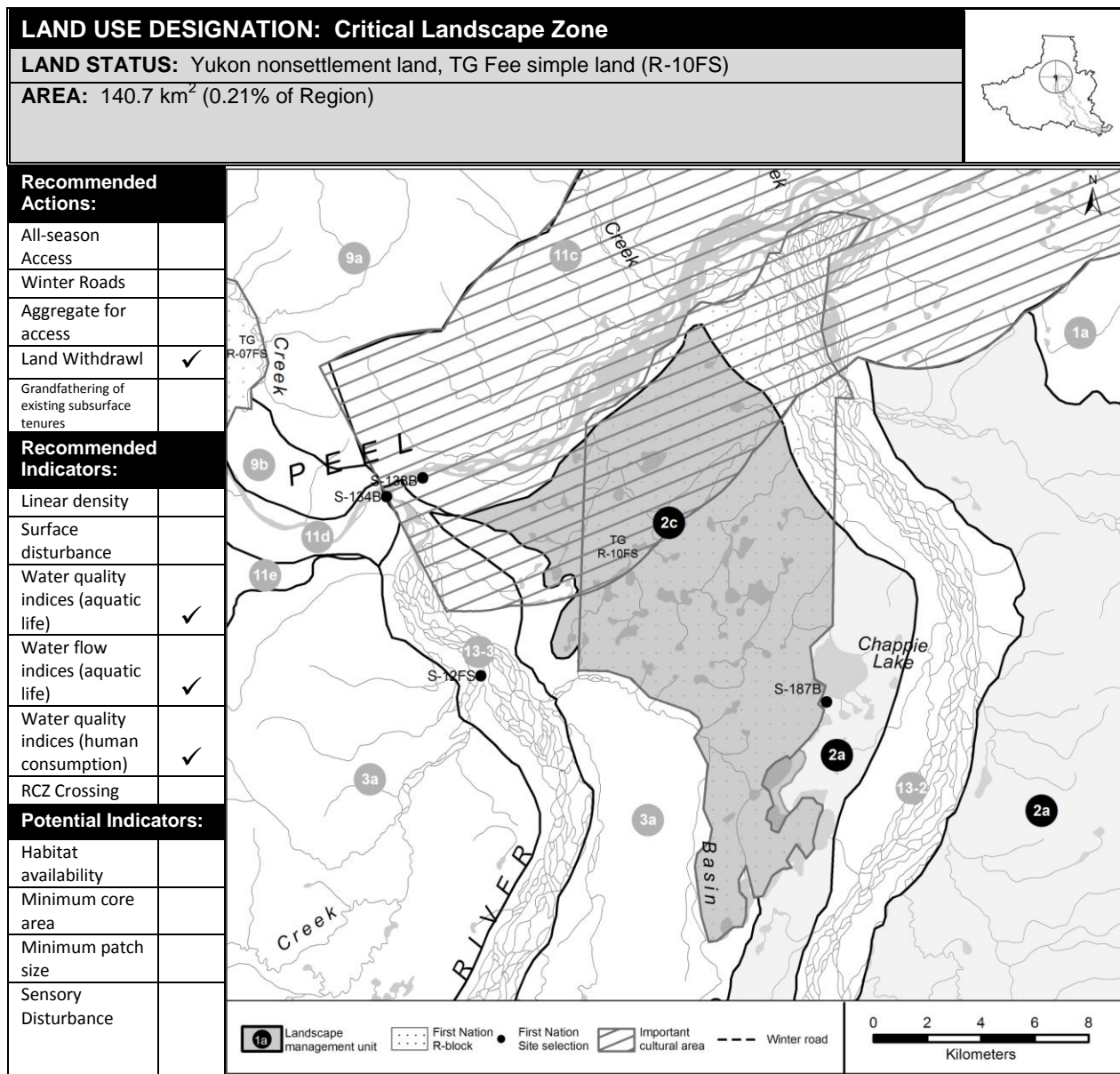
<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat, key winter, and migratory use areas of the Bonnet Plume herd concentrated along forested valley bottoms, largest concentration of key fall use areas; extensive moderate winter habitat potential for the Porcupine herd – little use in recent decades.
<b>Moose:</b>	High habitat suitability in valley bottoms including Rapitan and Knorr Cks; low-nil late winter habitat suitability elsewhere.
<b>Marten:</b>	Numerous larger tributaries and wider valleys give this area the most concentrated winter habitat in the mountainous southern portion of the region.
<b>Sheep:</b>	Large concentration of high value winter habitat and documented habitat use.
<b>Fish:</b>	Fish presence potential in larger tributaries, several known fish occupancy and winter open water sites and surface ground water.
<b>Grizzly Bear:</b>	High habitat suitability in riparian areas and valley bottoms.
<b>Birds:</b>	Moderate waterbird habitat, high in riparian areas; moderate to low breeding birds species richness; low to high species of concern.
<b>Vegetation:</b>	Alpine exposed rock and subalpine shrub, and low to high elevation dry coniferous forest.
<b>Wetlands and Lakes:</b>	Many large lakes and scattered small lakes.
<b>Riparian Areas:</b>	Broad riparian areas around Knorr Creek and Rapitan Creek, scattered elsewhere.
<b>Major River Corridors:</b>	Bonnet Plume River (LMU 13-2 down middle of unit)
<b>Special Features:</b>	Regionally significant concentration of mineral licks; documented and possible wildlife passes (especially for sheep)
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Less intensely travelled corridor; scattered identified cabins or other sites. TH travel route from McClusky Lake (Wind Watershed) to Bonnet Plume River.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	A conceptual access route has been identified in this unit <sup>10</sup> along the eastern edge of the Knorr Range; one airstrip. Historic winter trail from Wind River down Gillespie Ck.
<b>Traditional Economy:</b>	NND, and TG traditional harvesting and wildlife areas, especially sheep; NND identified several big game/fur-bearer sites; few fishing sites.
<b>Recreation and Tourism:</b>	High value wilderness recreation along the Bonnet Plume River including high value hiking, viewsapes and wildlife viewing; Canadian Heritage River.
<b>Big Game Outfitters:</b>	Bonnet Plume Outfitting Ltd. and Widrig Outfitting Ltd. Extensive high value hunting.
<b>Trapping:</b>	TGFN group trapping concession & single trapping concessions 9,11,12, 42, 46, 47, 48, 50 & 51.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Highest concentration of quartz claims <sup>11</sup> ; some iron potential; mostly moderate with some high copper/gold/uranium potential; moderate to high zinc-lead, one proven deposit <sup>12</sup> .
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Surface access to existing claims must be routed via the Wind valley.</li> <li>2. Surface access to this unit is only permitted to come from the Wind River LMU through a single pass.</li> <li>3. NND Traditional Territory (all of unit).</li> </ol>	

<sup>10</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>11</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

<sup>12</sup> Goz deposit and associated quartz claims.




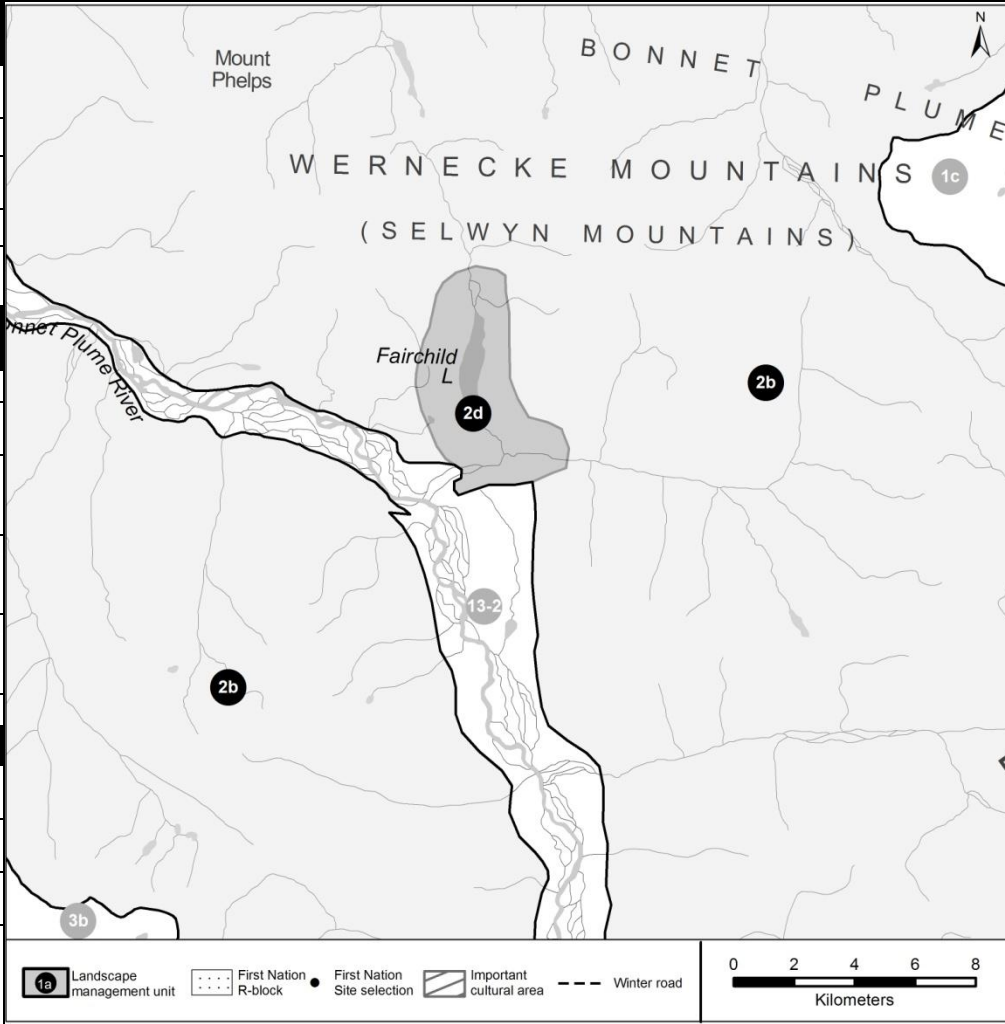

**LMU #2: Bonnet Plume River Watershed****Sub-unit #2C: Chappie Lake Wetlands****BIOPHYSICAL SETTING**

<b>Setting:</b>	Flat plateau between lower reaches of the Bonnet Plume and Wind Rivers	
<b>Ecoregions:</b>	Peel River Plateau	
<b>Bioclimate Zones:</b>	Taiga Wooded	
<b>Habitat Types:</b>	Extensive low-mid elevation wet shrub and coniferous forests; numerous lakes and wetlands.	
<b>Watersheds:</b>	Bonnet Plume and Wind Rivers	

Flat terrain with many lakes is found throughout LMU 2C. Recent fires have resulted in extensive shrublands.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Extensive moderate winter habitat potential for the Porcupine herd – little use in recent decades.
<b>Moose:</b>	Moderate-low late winter habitat suitability.
<b>Marten:</b>	High quality winter habitat.
<b>Sheep:</b>	None
<b>Fish:</b>	Fish presence potential in most streams and lakes.
<b>Grizzly Bear:</b>	Mix of low to high habitat suitability.
<b>Birds:</b>	High potential for peregrine falcon foraging and some nesting habitat; territorial key area for waterbirds; variable breeding birds species richness; moderate species of concern.
<b>Vegetation:</b>	Coniferous forest and shrub and extensive wetland vegetation.
<b>Wetlands and Lakes:</b>	A territorially-significant wetland complex.
<b>Riparian Areas:</b>	Situated between Bonnet Plume and Wind River riparian areas.
<b>Major River Corridors:</b>	Bonnet Plume and Wind Rivers.
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Several cabins in area; TG culturally important area; travel routes throughout.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Some old winter road access along Bonnet Plume to east; float plane landing at Chappie Lake.
<b>Traditional Economy:</b>	TG traditional harvesting and wildlife areas around Chappie Lake (primarily furs).
<b>Recreation and Tourism:</b>	Low tourism potential.
<b>Big Game Outfitters:</b>	No BGO concessions.
<b>Trapping:</b>	Completely in TG group trapping concession.
<b>Oil and Gas Resources:</b>	Within the low potential Bonnet Plume basin.
<b>Mineral Resources:</b>	Potential for coal; lowest potential otherwise.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory and TGFN Primary Use Area (all of unit).	

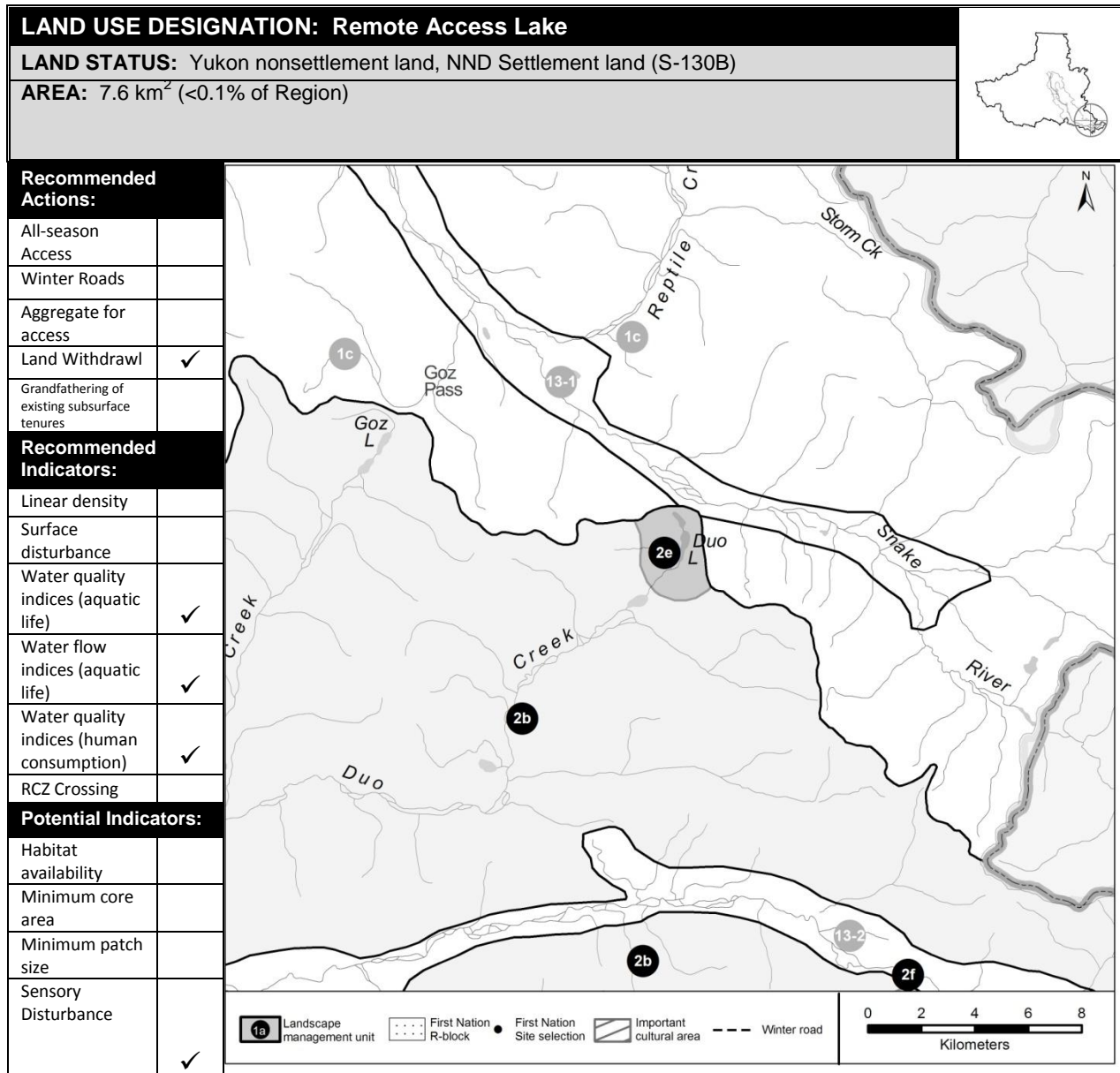
**LMU #2: Bonnet Plume River Watershed****Sub-unit #2D: Fairchild Lake - Mid Bonnet Plume Watershed**

<b>LAND USE DESIGNATION: Remote Access Lake</b>																																						
<b>LAND STATUS:</b> Yukon nonsettlement land, NND Settlement land (S-127B, S-140B)																																						
<b>AREA:</b> 22.2 km <sup>2</sup> (<0.1% of Region)																																						
<table border="1"> <tr> <td colspan="2"><b>Recommended Actions:</b></td> </tr> <tr> <td>All-season Access</td> <td></td> </tr> <tr> <td>Winter Roads</td> <td></td> </tr> <tr> <td>Aggregate for access</td> <td></td> </tr> <tr> <td>Land Withdrawal</td> <td>✓</td> </tr> <tr> <td>Grandfathering of existing subsurface tenures</td> <td></td> </tr> <tr> <td colspan="2"><b>Recommended Indicators:</b></td> </tr> <tr> <td>Linear density</td> <td></td> </tr> <tr> <td>Surface disturbance</td> <td></td> </tr> <tr> <td>Water quality indices (aquatic life)</td> <td>✓</td> </tr> <tr> <td>Water flow indices (aquatic life)</td> <td>✓</td> </tr> <tr> <td>Water quality indices (human consumption)</td> <td>✓</td> </tr> <tr> <td>RCZ Crossing</td> <td></td> </tr> <tr> <td colspan="2"><b>Potential Indicators:</b></td> </tr> <tr> <td>Habitat availability</td> <td></td> </tr> <tr> <td>Minimum core area</td> <td></td> </tr> <tr> <td>Minimum patch size</td> <td></td> </tr> <tr> <td>Sensory Disturbance</td> <td>✓</td> </tr> </table>			<b>Recommended Actions:</b>		All-season Access		Winter Roads		Aggregate for access		Land Withdrawal	✓	Grandfathering of existing subsurface tenures		<b>Recommended Indicators:</b>		Linear density		Surface disturbance		Water quality indices (aquatic life)	✓	Water flow indices (aquatic life)	✓	Water quality indices (human consumption)	✓	RCZ Crossing		<b>Potential Indicators:</b>		Habitat availability		Minimum core area		Minimum patch size		Sensory Disturbance	✓
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Minimum patch size																																						
Sensory Disturbance	✓																																					
																																						
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 <p>Outflow of Fairchild Lake (top left) with surrounding lowland forests and alpine slopes.</p>																																						

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High use in winter and fall by BPCH.
<b>Moose:</b>	Variable habitat quality.
<b>Marten:</b>	Generally high habitat quality.
<b>Sheep:</b>	Low potential (high in general area).
<b>Fish:</b>	Fish present.
<b>Grizzly Bear:</b>	Moderate to high habitat suitability.
<b>Birds:</b>	High value waterbird habitat, breeding birds species richness, moderate birds of conservation concern.
<b>Vegetation:</b>	Low-mid elev dry conifer forest, wet/dry shrub and alpine exposed rock.
<b>Wetlands and Lakes:</b>	Low-mid elevation dry coniferous forest and wet to dry shrub, some alpine exposed rock.
<b>Riparian Areas:</b>	Significant large riparian area.
<b>Major River Corridors:</b>	Adjacent to Bonnet Plume River
<b>Special Features:</b>	Concentration of mineral licks in general area.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Numerous NND cabins.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Floatplane access only.
<b>Traditional Economy:</b>	Several big game/fur-bearer sites identified; TH and NND traditional harvesting and wildlife areas.
<b>Recreation and Tourism:</b>	High identified recreation value; partly within activity corridor.
<b>Big Game Outfitters:</b>	Bonnet Plume Outfitting Ltd. High hunting potential.
<b>Trapping:</b>	Single trapping concession 12.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	~30% covered by quartz claims <sup>13</sup> ; moderate copper/gold/uranium potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (all of unit)	

<sup>13</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.



**LMU #2: Bonnet Plume River Watershed****Sub-unit #2E: Duo Lake - Upper Bonnet Plume Watershed****BIOPHYSICAL SETTING**

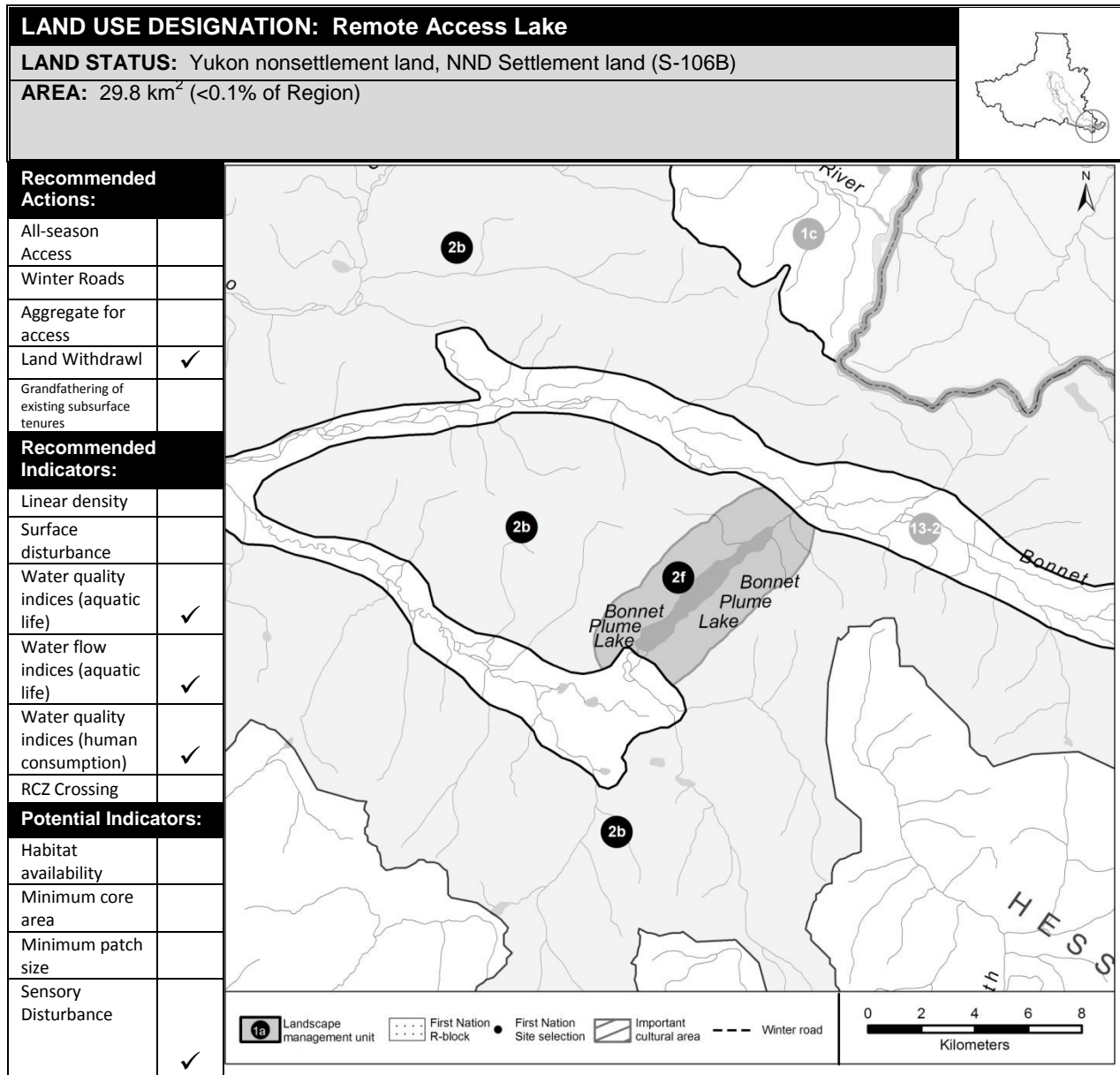
<b>Setting:</b>	A pair of lakes set in a narrow side valley perpendicular to the Snake River
<b>Ecoregions:</b>	Mackenzie Mountains
<b>Bioclimate Zones:</b>	Taiga Wooded, Taiga Shrub and Alpine
<b>Habitat Types:</b>	High elevation rock, herbs, and shrubs; dry and riparian shrubs and coniferous forests.
<b>Watersheds:</b>	Bonnet Plume River



Frozen Duo Lakes in March 2007. Essentially in the Snake River Valley, these lakes drain into the Bonnet Plume River.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High use in fall by BPCH.
<b>Moose:</b>	Some good moose habitat.
<b>Marten:</b>	Some good marten habitat.
<b>Sheep:</b>	Moderate habitat potential.
<b>Fish:</b>	Fish present.
<b>Grizzly Bear:</b>	Moderate to high habitat suitability.
<b>Birds:</b>	High value waterbird habitat, and birds of conservation concern, moderate breeding birds species richness.
<b>Vegetation:</b>	Wet/dry shrub and herbs and alpine exposed rock.
<b>Wetlands and Lakes:</b>	Significant alpine lake.
<b>Riparian Areas:</b>	Limited riparian habitat.
<b>Major River Corridors:</b>	On divide between Bonnet Plume and Snake Rivers.
<b>Special Features:</b>	Likely movement corridor.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Connectivity between Bonnet Plume River and Snake River; no sites identified.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Floatplane access only.
<b>Traditional Economy:</b>	General NND traditional harvesting and wildlife areas.
<b>Recreation and Tourism:</b>	Very high tourism value because it is the primary landing lake for access into the most popular canoeing river (the Snake River).
<b>Big Game Outfitters:</b>	Widrig Outfitters Ltd.
<b>Trapping:</b>	Single trapping concession 48.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	No quartz claims <sup>14</sup> ; low-moderate general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (all of unit)	

<sup>14</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LMU #2: Bonnet Plume River Watershed****Sub-unit #2F: Bonnet Plume Lake - Upper Bonnet Plume Watershed****BIOPHYSICAL SETTING**

<b>Setting:</b>	Long narrow lake on a pass between two major tributaries in the Bonnet Plume Headwaters
<b>Ecoregions:</b>	Mackenzie Mountains
<b>Bioclimate Zones:</b>	Taiga Wooded, Taiga Shrub and Alpine
<b>Habitat Types:</b>	Alpine; mid elevation shrubs and coniferous forests.
<b>Watersheds:</b>	Bonnet Plume River

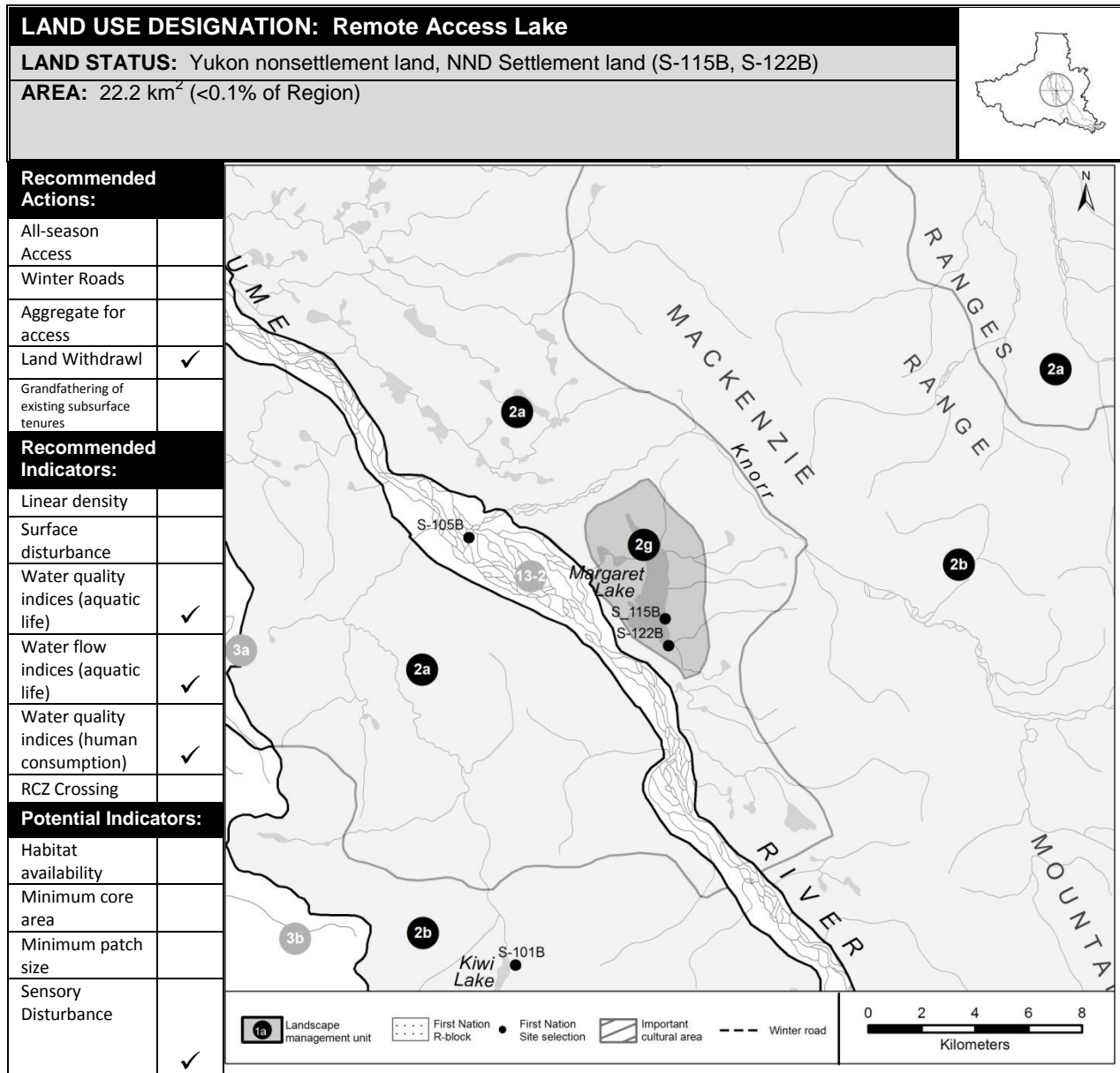


Bonnet Plume Lake is a long, narrow tree- fringed lake in the headwaters of the Bonnet Plume River.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Some habitat potential for BPCH.
<b>Moose:</b>	Some good moose habitat.
<b>Marten:</b>	Some good marten habitat.
<b>Sheep:</b>	Moderate sheep habitat.
<b>Fish:</b>	Fish present.
<b>Grizzly Bear:</b>	Moderate to high habitat suitability.
<b>Birds:</b>	High value waterbird habitat, breeding birds species richness and birds of conservation concern.
<b>Vegetation:</b>	Mid elevation conifer forest, wet/dry shrubs and alpine units.
<b>Wetlands and Lakes:</b>	One of the largest mountain lakes in region; adjacent to locally large wetland.
<b>Riparian Areas:</b>	Limited riparian habitat.
<b>Major River Corridors:</b>	Adjacent to Bonnet Plume River.
<b>Special Features:</b>	Potential movement corridor.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Connectivity between tributary and Bonnet Plume River; numerous NND cabins identified.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Floatplane access only. A conceptual access route has been identified in this unit <sup>15</sup> .
<b>Traditional Economy:</b>	Numerous NND fishing locations.
<b>Recreation and Tourism:</b>	Very high tourism value: float plane drop for Bonnet Plume River access, high quality hiking.
<b>Big Game Outfitters:</b>	Widrig Outfitters Ltd.
<b>Trapping:</b>	Single trapping concession 48 and 50.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	No by quartz claims <sup>16</sup> ; moderate zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (all of unit)	

<sup>15</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>16</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LMU #2: Bonnet Plume River Watershed****Sub-unit #2G: Margaret Lake - Mid Bonnet Plume Watershed****BIOPHYSICAL SETTING**

<b>Setting:</b>	Larger lake on flats adjacent to the Bonnet Plume River
<b>Ecoregions:</b>	Peel River Plateau
<b>Bioclimate Zones:</b>	Taiga wooded
<b>Habitat Types:</b>	Mid elevation coniferous forest, wetlands
<b>Watersheds:</b>	Bonnet Plume River



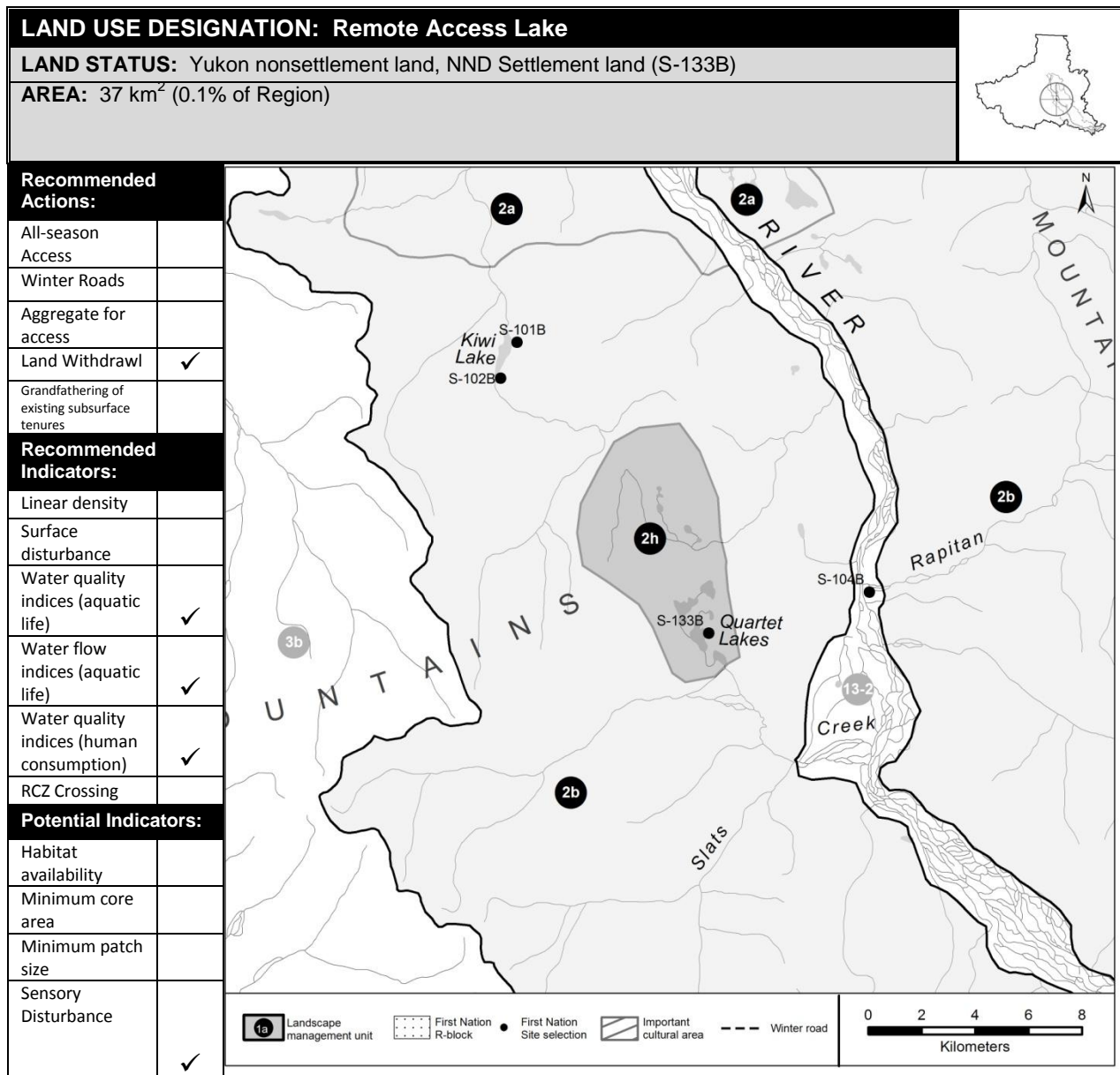
Margaret Lake is on flat forested terrain next to the Bonnet Plume River where the river emerges from the mountains.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High potential winter habitat and key winter use areas of the Bonnet Plume herd; moderate winter habitat potential for the Porcupine herd – little use in recent decades.
<b>Moose:</b>	High habitat suitability and use.
<b>Marten:</b>	Concentrated high quality winter habitat.
<b>Sheep:</b>	None.
<b>Fish:</b>	Genetically unique/unusual fish population(s)/
<b>Grizzly Bear:</b>	High habitat suitability.
<b>Birds:</b>	High potential for peregrine falcon foraging and some nesting habitat; good waterbird habitat; high breeding birds species richness; moderate species of concern.
<b>Vegetation:</b>	Low-mid elevation wet coniferous forest, some wetlands.
<b>Wetlands and Lakes:</b>	One of the larger lakes in this drainage, with some associated wetlands.
<b>Riparian Areas:</b>	Adjacent to Bonnet Plume River.
<b>Major River Corridors:</b>	Bonnet Plume River.
<b>Special Features:</b>	Adjacent to Bonnet Plume River.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Several cabins (NND); TGFN travel routes throughout.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Conceptual access routes have been identified in and near this unit <sup>17</sup> ; float plane landing.
<b>Traditional Economy:</b>	TG seasonal land use; several NND fishing and big game/fur-bearer locations.
<b>Recreation and Tourism:</b>	High value wilderness recreation; air access take-out identified at Margaret Lake.
<b>Big Game Outfitters:</b>	Within concession of Bonnet Plume Outfitting Ltd.
<b>Trapping:</b>	Single trapping concessions 10.
<b>Oil and Gas Resources:</b>	North end of LMI is within the Bonnet Plume basin and is low potential.
<b>Mineral Resources:</b>	No existing quartz claims and coal licenses <sup>18</sup> ; coal potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (all of unit)	

<sup>17</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>18</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.



**LMU #2: Bonnet Plume River Watershed****Sub-unit #2H: Quartet Lakes – Mid Bonnet Plume Watershed****BIOPHYSICAL SETTING**

<b>Setting:</b>	A cluster of small lakes surrounded by mountains adjacent to the Bonnet Plume River
<b>Ecoregions:</b>	Mackenzie Mountains
<b>Bioclimate Zones:</b>	Taiga Wooded, Taiga Shrub and Alpine
<b>Habitat Types:</b>	Alpine; mid elevation shrubs and coniferous forests.
<b>Watersheds:</b>	Bonnet Plume River

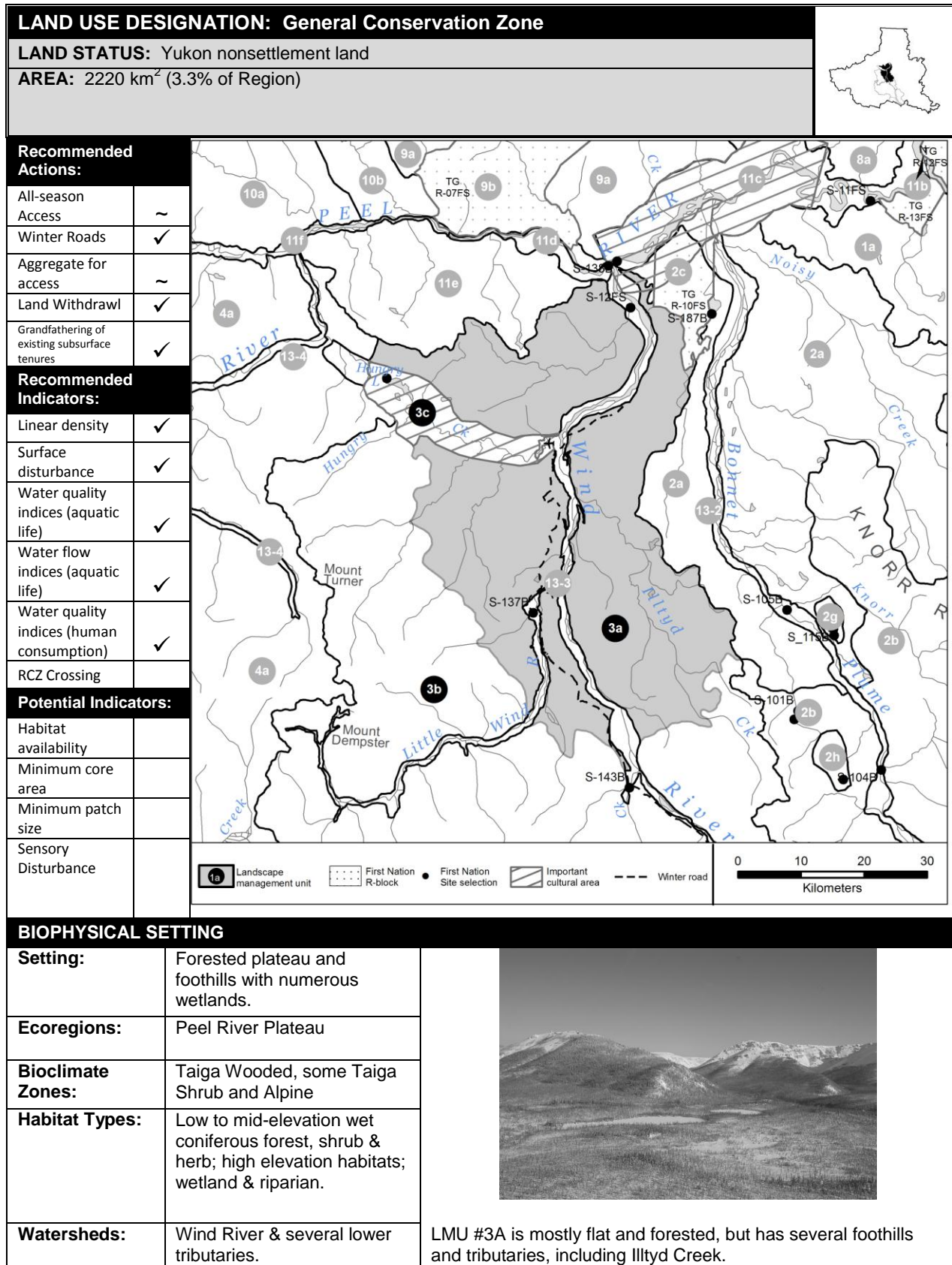


Some of the Quartet Lakes set in a broad forested valley next to the Bonnet Plume River Valley.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High use in winter and fall by BPCH.
<b>Moose:</b>	Moderate habitat.
<b>Marten:</b>	High value habitat.
<b>Sheep:</b>	Some good habitat.
<b>Fish:</b>	Fish present.
<b>Grizzly Bear:</b>	Moderate to high habitat suitability.
<b>Birds:</b>	High value waterbird habitat, breeding birds species richness, moderate birds of conservation concern.
<b>Vegetation:</b>	Low-mid elev dry conifer forest, wet/dry shrub and alpine exposed rock.
<b>Wetlands and Lakes:</b>	Significant cluster of mid-elevation lakes.
<b>Riparian Areas:</b>	Significant large riparian area.
<b>Major River Corridors:</b>	Adjacent to Bonnet Plume River corridor (LMU 13-2)
<b>Special Features:</b>	Mineral lick in area.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Connectivity between Quartet Lakes and Bonnet Plume River; several cabins (NND).
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Float plane landing.
<b>Traditional Economy:</b>	Several big game/fur-bearer and fishing sites identified (NND); TH, NND, and TG traditional harvesting and wildlife areas.
<b>Recreation and Tourism:</b>	No identified recreation value.
<b>Big Game Outfitters:</b>	Bonnet Plume Outfitting Ltd.
<b>Trapping:</b>	Single trapping concession 9.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Covered by quartz claims <sup>19</sup> ; moderate copper/gold/uranium potential; high zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (all of unit)	

<sup>19</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.



**LMU #3: Wind River Watershed****Sub-unit #3A: Lower Wind Watershed**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Extensive moderate value winter habitat of the Porcupine herd, little use in recent decades.
<b>Moose:</b>	High habitat suitability and use in valley bottoms including Illtyd Ck; moderate-low late winter habitat suitability elsewhere.
<b>Marten:</b>	Extensive and concentrated high quality winter habitat, including up Illtyd Ck.
<b>Sheep:</b>	Generally no value except pocket of winter habitat, mineral lick, and associated movement corridor on mountain below confluence with Royal Ck.
<b>Fish:</b>	Fish occupancy and one spawning site; fish likely present throughout unit; surface groundwater and winter open water sites.
<b>Grizzly Bear:</b>	Low to high habitat suitability, highest in riparian areas.
<b>Birds:</b>	High potential for peregrine falcon foraging, some nesting habitat; portion of key waterbird area near Chappie Lake, general high value habitat; highest value for breeding birds species richness; moderate species of concern.
<b>Vegetation:</b>	Low-mid elevation dry/wet coniferous forest/shrub and riparian spruce forest.
<b>Wetlands and Lakes:</b>	Highest concentration of wetlands; hundreds of scattered small lakes.
<b>Riparian Areas:</b>	Wind River, Hungry Creek, Illtyd Creek, and several large tributaries.
<b>Major River Corridors:</b>	Adjacent to Wind River (LMU 13-3)
<b>Special Features:</b>	Mineral lick.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Important travel routes on the Little Wind and Wind Rivers. Travel throughout area. Culturally important area on lower Wind River and throughout unit. Few identified cabins.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Wind River trail winter road; a conceptual access route has been identified in this unit <sup>20</sup> along the Wind River with connectivity to the Little Wind and Bonnet Plume Rivers.
<b>Traditional Economy:</b>	TG seasonal land use; one big game/fur-bearer location.
<b>Recreation and Tourism:</b>	High value wilderness paddling and hiking; one primitive campsite.
<b>Big Game Outfitters:</b>	Midnight Sun Outfitting Ltd and Bonnet Plume Outfitting Ltd.; limited high value hunting.
<b>Trapping:</b>	Trapline to Hungry Lake (between Wind and Hart Rivers) and along lower Wind River towards Knorr Range; single trapping concessions 7 & 9; partially in TG group trapping concession.
<b>Oil and Gas Resources:</b>	Bonnet Plume basin and has low potential.
<b>Mineral Resources:</b>	Highest concentration of coal licenses <sup>21</sup> ; some quartz claims <sup>22</sup> ; some moderate copper/gold/uranium potential; high zinc-lead potential; highest potential for coal, several coal deposits.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (all of unit) and TGFN Primary Use Area (northern portion).	

<sup>20</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>21</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

<sup>22</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LAND USE DESIGNATION:** Integrated Management Zone, Zone I

**Recommended Actions:**

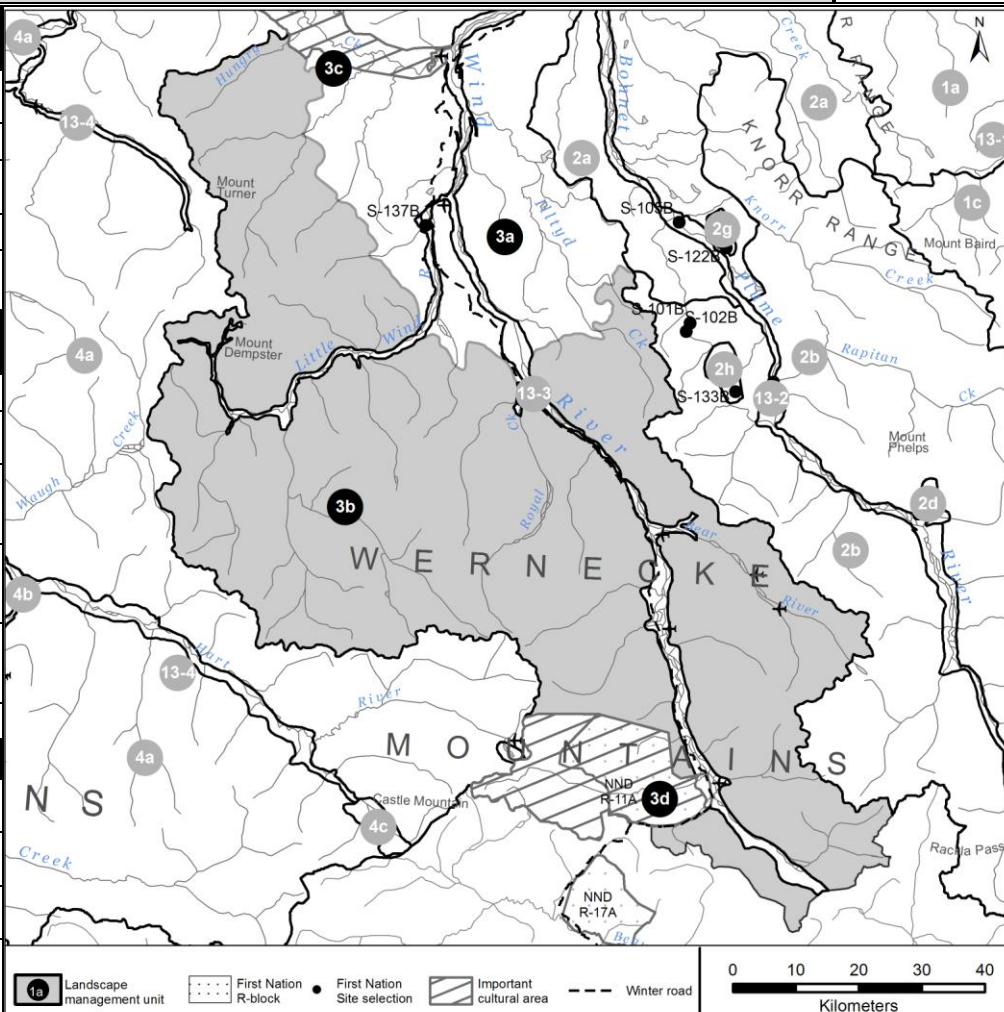
All-season Access	~
Winter Roads	✓
Aggregate for access	~
Land Withdrawal	✓
Grandfathering of existing subsurface tenures	✓

### Recommended Indicators:

Linear density	✓
Surface disturbance	✓
Water quality indices (aquatic life)	✓
Water flow indices (aquatic life)	✓
Water quality indices (human consumption)	✓
RCZ Crossing	✓

### Potential Indicators:

Habitat availability	✓
Minimum core area	✓
Minimum patch size	✓
Sensory Disturbance	✓



## BIOPHYSICAL SETTING

<b>Setting:</b>	Rocky mountainous terrain with deep forested valleys above the Wind River riparian zone
<b>Ecoregions:</b>	Mackenzie Mountains
<b>Bioclimate Zones:</b>	Taiga Wooded, Taiga Shrub and Alpine
<b>Habitat Types:</b>	High elevation rock, herbs, and shrubs; dry and riparian shrubs and coniferous forests.
<b>Watersheds:</b>	Wind River & mid-upper tributaries.



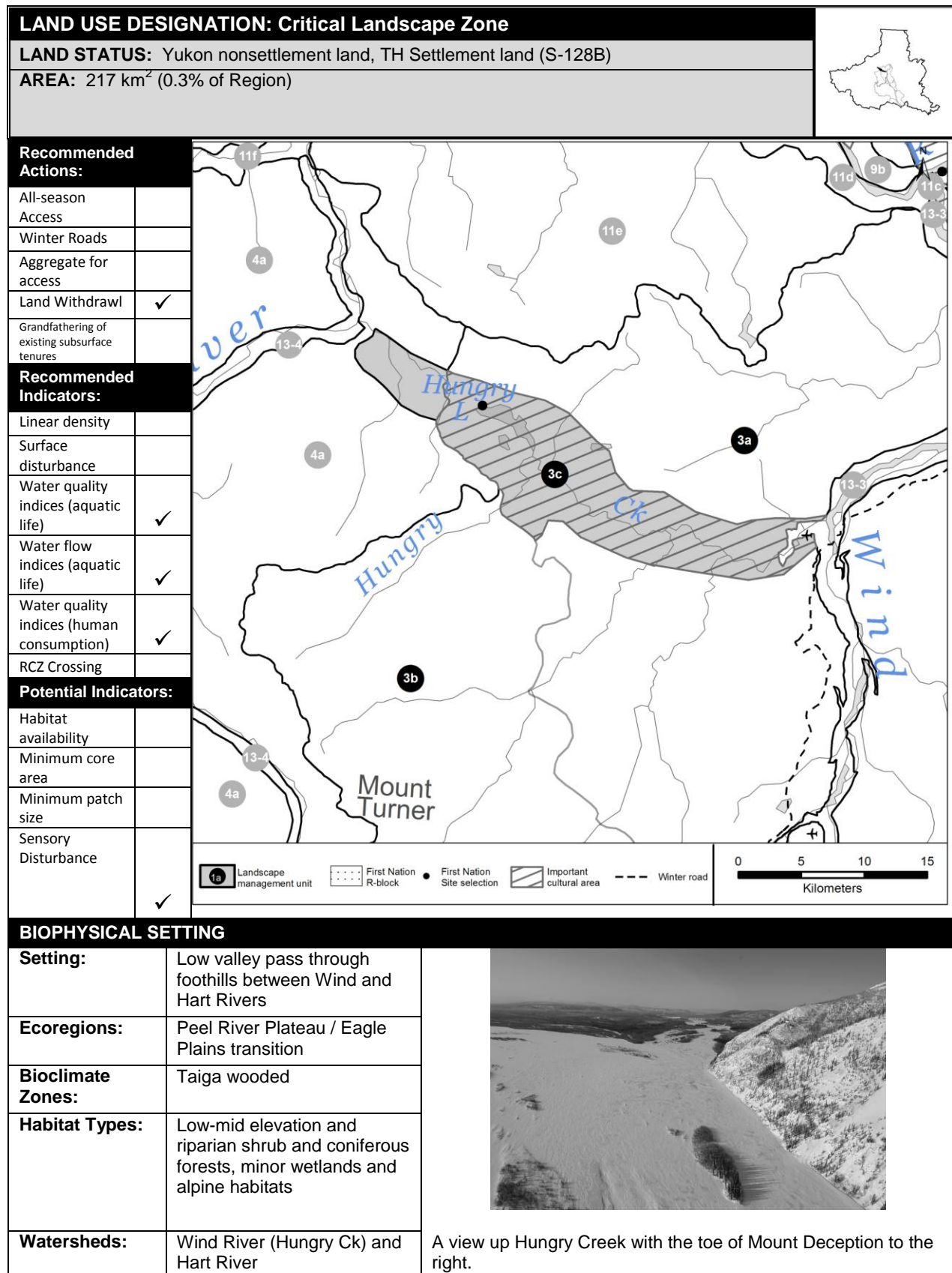
Rugged Wernecke Mountains with narrow forested or shrubby valleys are characteristic of LMY #3B.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat of the Hart River and Bonnet Plume herds concentrated along forested valley bottoms, with corresponding key winter and fall use. Extensive moderate winter habitat potential for the Porcupine herd, with general winter use areas in the headwaters of Hungry Ck.
<b>Moose:</b>	High habitat suitability and use in valley bottoms especially north and south of McClusky Lk and at mouth of Bear River; low-nil late winter habitat suitability elsewhere.
<b>Marten:</b>	High value winter habitat in valley-bottom forests, poor elsewhere. More extensive habitat near mouths of both Bear and Royal Cks.
<b>Sheep:</b>	Large concentration of high value winter habitat and documented lambing habitat use. Large areas identified as important habitat by traditional knowledge and by big game outfitters. Scattered mineral licks.
<b>Fish:</b>	Known fish occupancy, fish presence likely in rivers and larger tributaries.
<b>Grizzly Bear:</b>	Moderate to high habitat suitability in riparian areas and high elevation subalpine zones.
<b>Birds:</b>	High value waterbird habitat in riparian areas; low breeding birds species richness; low to high number species of conservation concern.
<b>Vegetation:</b>	Alpine exposed rock, low-mid elevation dry shrub and coniferous forest.
<b>Wetlands and Lakes:</b>	Scattered small wetlands and lakes.
<b>Riparian Areas:</b>	Little Wind River, Wind River, Hungry Creek, lower Royal Creek, and several large tributaries.
<b>Major River Corridors:</b>	Wind River.
<b>Special Features:</b>	Several mineral licks; documented and possible wildlife passes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Important connectivity to areas south of the Wind River Watershed and from McClusky Lake to Bonnet Plume River and from Little Wind River to Waugh Creek. Cabins with concentration around McClusky Lake; culturally important place identified in lower Little Wind River.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Wind River trail winter road; a conceptual access route has been identified in this unit <sup>23</sup> along the Wind River with connectivity to the Little Wind and Bonnet Plume Rivers.
<b>Traditional Economy:</b>	NND traditional harvesting and wildlife areas and TG seasonal land use; NND big game/fur-bearing locations along Wind River, Bear Creek and McClusky Lake (most sites located in upper watershed).
<b>Recreation and Tourism:</b>	High value wilderness paddling, hiking and wildlife viewing especially in connected river valleys; put-in access at McClusky Lake.
<b>Big Game Outfitters:</b>	Midnight Sun Outfitting Ltd and Bonnet Plume Outfitting Ltd. High value hunting.
<b>Trapping:</b>	One trapping lease (camp); single trapping concessions 7, 33, 40, & 42.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Some quartz claims <sup>24</sup> ; one partial coal license; moderate copper/gold/uranium potential and zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (all of unit).	

<sup>23</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>24</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

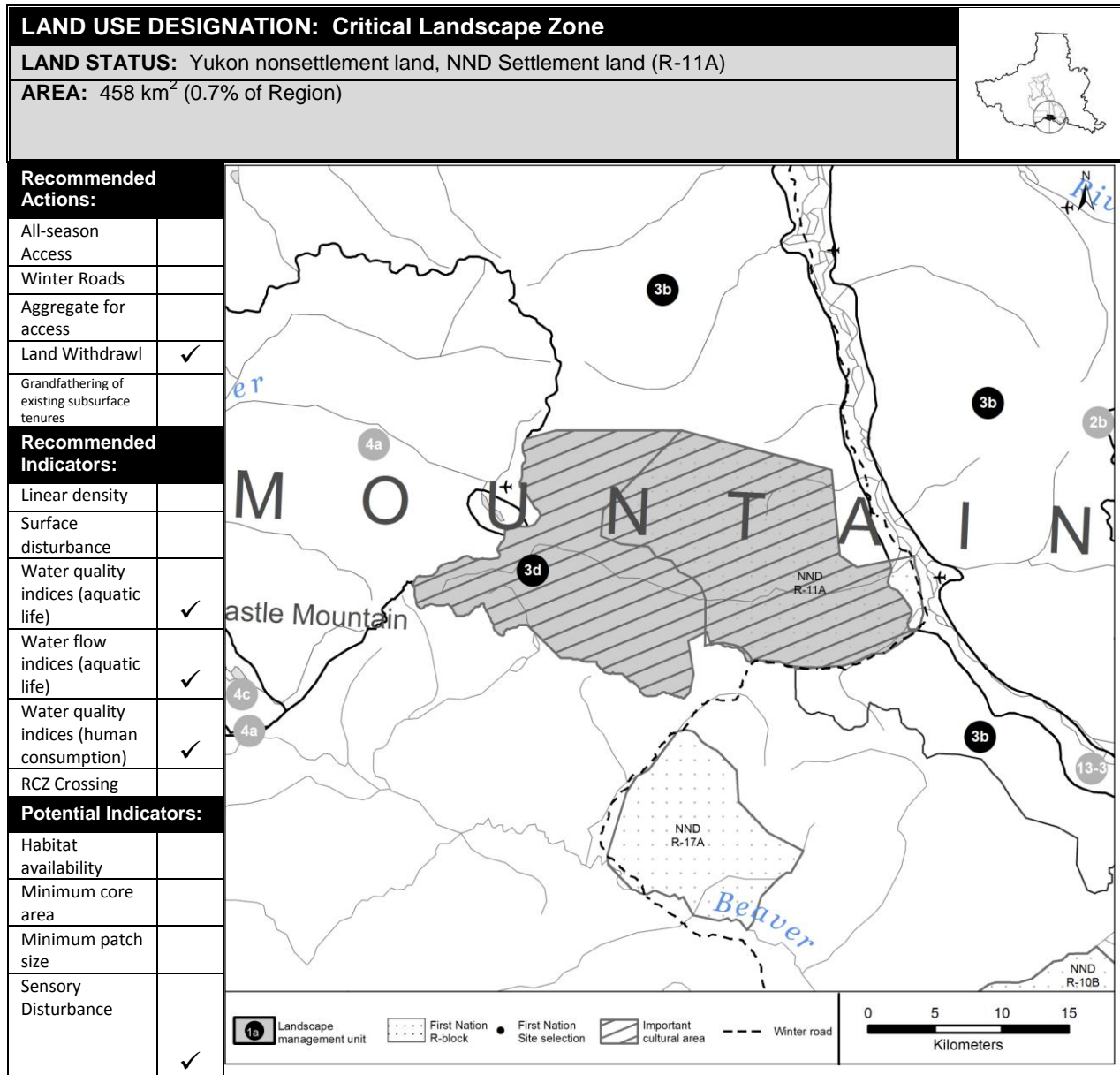


**LMU #3: Wind River Watershed****Sub-unit #3C: Hungry Lakes**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat of the Porcupine herd concentrated along near Hungry Lk., with corresponding general use area during winter season.
<b>Moose:</b>	Generally high late winter habitat suitability.
<b>Marten:</b>	Fairly concentrated high quality winter habitat.
<b>Sheep:</b>	Low winter habitat quality, though traditional knowledge of area indicates habitat use.
<b>Fish:</b>	Fish occupancy throughout; spawning site in Hungry Lakes.
<b>Grizzly Bear:</b>	Moderate habitat suitability.
<b>Birds:</b>	High potential for peregrine falcon foraging habitat; highest value for waterbirds around Hungry Lake; moderate to high breeding birds species richness; moderate species of concern.
<b>Vegetation:</b>	Low-mid elevation wet shrub and coniferous forest, riparian shrub and spruce forest.
<b>Wetlands and Lakes:</b>	Several small and large lakes.
<b>Riparian Areas:</b>	Significant riparian area.
<b>Major River Corridors:</b>	Hungry Creek and connectivity between Hart and Wind Rivers.
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Travel route between Hart River and Wind River via Hungry Lake; travel routes throughout area. Several cabins; culturally important places and areas (Lake Creek, Waugh Creek, Lower Hart River, etc).
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	A conceptual access route has been identified in this unit <sup>25</sup> connecting the Wind River to Hart River via Hungry Lake.
<b>Traditional Economy:</b>	Traditional harvesting and wildlife area; big game/fur-bearer location.
<b>Recreation and Tourism:</b>	No identified recreation values.
<b>Big Game Outfitters:</b>	Midnight Sun Outfitting Ltd.
<b>Trapping:</b>	TH traplines between Wind River and Hart River; one trapping lease (camp); TG group trapping concession.
<b>Oil and Gas Resources:</b>	Small section part of Bonnet Plume basin, low potential.
<b>Mineral Resources:</b>	No quartz claims <sup>26</sup> ; small section of high zinc-lead and coal potential; moderate general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory and TGFN Primary Use Area (all of unit).	

<sup>25</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>26</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LMU #3: Wind River Watershed****Sub-unit #3D: Nash Creek (Hart Lake to McClusky Lake Corridor)****BIOPHYSICAL SETTING**

<b>Setting:</b>	Valley of major tributary to Wind River, with hot spring, pass to the Hart River, and surrounding mountains.
<b>Ecoregions:</b>	Mackenzie Mountains
<b>Bioclimate Zones:</b>	Taiga Wooded, Taiga Shrub and Alpine
<b>Habitat Types:</b>	Alpine and mid-elevation shrubs and coniferous forest, narrow riparian strip.
<b>Watersheds:</b>	Nash Creek→Wind River



Nash Creek near the thermal springs looking east. The valley typically has a shrubby bottom, with forests to the sides.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat of the Hart River herd concentrated along the Nash Ck. valley bottom.
<b>Moose:</b>	High habitat suitability and use in Nash Ck valley bottom; low-nil late winter habitat suitability elsewhere.
<b>Marten:</b>	High value winter habitat in valley-bottom forests, poor elsewhere.
<b>Sheep:</b>	Traditional knowledge identified majority of area as sheep habitat.
<b>Fish:</b>	Fish presence likely in main river channel; winter open water sites.
<b>Grizzly Bear:</b>	Moderate to high habitat suitability in low to subalpine zones.
<b>Birds:</b>	A few pockets of high value waterbird habitat; low breeding birds species richness; moderate number species of conservation concern.
<b>Vegetation:</b>	Alpine exposed rock, low-subalpine elevation dry shrub and low-mid elevation coniferous forest.
<b>Wetlands and Lakes:</b>	None
<b>Riparian Areas:</b>	Narrow riparian strip along Nash Creek
<b>Major River Corridors:</b>	Adjacent to Wind River (LMU 13-3)
<b>Special Features:</b>	Documented wildlife passes; mineral licks; thermal spring.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Several cabins identified.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	No identified access.
<b>Traditional Economy:</b>	TH and NND traditional harvesting and wildlife areas
<b>Recreation and Tourism:</b>	Horseback touring; wilderness hiking around Hart Lake.
<b>Big Game Outfitters:</b>	Midnight Sun Outfitting Ltd and Bonnet Plume Outfitting Ltd.; High value hunting.
<b>Trapping:</b>	Single trapping concessions 40, 41, & 42.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Very few quartz claims <sup>27</sup> ; moderate copper/gold/uranium potential and zinc-lead potential; some high general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Minimize alteration to the spiritual and ecological value of Nash Creek thermal spring: <ul style="list-style-type: none"> <li>• All new developments should not alter the hydrology of Nash Creek thermal spring, regardless of setback distance.</li> <li>• With the possible exception of culture-related infrastructure (e.g. FN cabins, retreats), new infrastructure should not be constructed in the general area of Nash Creek thermal spring.</li> <li>• Tourism to Nash Creek thermal spring should not be encouraged.</li> <li>• NND monitors should seasonally watch over Nash Creek thermal spring to ensure that its values are respected. This program could be integrated with a cultural education program.</li> </ul> </li> <li>2. NND Traditional Territory (all of unit).</li> </ol>	

<sup>27</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.



### Sub-unit #4A: Hart Watershed



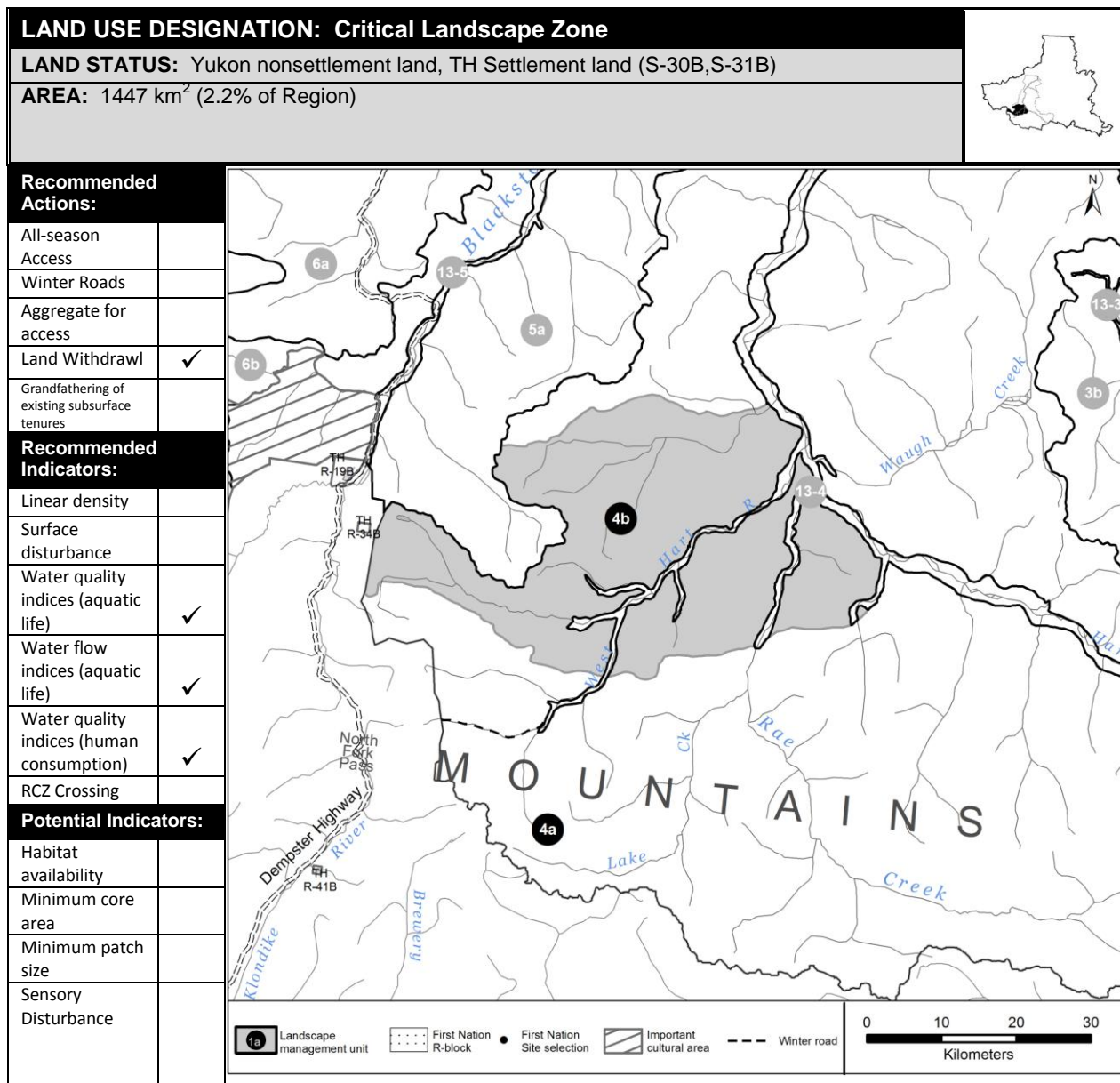
<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat of the Hart River herd concentrated along forested valley bottoms and flatter terrain. Moderate value winter habitat of the Porcupine herd throughout. Both herds have extensive key/general use winter and fall areas scattered throughout this unit.
<b>Moose:</b>	Broad swathes of high habitat suitability and use in valley bottoms including Rae Ck, West Hart River, and in narrow bands along smaller tributaries; low-nil late winter habitat suitability in higher country.
<b>Marten:</b>	In headwaters, the high value winter habitat is in valley-bottom forests. Moderate-high quality habitat gets more extensive down towards the Peel River
<b>Sheep:</b>	Extensive areas of highly suitable winter habitat with documented (TK, big game outfitters, scientific) habitat use. Scattered licks and movement corridor(s).
<b>Fish:</b>	Known fish occupancy sites, fish presence likely in rivers, lower gradient tributaries.
<b>Grizzly Bear:</b>	Mostly moderate habitat suitability in low to mid elevations, high in riparian areas.
<b>Birds:</b>	High potential for peregrine falcon foraging and nesting along lower Hart River and Peel River; high value waterbird habitat in riparian areas; low breeding birds species richness, high in riparian areas; high number species of conservation concern.
<b>Vegetation:</b>	Moderate-high endemism/rarity along Rae Creek and below West Hart River. Low-mid elevation wet/dry shrub, subalpine shrub, and alpine exposed rock.
<b>Wetlands and Lakes:</b>	Large wetland complexes on Hart River, scattered wetlands.
<b>Riparian Areas:</b>	Several large tributaries to the Hart River and West Hart Rivers incl. Waugh Creek, and Rae Creek.
<b>Major River Corridors:</b>	Hart River, West Hart River (LMU 13-4)
<b>Special Features:</b>	Several mineral licks; several possible wildlife passes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Extensive travel routes connecting to Blackstone River, to Dempster Hwy/Tombstone (via West Hart River), to Little Wind River (via Waugh Creek), and to Wind River (via Hungry Lakes). Travel route also through Rae Creek.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Few old winter roads in the lower section of unit; a conceptual access route has been identified in this unit <sup>28</sup> between Hungry Lakes and Peel River, and Waugh Creek to West Hart/Dempster Hwy. Three airstrips. Floatplane landing at Worm Lake.
<b>Traditional Economy:</b>	TH traditional harvesting and wildlife areas and TG seasonal land use; TH fish harvesting.
<b>Recreation and Tourism:</b>	Very high values for wilderness paddling. Extensive wilderness hiking in the headwaters of West Hart and Hart Rivers. Road access to West Hart, Fly-in put-in access in upper Hart River (Hart Lake, Elliot Lake and Worm lake); horseback touring.
<b>Big Game Outfitters:</b>	Blackstone Outfitting Ltd., Midnight Sun Outfitting Ltd and Pete Jensen Outfitting Ltd.; high value hunting.
<b>Trapping:</b>	Trapline between Hungry Lakes and Hart River to Blackstone River; lower Hart River group trapping concession 402; Eight trapping leases (camps); single trapping concessions 6, 7, 16, 21, 33, 34, 35, 40, & 41; partially in TG group trapping concession.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Few quartz claims <sup>29</sup> ; low copper/gold/uranium potential; moderate zinc-lead potential; one deposit <sup>30</sup> .
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (all of unit), THFN Traditional Territory (western portion), VGFN Traditional Territory and TGFN Primary and Secondary Use Areas (northern portion).	

<sup>28</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>29</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

<sup>30</sup> Uncertain of deposit type (general mineral)

**Sub-unit #4B: West Hart**



**BIOPHYSICAL SETTING**

<b>Setting:</b>	A large pocket of mostly flat terrain set in mountains around the West Hart/Hart River confluence.	
<b>Ecoregions:</b>	North Ogilvie Mountains	
<b>Bioclimate Zones:</b>	Primarily Taiga Wooded, with Taiga Shrub and Alpine	
<b>Habitat Types:</b>	Mid-elevation shrub and herb habitats, with some alpine and riparian forest and shrub habitats.	
<b>Watersheds:</b>	West Hart River	

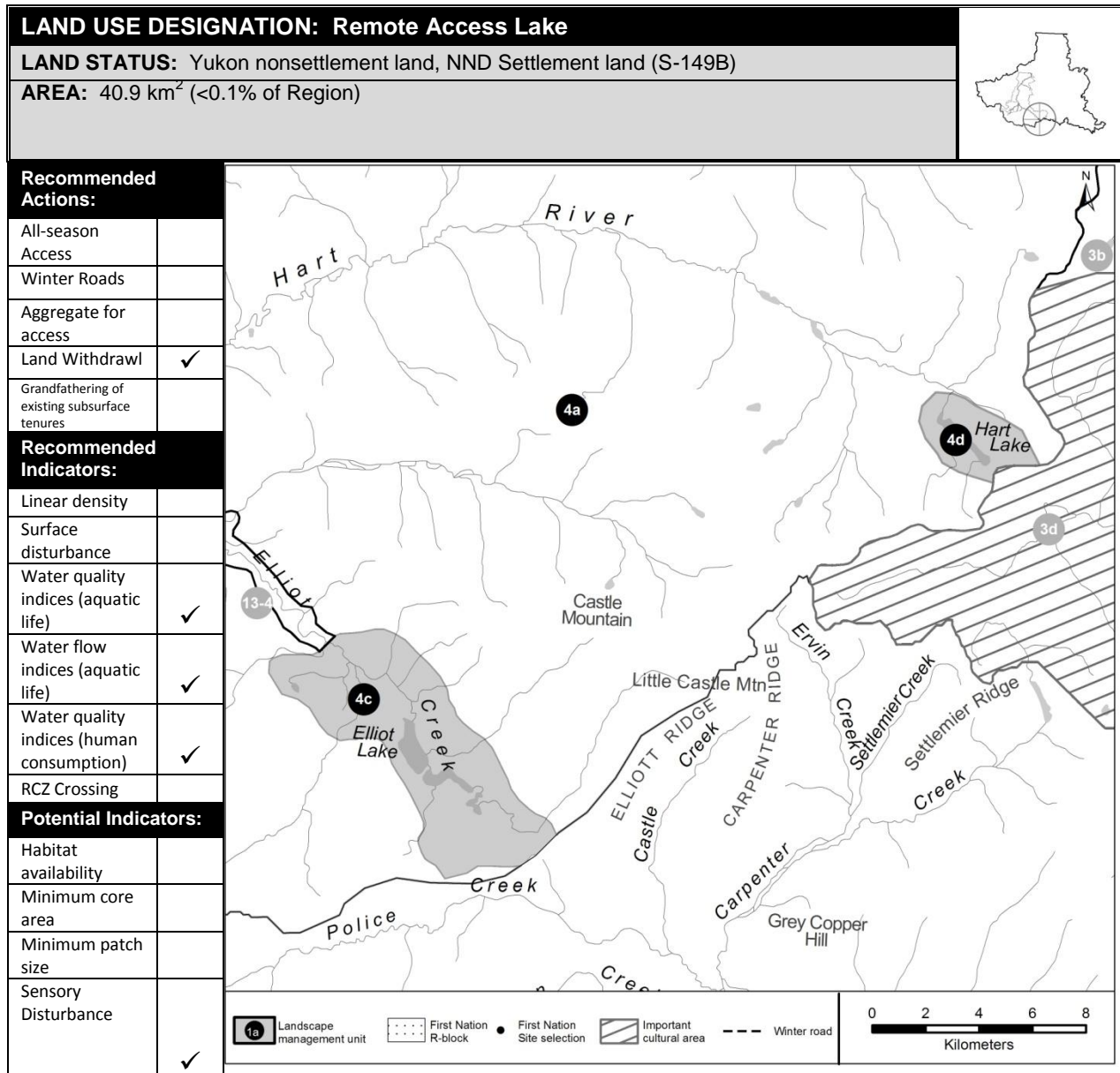
Flatter, rolling terrain with open forests is most common in LMU #4B; tributaries, foothills and some mountains also occur.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Unusual convergence of key/concentrated winter use areas for <b>both</b> the Porcupine and Hart river herds near the Hart/West Hart confluence
<b>Moose:</b>	Broad swathes of high habitat suitability and use in valley bottoms and in narrow bands along smaller tributaries; low-nil late winter habitat suitability in higher country.
<b>Marten:</b>	Extensive moderate quality habitat.
<b>Sheep:</b>	Some highly suitable winter habitat with documented (TK, big game outfitters, scientific) habitat use. Scattered licks and movement corridor(s).
<b>Fish:</b>	Fish presence likely in lower gradient tributaries.
<b>Grizzly Bear:</b>	Mostly moderate habitat suitability, high in riparian areas.
<b>Birds:</b>	High number species of conservation concern.
<b>Vegetation:</b>	Moderate-high endemism/rarity. Low-mid elevation wet/dry shrub, subalpine shrub, and alpine exposed rock.
<b>Wetlands and Lakes:</b>	Large wetland complexes on Hart River, scattered wetlands.
<b>Riparian Areas:</b>	Michelle Creek. Adjacent to Hart River and several large tributaries, West Hart River, Rae Creek.
<b>Major River Corridors:</b>	Hart River, West Hart River.
<b>Special Features:</b>	Several mineral licks; several possible wildlife passes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Extensive travel routes connecting Blackstone and Hart River via West Hart River and Lomond Creek. Cabin and archeological site near Lomond Lake.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	West Hart Trail is currently used for recreational access to the West Hart River; a conceptual access route has been identified in this unit <sup>31</sup> between Waugh Creek to West Hart/Dempster Hwy.
<b>Traditional Economy:</b>	TH traditional harvesting and wildlife areas; TH and NND fish harvesting.
<b>Recreation and Tourism:</b>	Very high values for wilderness paddling along West Hart River. Some wilderness hiking in the headwaters of West Hart. Road access to West Hart.
<b>Big Game Outfitters:</b>	Blackstone Outfitting Ltd., Midnight Sun Outfitting Ltd and Pete Jensen Outfitting Ltd.; high value hunting.
<b>Trapping:</b>	Single trapping concessions 20 & 21.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Few quartz claims <sup>32</sup> ; low copper/gold/uranium potential; moderate zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (all of unit), THFN Traditional Territory (majority).	

<sup>31</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>32</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.



**LMU #4: Hart River Watershed****Sub-unit #4C: Elliot Lake – Upper Hart Watershed****BIOPHYSICAL SETTING**

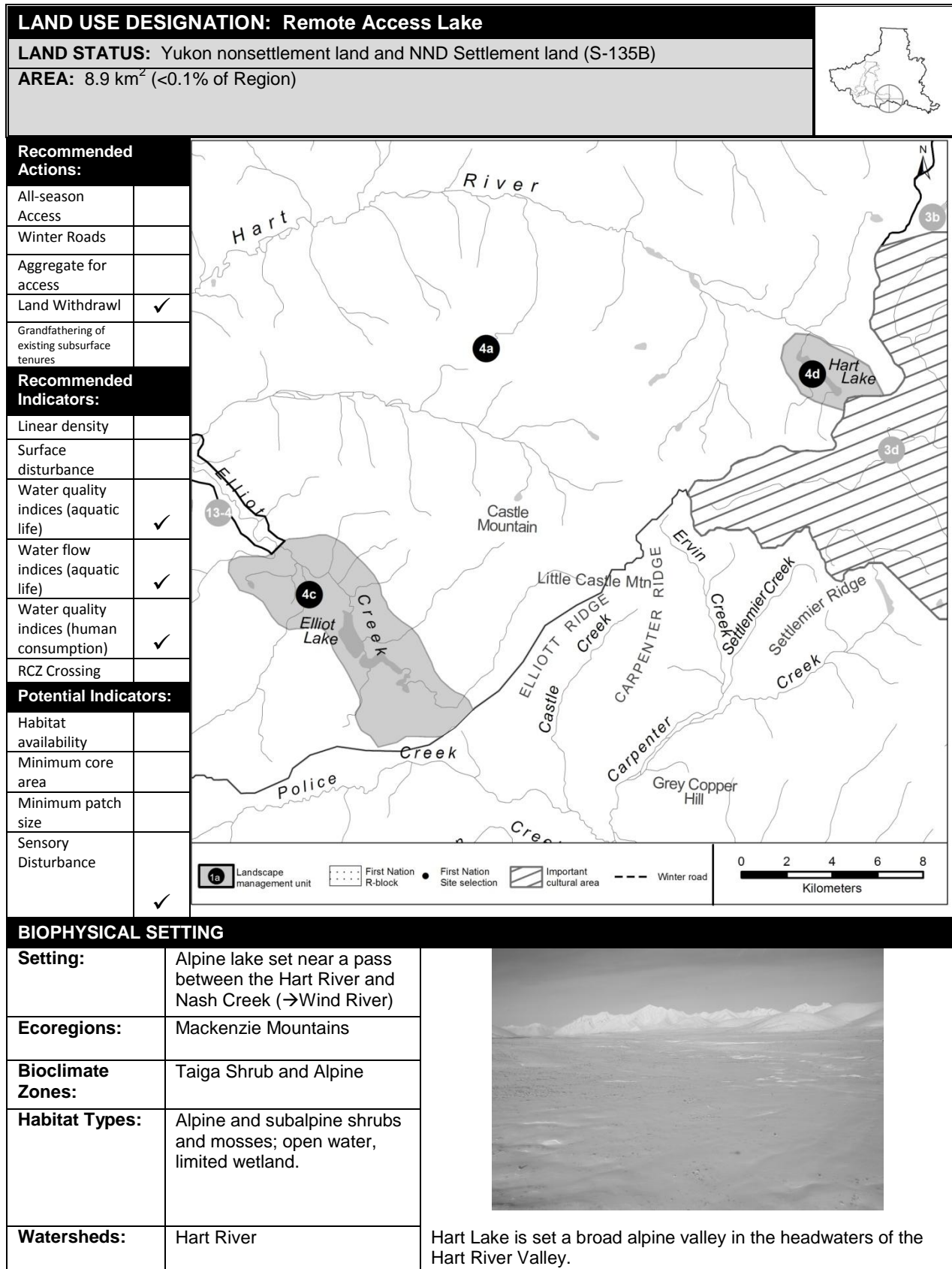
<b>Setting:</b>	Broad, flat-bottomed shrubby valley in the headwaters of the Hart River with a prominent subalpine lake.
<b>Ecoregions:</b>	Mackenzie Mountains
<b>Bioclimate Zones:</b>	Taiga wooded
<b>Habitat Types:</b>	Mid elevation shrubs, open water, wetlands, open lichen, and some coniferous stands.
<b>Watersheds:</b>	Elliot Creek → Hart River



Elliot Lake is surrounded by flat, wet, shrubby habitat, with forests and alpine habitat on the surrounding slopes.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Moderate value winter habitat of the Hart River herd.
<b>Moose:</b>	Moderate value winter habitat.
<b>Marten:</b>	Moderate value winter habitat.
<b>Sheep:</b>	Little habitat within unit (moderate surrounding unit)
<b>Fish:</b>	Known fish occupancy.
<b>Grizzly Bear:</b>	Mostly moderate habitat suitability in low to mid elevations, high in riparian areas.
<b>Birds:</b>	High value waterbird habitat in riparian areas; moderate breeding birds species richness and number species of conservation concern.
<b>Vegetation:</b>	Low-mid elevation wet/dry shrub and lichen, wetlands, scattered coniferous stands..
<b>Wetlands and Lakes:</b>	Large subalpine lake with associated wetlands.
<b>Riparian Areas:</b>	Narrow riparian strip along outflowing Elliot Creek.
<b>Major River Corridors:</b>	Elliot Creek.
<b>Special Features:</b>	Possible wildlife pass to the south.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Several cabins (NND)
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Floatplane landings access.
<b>Traditional Economy:</b>	NND fishing likely.
<b>Recreation and Tourism:</b>	Very high values for wilderness paddling. Extensive wilderness hiking in with fly-in put-in access.
<b>Big Game Outfitters:</b>	Midnight Sun Outfitting Ltd; high value hunting in area.
<b>Trapping:</b>	Single trapping concessions 41.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	No quartz claims <sup>33</sup> ; high zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (all of unit).	

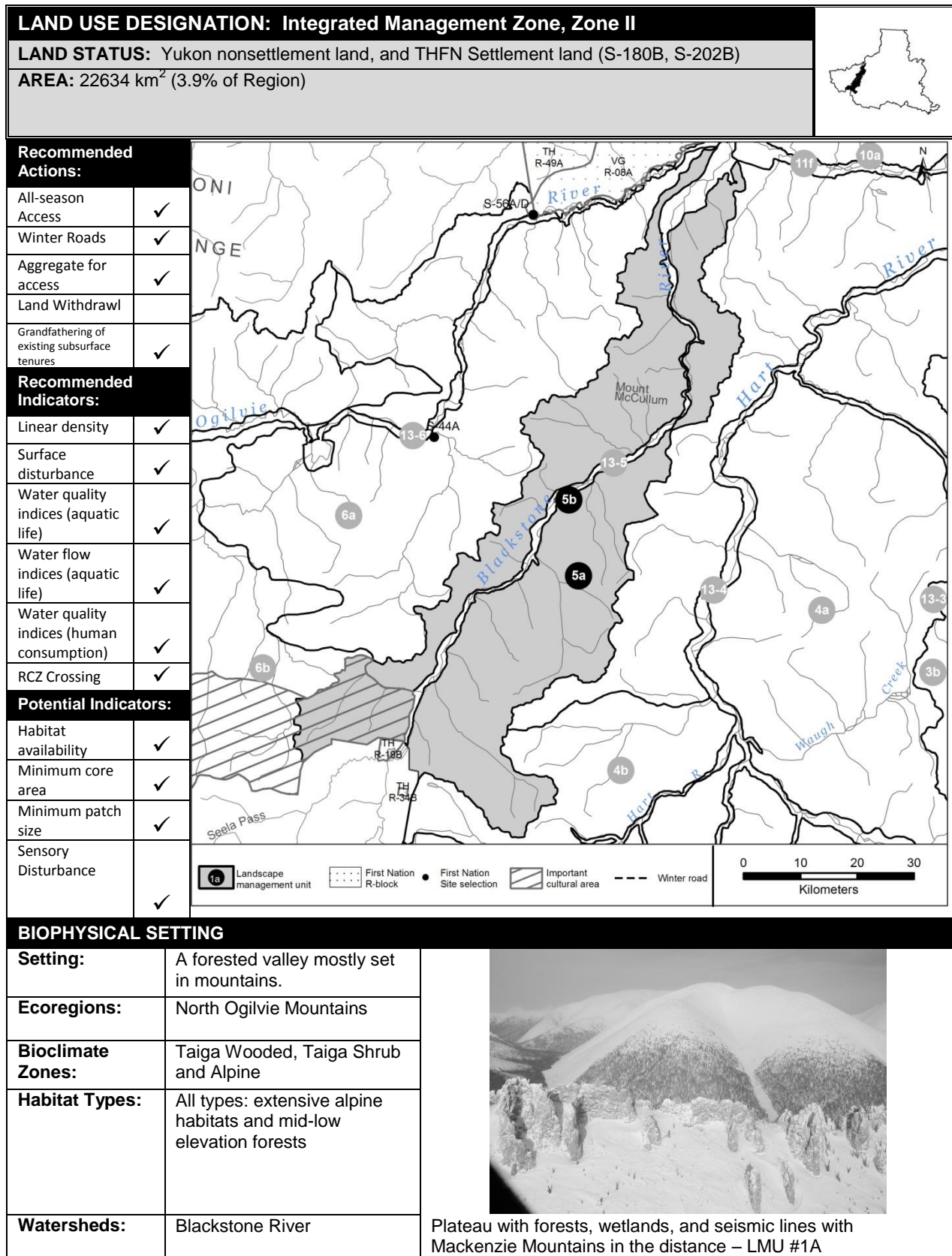
<sup>33</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LMU #4: Hart River Watershed****Sub-unit #4D: Hart Lake – Upper Hart Watershed**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat of the Hart River herd concentrated along forested valley.
<b>Moose:</b>	Generally low-nil late winter habitat suitability.
<b>Marten:</b>	Low quality habitat.
<b>Sheep:</b>	Extensive areas of moderately suitable winter habitat on surrounding slopes.
<b>Fish:</b>	Known fish occupancy.
<b>Grizzly Bear:</b>	Mostly moderate-high habitat suitability .
<b>Birds:</b>	Localized waterbird habitat in riparian areas; low breeding birds species richness; moderate number species of conservation concern.
<b>Vegetation:</b>	Subalpine and alpine shrub, alpine and wetland plants.
<b>Wetlands and Lakes:</b>	Large alpine lake with associated wetlands.
<b>Riparian Areas:</b>	No significant riparian areas.
<b>Major River Corridors:</b>	Hart River (west), Nash Creek → Wind River (east)
<b>Special Features:</b>	Likely wildlife pass.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Several cabins (NND).
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Floatplane landing.
<b>Traditional Economy:</b>	TH and NND fish harvesting. NND Sheep harvesting.
<b>Recreation and Tourism:</b>	Very high values for wilderness paddling. Extensive wilderness hiking with fly-in put-in access.
<b>Big Game Outfitters:</b>	Midnight Sun Outfitting Ltd;High value hunting. One outfitter camp.
<b>Trapping:</b>	Single trapping concessions 41.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	No quartz claims <sup>34</sup> ; moderate zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (all of unit).	

<sup>34</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

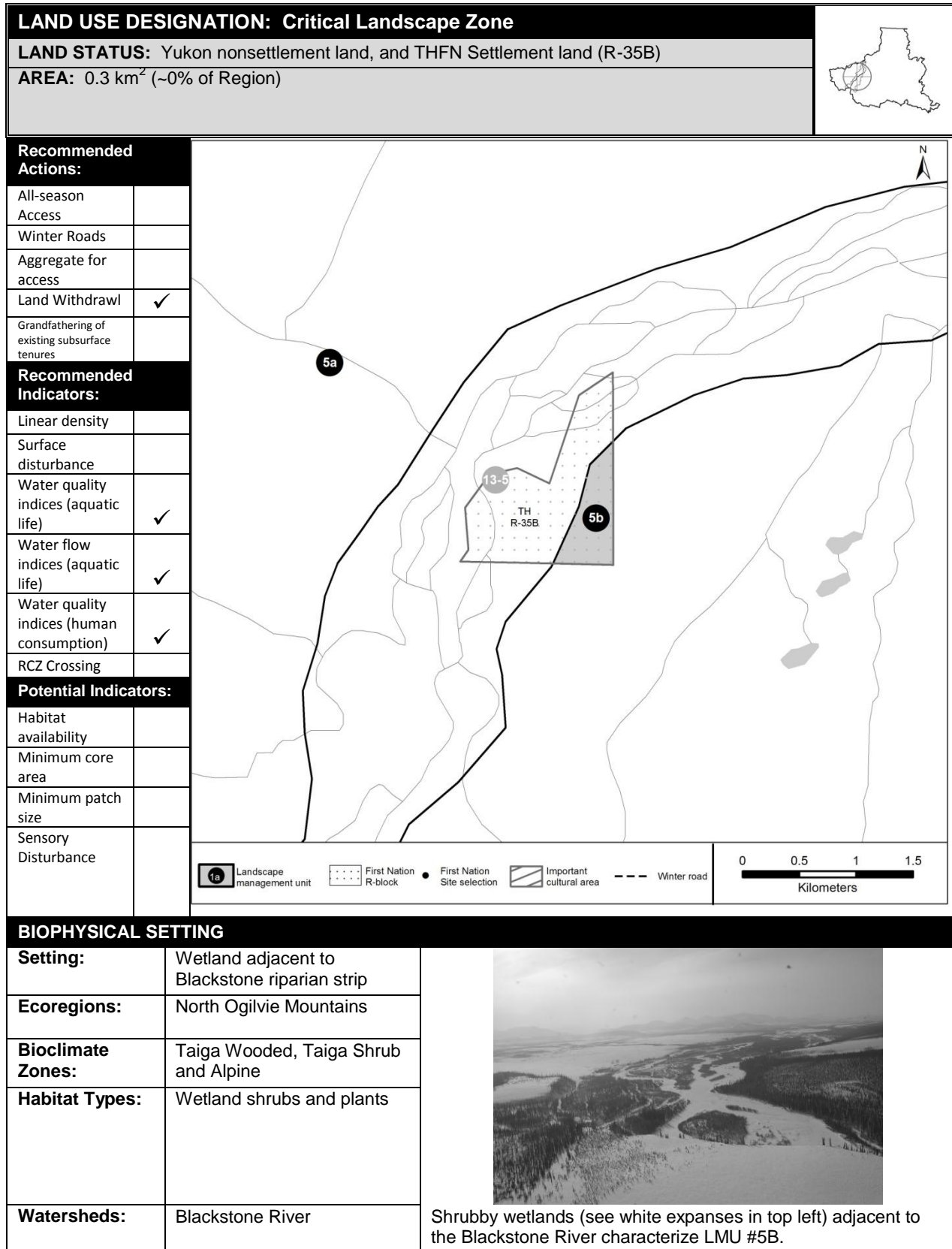


**LMU #5: Blackstone River Watershed****Sub-unit #5A: Blackstone Watershed**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat of the Hart River herd concentrated along forested valley bottoms and flatter terrain. Moderate value winter habitat of the Porcupine herd throughout. The Porcupine herd has general use winter and fall areas scattered throughout this unit.
<b>Moose:</b>	High habitat suitability and use in valley bottoms; low-nil late winter habitat suitability in higher country.
<b>Marten:</b>	Generally poor quality winter habitat; significant pockets of moderate habitat occur.
<b>Sheep:</b>	Extensive areas of highly suitable winter habitat with documented (TK, big game outfitters, scientific) habitat use. Scattered licks.
<b>Fish:</b>	Winter overflow (one), open water and surface groundwater locations, known fish occupancy and spawning sites (one), fish presence likely in rivers and lower gradient tributaries.
<b>Grizzly Bear:</b>	Mostly moderate habitat suitability in low to mid elevations, high in riparian areas.
<b>Birds:</b>	High potential for peregrine falcon foraging and nesting habitat in lower watershed; high value waterbird habitat in riparian areas; low breeding birds species richness; low and high number species of conservation concern.
<b>Vegetation:</b>	Moderate-high endemism/rarity. Alpine exposed rock, low-mid elevation dry herb/shrub.
<b>Wetlands and Lakes:</b>	One large wetland along Blackstone River, scattered wetlands.
<b>Riparian Areas:</b>	Blackstone River
<b>Major River Corridors:</b>	Blackstone River
<b>Special Features:</b>	Mineral lick; possible wildlife passes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Culturally important area, few culturally important sites and several cabins (TGFN, THFN, NND) along Blackstone River; important travel routes along Blackstone River and across unit from Engineer Creek to Hart River.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Proposed pipeline ROW runs through the unit; Dempster Highway Development Area along river in southern portion of unit. Old unidentified trails; two airstrips in lower section of unit.
<b>Traditional Economy:</b>	Several TH big game/fur-bearer locations concentrated close to the Dempster Hwy; TH traditional harvesting and wildlife areas in lower Blackstone River; TH fish harvesting.
<b>Recreation and Tourism:</b>	Wilderness hiking and road-accessible “wilderness” paddling opportunities.
<b>Big Game Outfitters:</b>	Blackstone Outfitters Ltd. and high value hunting.
<b>Trapping:</b>	TH trapline along Blackstone River; single trapping concessions 6, 16, & 20.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Some quartz claims <sup>35</sup> ; some low copper/gold/uranium potential; moderate zinc-lead potential, one occurrence <sup>36</sup> .
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Culturally important first hunt of the THFN occurs at the south end of this unit, often in the North Cache Creek area. Unrelated development is discouraged in this area.</li> <li>2. Maintaining the visual quality of mountain views along this segment of the Dempster Highway is a management priority.</li> <li>3. Potential new all-season access roads into LMU #5A from the Dempster corridor require careful assessment and management.</li> <li>4. NND Traditional Territory (east of Dempster Highway), VGFN Traditional Territory (north end of unit), THFN Traditional Territory (all of unit).</li> </ol>	

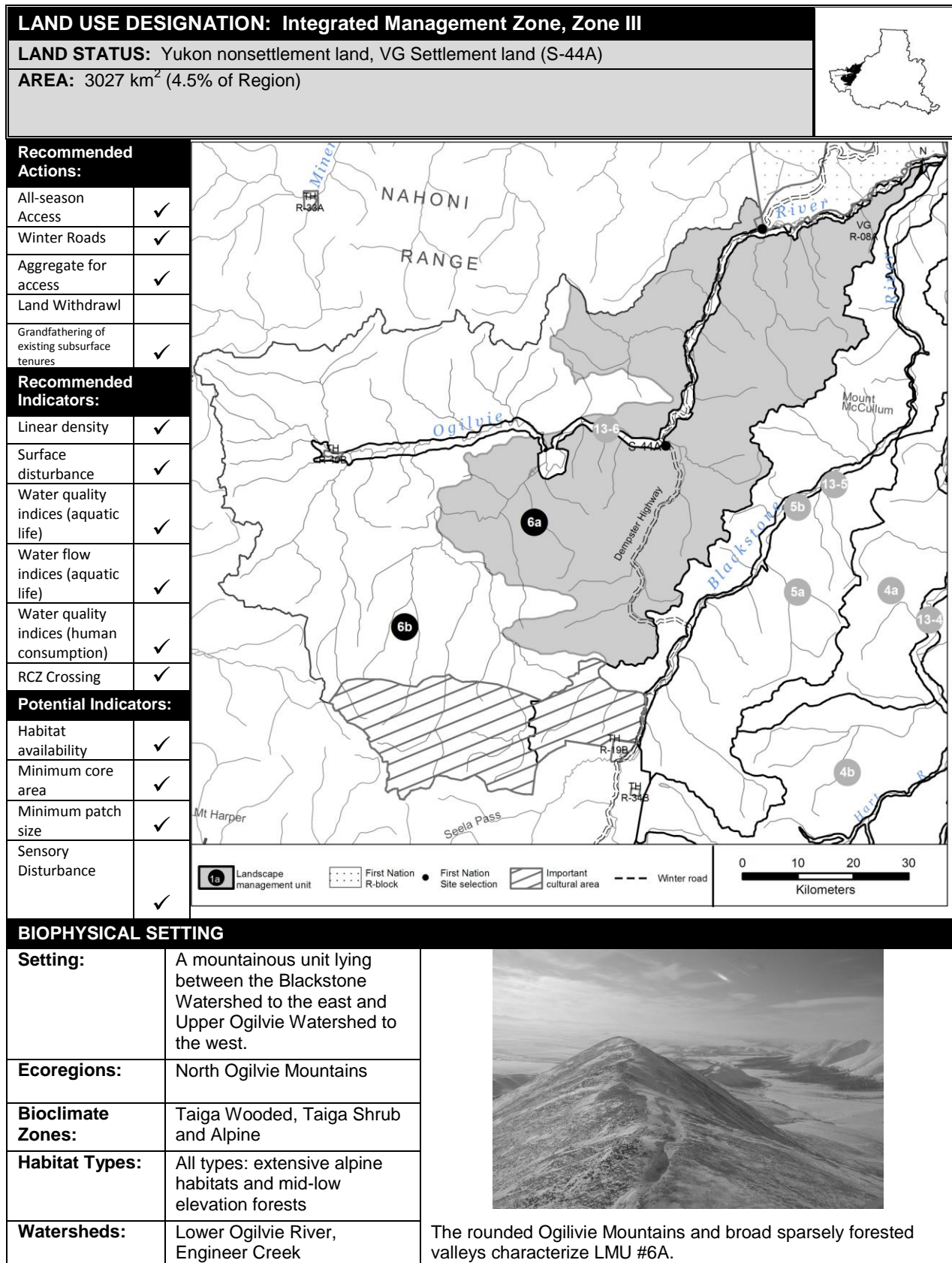
<sup>35</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

<sup>36</sup> Michelle Zinc-lead occurrence.

**LMU #5: Blackstone River Watershed****Sub-unit #5B: Mid Blackstone Flats**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat of the Hart River herd throughout. Moderate value winter habitat of the Porcupine herd throughout. Likely important corridor for both herds.
<b>Moose:</b>	High habitat suitability.
<b>Marten:</b>	Moderate winter habitat.
<b>Sheep:</b>	None.
<b>Fish:</b>	None.
<b>Grizzly Bear:</b>	High habitat suitability.
<b>Birds:</b>	High value waterbird habitat; high breeding birds species richness; moderate number species of conservation concern.
<b>Vegetation:</b>	Wetland shrubs and plants. Moderate-high endemism/rarity.
<b>Wetlands and Lakes:</b>	Almost completely a wetland.
<b>Riparian Areas:</b>	Blackstone River.
<b>Major River Corridors:</b>	Blackstone River.
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	One cabin (THFN). Important travel routes along Blackstone River and near unit from Engineer Creek to Hart River.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Water access only.
<b>Traditional Economy:</b>	TH traditional harvesting and wildlife area (primarily moose).
<b>Recreation and Tourism:</b>	High recreation potential along nearby Blackstone River.
<b>Big Game Outfitters:</b>	Blackstone Outfitting Ltd.
<b>Trapping:</b>	Single trapping concessions 6.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	No quartz claims <sup>37</sup> ; Low potential for common regional mineralizations.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory and THFN Traditional Territory (all of unit).	

<sup>37</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LMU #6: Ogilvie River Watershed****Sub-unit #6A: Lower Ogilvie Watershed – Engineer Creek**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Large pockets of high potential value winter habitat of the Hart River herd. Moderate to high value winter habitat of the Porcupine herd throughout. Much of the zone has received general or concentrated levels of use in winter and fall seasons by the Porcupine herd in recent decades.
<b>Moose:</b>	Narrow bands of high habitat suitability along smaller tributaries; generally low late winter habitat suitability elsewhere.
<b>Marten:</b>	Variable winter habitat quality, with significant pockets of moderate-high value habitat.
<b>Sheep:</b>	Territorially significant sheep viewing at mineral lick near Dempster. Large areas of highly suitable winter habitat with documented (TK, big game outfitters, scientific) habitat use.
<b>Fish:</b>	Fish presence likely in lower gradient streams and main rivers; some known fish occupancy and spawning sites (one); winter overflow, open water and surface groundwater.
<b>Grizzly Bear:</b>	Mostly moderate habitat suitability in low to mid elev.; high in riparian areas and subalpine zones.
<b>Birds:</b>	High potential for peregrine falcon foraging and nesting along Ogilvie River; high value waterbird habitat in riparian areas; low to moderate breeding birds species richness; moderate number species of conservation concern.
<b>Vegetation:</b>	High endemism/rarity. Alpine plants, low-mid elevation dry herb/shrub/coniferous forests, riparian communities.
<b>Wetlands and Lakes:</b>	Few small wetlands.
<b>Riparian Areas:</b>	Ogilvie River and several Engineer Creek.
<b>Major River Corridors:</b>	Ogilvie River.
<b>Special Features:</b>	Several mineral licks, especially near Engineer Creek; wildlife viewing; possible wildlife passes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	A few travel corridors around Engineer Creek. Several cabins (THFN, VGFN, TGFN, NND) along Dempster Hwy. TH culturally important area in northern section of Dempster Hwy.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Some old unclassified trails; Dempster Highway, Dempster Highway Development Area; Proposed pipeline ROW; A conceptual access route has been identified in this unit <sup>38</sup> along Ogilvie River and connecting to Miner River and Fifteenmile River.
<b>Traditional Economy:</b>	TH traditional harvesting and wildlife area and big game/fur-bearing locations. TG traditional harvest and wildlife area along Dempster Hwy. Some VG traditional harvesting and wildlife area in northern section of unit.
<b>Recreation and Tourism:</b>	High recreation potential along Dempster Highway with great scenery available to motorists/"front-country" tourists.
<b>Big Game Outfitters:</b>	Blackstone Outfitting Ltd.; high value hunting;
<b>Trapping:</b>	Several TH traplines; two trapping leases (camps); single trapping concessions 3, 6, 16, and 387.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Very few quartz claims <sup>39</sup> ; some low copper/gold/uranium potential; some moderate zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Maintaining the visual quality of mountain views along this segment of the Dempster Highway is a management priority.</li> <li>2. Potential new all-season access roads into LMU #6A from the Dempster corridor require careful assessment and management.</li> <li>3. NND Traditional Territory (east of Dempster Highway), VGFN Traditional Territory (north end of unit), THFN Traditional Territory (all of unit)</li> </ol>	

<sup>38</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>39</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.



### Sub-unit #6B: Upper Ogilvie Watershed

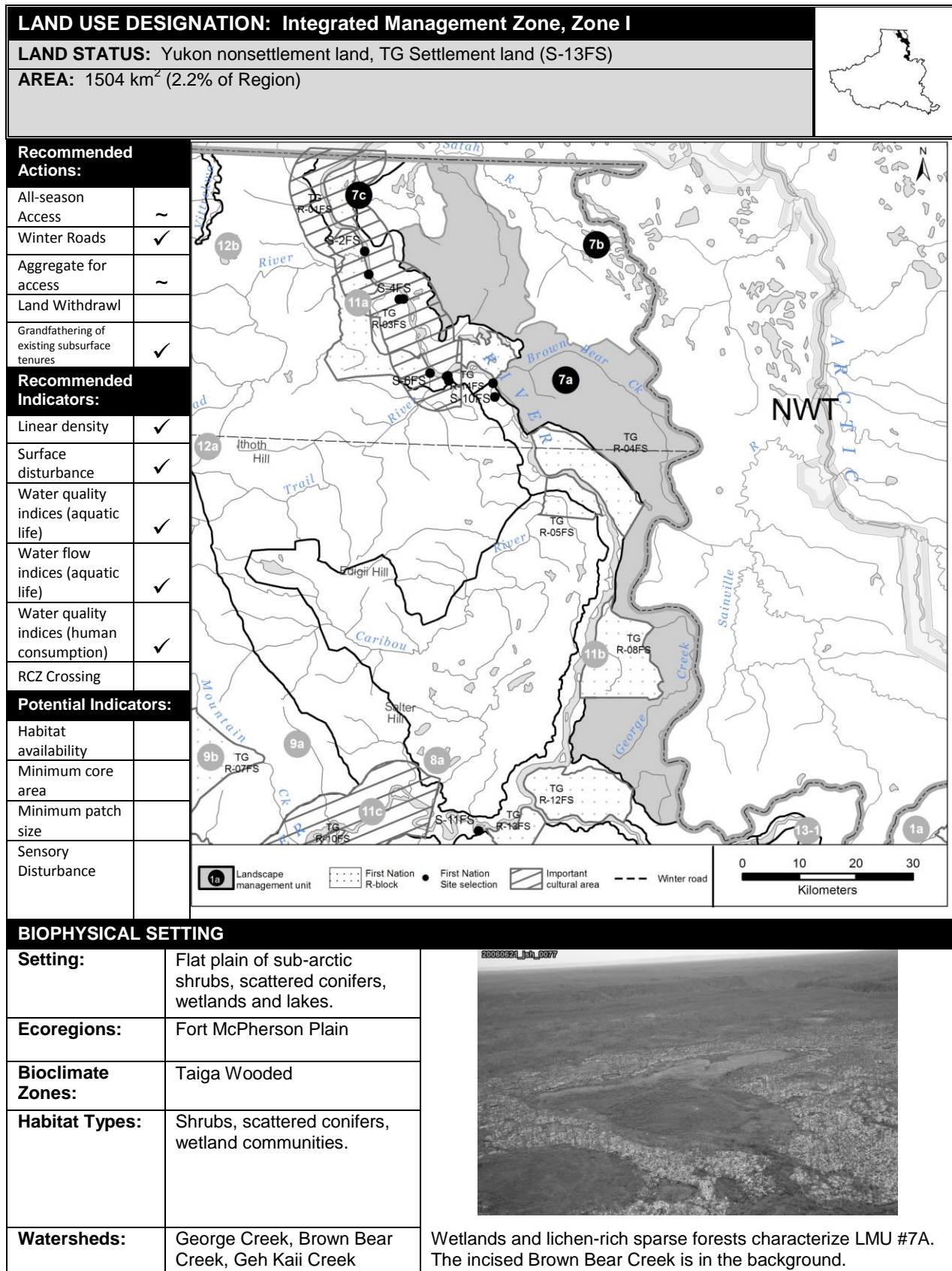
*Draft Peel Watershed Regional Land Use Plan (April 28, 2009)*

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat of the Porcupine herd on flat plains. Extensive concentrated and general use areas for the Porcupine herd. Southern portion has overlapping concentrated and general use areas for the Porcupine herd and key winter and fall areas of the Hart River herd.
<b>Moose:</b>	Narrow bands of high habitat suitability along valley bottoms; generally low-nil late winter habitat suitability elsewhere.
<b>Marten:</b>	Generally poor winter habitat quality; some moderate quality.
<b>Sheep:</b>	Sheep habitat only on surrounding mountains.
<b>Fish:</b>	Fish likely present in rivers and lower gradient streams; winter overflow and surface groundwater.
<b>Grizzly Bear:</b>	Mostly moderate habitat suitability in low elev. to subalpine.; high in riparian and plains areas.
<b>Birds:</b>	A few pockets of high value waterbird habitat; low breeding birds species richness; high number species of conservation concern in valleys.
<b>Vegetation:</b>	High endemism/rarity. Alpine communities, low-mid elevation dry/wet herb, mid-subalpine shrub.
<b>Wetlands and Lakes:</b>	A few scattered wetlands.
<b>Riparian Areas:</b>	Several tributaries to the Ogilvie
<b>Major River Corridors:</b>	Ogilvie River.
<b>Special Features:</b>	Several possible wildlife passes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Cabins (THFN). Culturally important places for TGFN, THFN, VGFN. N-S THFN travel route.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	A conceptual access route has been identified in this unit <sup>40</sup> along Ogilvie River and connecting to Miner River and Fifteenmile River
<b>Traditional Economy:</b>	TH traditional harvesting and wildlife areas.
<b>Recreation and Tourism:</b>	High value hiking in headwaters of Ogilvie River.
<b>Big Game Outfitters:</b>	Reynolds Outfitting Ltd. and Blackstone Outfitting Ltd.; some high value hunting to the south.
<b>Trapping:</b>	Two TH traplines; Single trapping concessions 2, 3, 16, & 387. Small part of group traplin 401.
<b>Oil and Gas Resources:</b>	Part of Kandik basin is within this unit. This basin has low development potential.
<b>Mineral Resources:</b>	Some quartz claims <sup>41</sup> to the south; high copper/gold/uranium potential and zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Extensive permafrost is probable in plains.</li> <li>2. VGFN Traditional Territory (north end of unit), THFN Traditional Territory (all of unit)</li> </ol>	

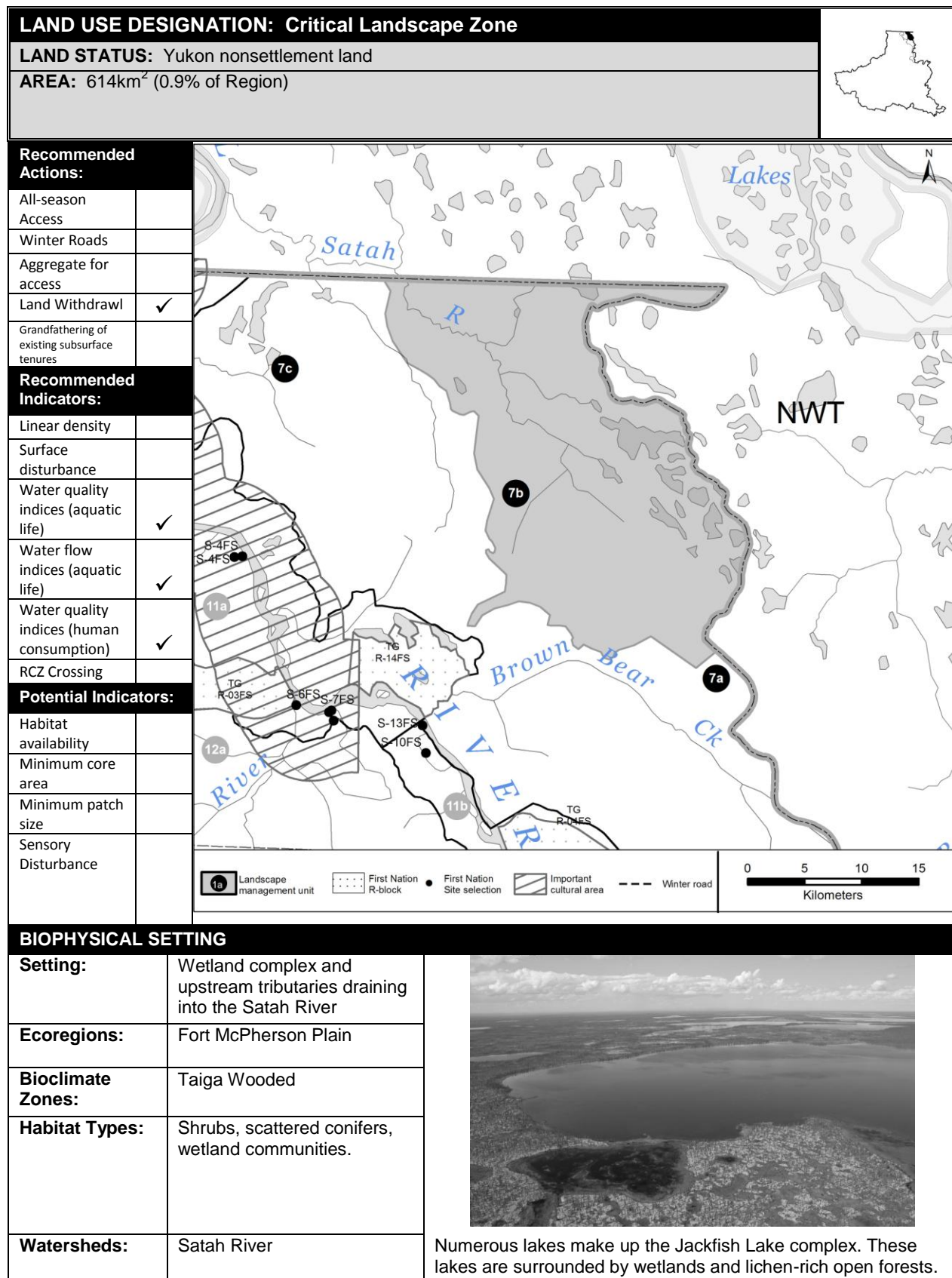
<sup>40</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>41</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

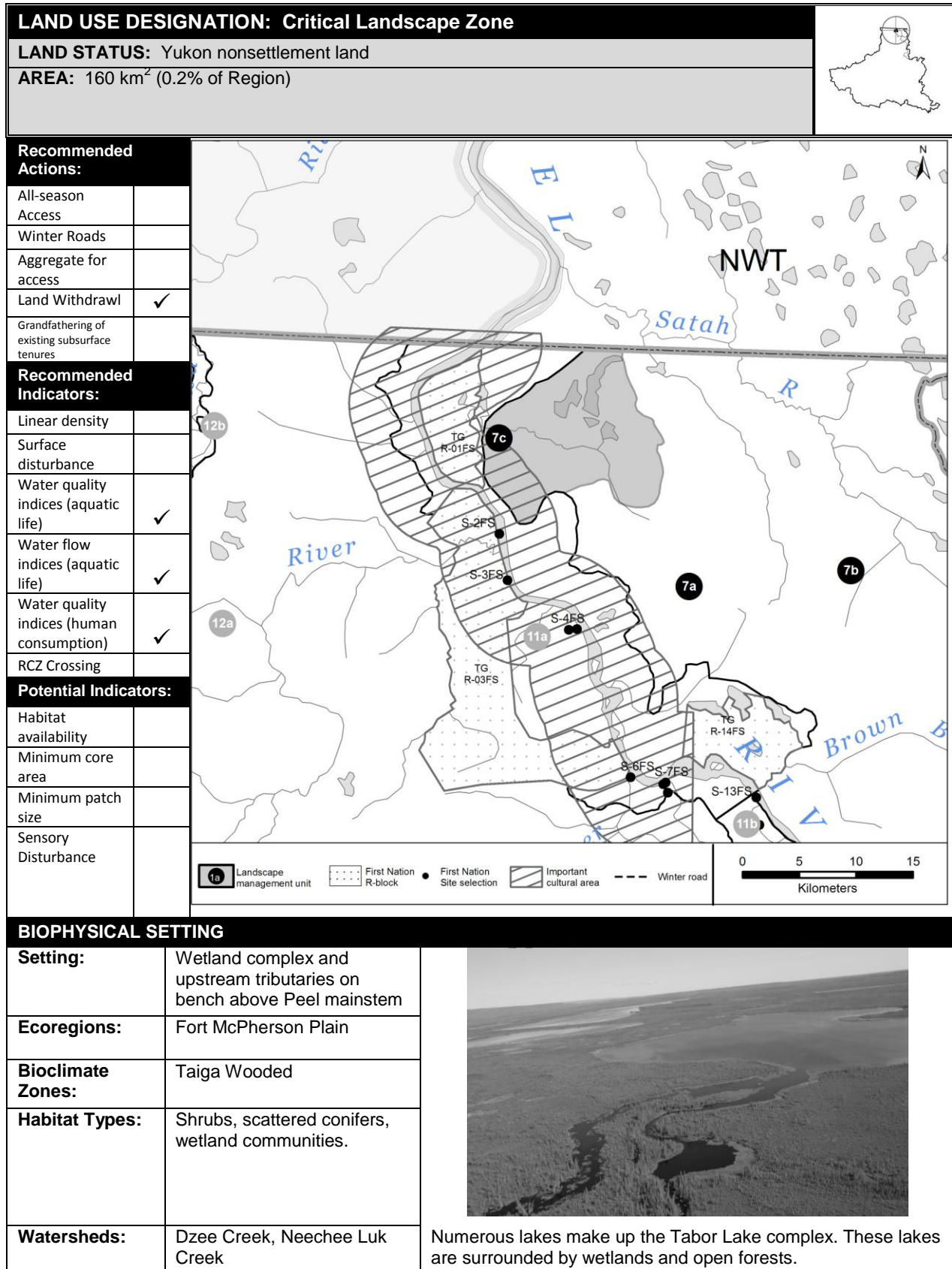


**LMU #7: Peel River Drainage - East****Sub-unit #7A: Peel Plain**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Virtually entire area is moderate and high habitat potential for the Boreal herd. The largest LMU with use by the Boreal herd. Concentrated use by this herd appears in the upper Brown Bear Ck area.
<b>Moose:</b>	The largest expanse of moderate late winter habitat suitability, however there is little high value late winter habitat.
<b>Marten:</b>	Extensive and concentrated moderate to high winter habitat suitability.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Fish presence likely throughout.
<b>Grizzly Bear:</b>	Low habitat suitability, moderate in riparian areas, esp. Brown Bear Creek.
<b>Birds:</b>	Some peregrine falcon foraging habitat; significant waterbird habitat; moderate breeding species richness and of conservation concern (pockets of high areas).
<b>Vegetation:</b>	Low-mid elev. wet herb/shrub and conifer forest, low-mid elev. lichen and dry conifer forest.
<b>Wetlands and Lakes:</b>	High concentration of small wetlands and several lakes; key wetlands (YG).
<b>Riparian Areas:</b>	Narrow riparian strip along Brown Bear Creek
<b>Major River Corridors:</b>	Adjacent to Peel mainstem.
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Important travel route from the north through middle of unit; travel route throughout, especially along Brown Bear Creek.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Extensive network of old winter roads and unclassified linear features; one airstrip.
<b>Traditional Economy:</b>	TG traditional harvesting and wildlife areas;
<b>Recreation and Tourism:</b>	No identified high recreation values.
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	Traplines through southern end.
<b>Oil and Gas Resources:</b>	Peel Plateau and Plain basin and is moderate potential; two abandoned wells.
<b>Mineral Resources:</b>	No mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. TG primary use area.	

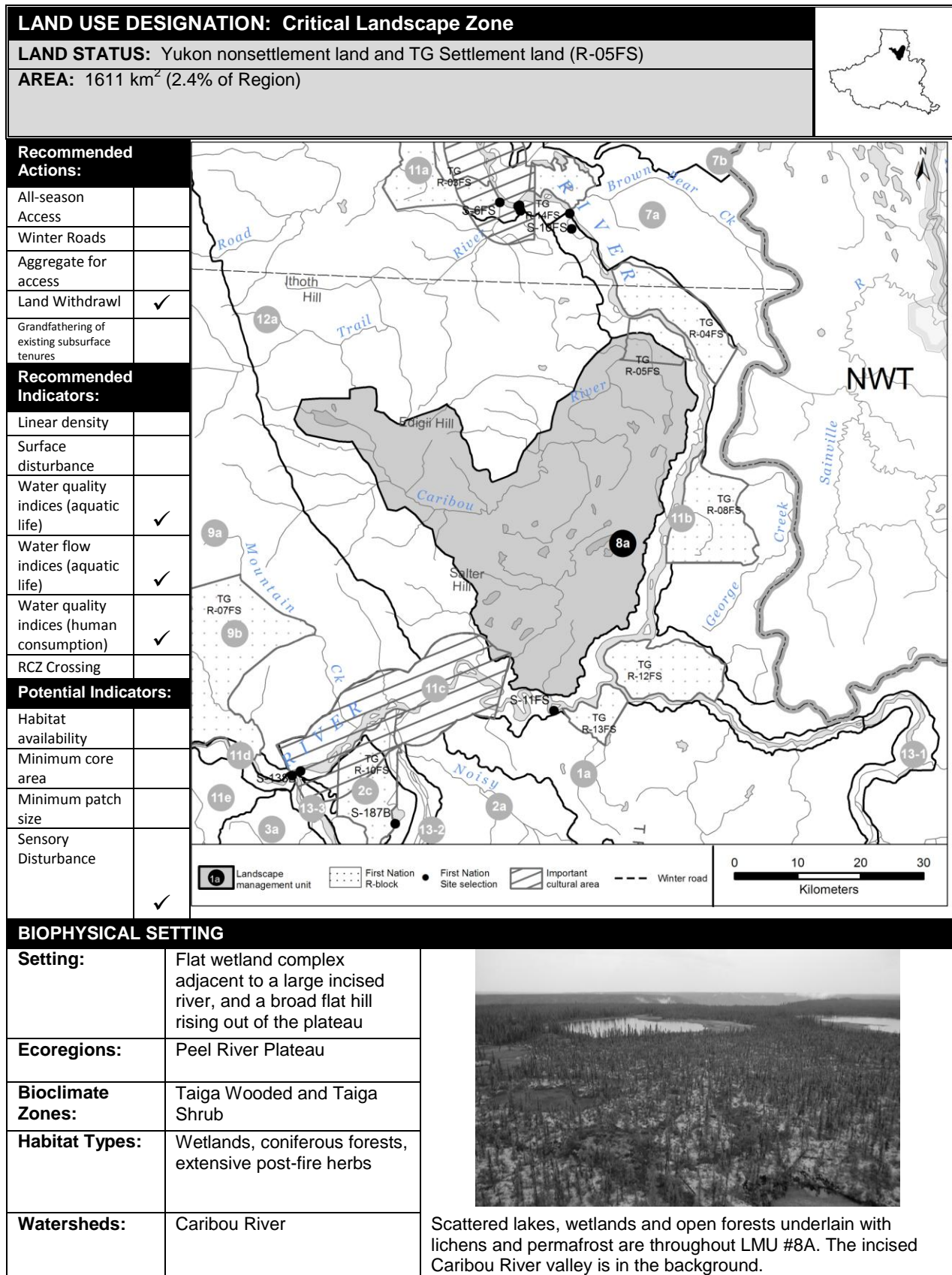
**LMU #7: Peel River Drainage - East****Sub-unit #7B: Jackfish Lakes**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Entire area is moderate and high habitat potential for the Boreal herd with concentrations of high potential around the southern lakes. Corresponding concentrated use by this herd appears around Jackfish Lakes.
<b>Moose:</b>	Expansive moderate value late winter habitat.
<b>Marten:</b>	Extensive and concentrated moderate winter habitat suitability.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Fish presence likely throughout.
<b>Grizzly Bear:</b>	Low habitat suitability, moderate along Satah River.
<b>Birds:</b>	Highest concentration of waterbird habitat; moderate breeding species richness and of conservation concern (pockets of high areas).
<b>Vegetation:</b>	Low-mid elev. Wet herb/shrub conifer forest, lichen and open water.
<b>Wetlands and Lakes:</b>	Many large lakes and high concentration of small to large wetlands; key wetland area (YG).
<b>Riparian Areas:</b>	
<b>Major River Corridors:</b>	
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Travel along the Satah River; No sites identified.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Extensive network of old winter roads and unclassified linear features.
<b>Traditional Economy:</b>	TG seasonal land use.
<b>Recreation and Tourism:</b>	No identified high recreation values.
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	TG group trapping concession.
<b>Oil and Gas Resources:</b>	Peel Plateau and Plain basin and is moderate potential; one abandoned well.
<b>Mineral Resources:</b>	No mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. TG primary use area.</li> <li>2. The Boreal Caribou Recovery Plan should be consulted prior to significant work in this sub-unit.</li> </ol>	

**LMU #7: Peel River Drainage - East****Sub-unit #7C: Tabor Lakes**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Entire area is moderate and high habitat potential for the Boreal herd.
<b>Moose:</b>	Entire area is moderate value late winter habitat.
<b>Marten:</b>	Extensive and concentrated moderate winter habitat suitability.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Fish presence likely throughout.
<b>Grizzly Bear:</b>	Low habitat suitability, very little moderate suitability.
<b>Birds:</b>	Some peregrine falcon foraging habitat; significant waterbird habitat; low-moderate breeding species richness and of conservation concern.
<b>Vegetation:</b>	Low-mid elev. wet herb/shrub and conifer. Forest, wetlands and open water.
<b>Wetlands and Lakes:</b>	Large lakes with mosaic of small lakes and wetlands; key wetland area (YG).
<b>Riparian Areas:</b>	
<b>Major River Corridors:</b>	
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Connectivity to travel routes along the Peel River; one cabin identified.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Access:</b>	Extensive network of old winter roads and unclassified linear features.
<b>Traditional Economy:</b>	TG traditional harvesting and wildlife areas.
<b>Recreation and Tourism:</b>	No identified high recreation values.
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	TG group trapping concession
<b>Oil and Gas Resources:</b>	Peel Plateau and Plain basin and is moderate potential; one abandoned well.
<b>Mineral Resources:</b>	No mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. TG primary use area.	

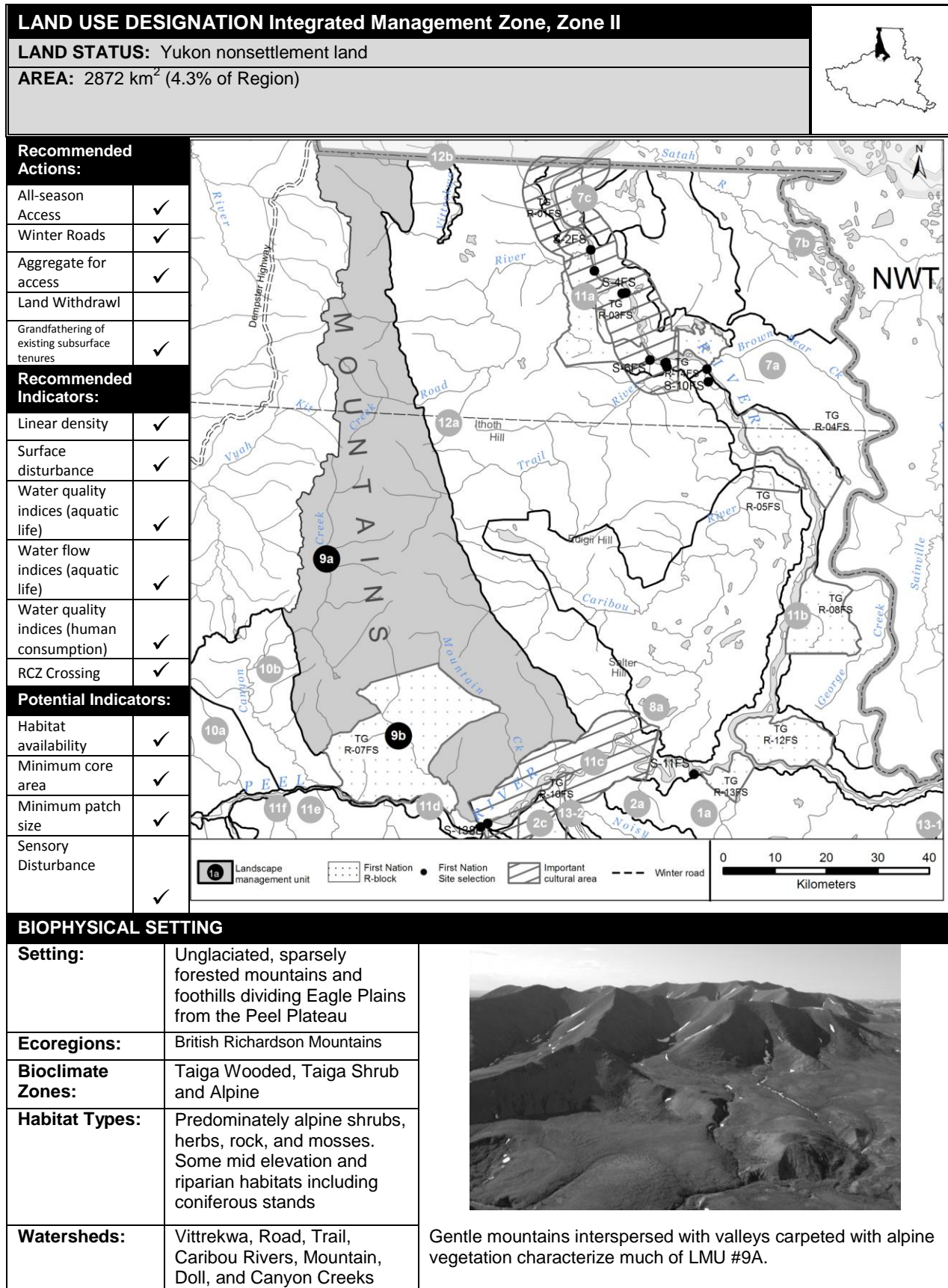


**LMU #8: Turner Wetlands and Caribou River****Sub-unit #8A: Turner Wetlands and Caribou River**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Virtually entire area is moderate and high habitat potential for the Porcupine herd, with concentrations of high potential around central lakes. Little use in recent decades though traditional and scientific knowledge indicate historical heavy use. Edigii hill could be a significant refuge from insects or deep/hard snow pack.
<b>Moose:</b>	Expansive moderate-low value late winter habitat.
<b>Marten:</b>	Extensive and concentrated moderate to high winter habitat suitability. A culturally-significant trapping area.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Fish presence likely throughout; several known spawning locations.
<b>Grizzly Bear:</b>	Low habitat suitability in wetlands, moderate to high towards Richardson foothills.
<b>Birds:</b>	Significant peregrine falcon foraging and nesting habitat; High concentration of waterbird habitat; high breeding species richness and moderate species of conservation concern.
<b>Vegetation:</b>	Low – mid elev. wet herb/shrub/conifer, lichen and dry coniferous forest.
<b>Wetlands and Lakes:</b>	Highest concentration of lakes and wetland complexes in the PWPR; wetland key area (YG) and territorially significant.
<b>Riparian Areas:</b>	Narrow riparian strip along Caribou River
<b>Major River Corridors:</b>	Caribou River.
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Travel route along Caribou River with connectivity to Lusk Lake and Upper Peel River; Connecting routes between Trail River and Mountain Creek to lower Peel River. A few cabins and several culturally important places (TG).
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Extensive network of old winter roads and unclassified linear features; a conceptual access route has been identified in this unit <sup>42</sup> from Road River to the Peel River.
<b>Traditional Economy:</b>	TG traditional harvesting and wildlife areas. Turner lakes is known for good trapping.
<b>Recreation and Tourism:</b>	No identified high recreation values.
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	Traplines in wetland complexes of Turner Lake parallel to Peel River. TG group trapping concession.
<b>Oil and Gas Resources:</b>	Peel Plateau and Plain basin and is moderate potential; four abandoned wells. Oil and gas permit (#0018).
<b>Mineral Resources:</b>	Some moderate general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Traditional knowledge indicates that Edigii Hill is an alternative calving location, and is therefore important.</li> <li>2. NND Traditional Territory and TGFN Primary Use Area (all of unit).</li> </ol>	

<sup>42</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

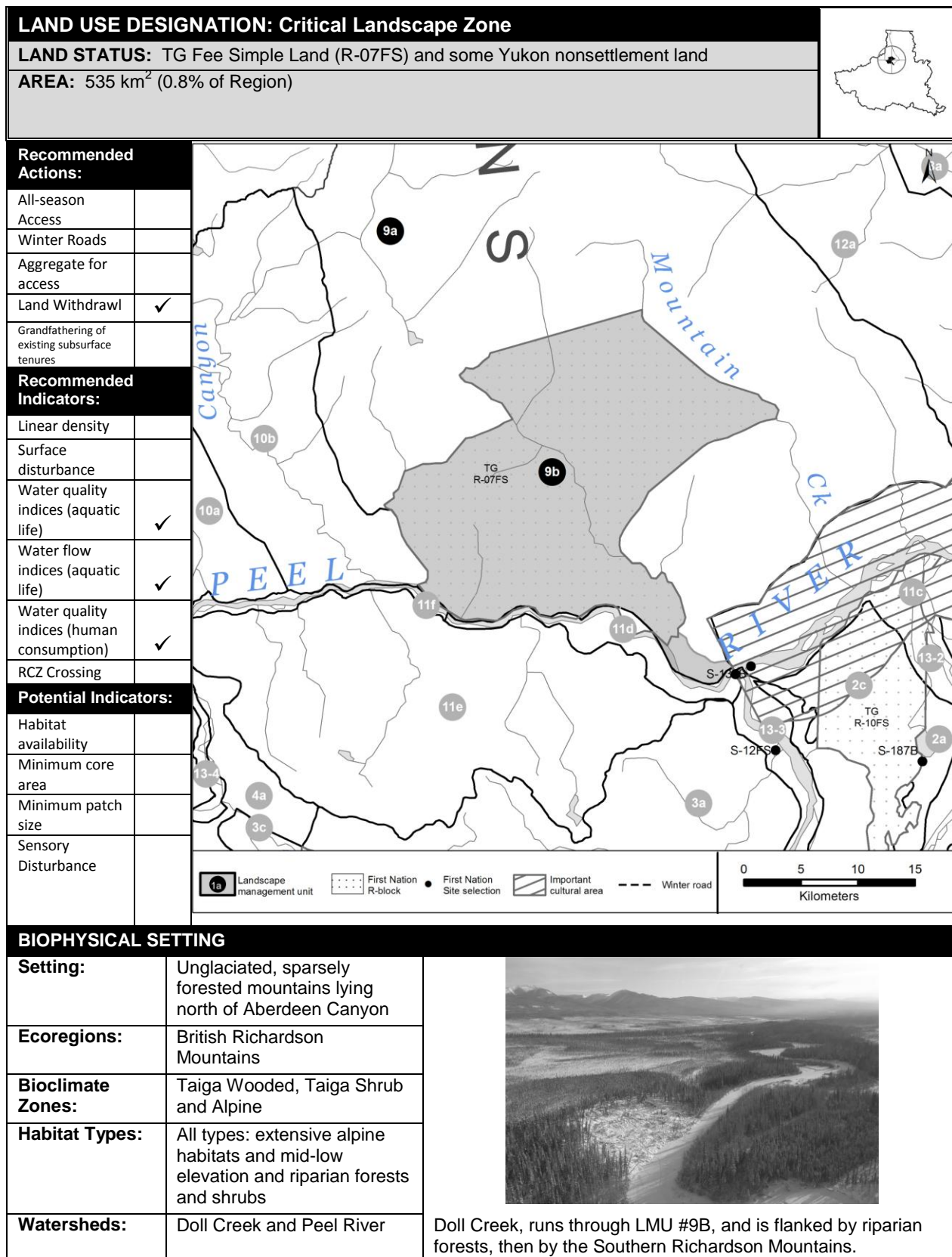


**LMU #9: Richardson Mountains****Sub-unit #9A: Southern Richardson Mountains**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Extensive concentrated and general use areas for Porcupine herd for fall and winter seasons, despite low predicted habitat potential for the Porcupine herd. Exposed slopes are important foraging areas, especially in high snow years.
<b>Moose:</b>	Generally poor late winter habitat, though ribbons of high value habitat follow creeks.
<b>Marten:</b>	Generally poor winter habitat suitability, except for extensive high value winter habitat on lower slopes to the south of the unit.
<b>Sheep:</b>	Large areas of highly suitable winter habitat with documented (TK, scientific) habitat use. However, the population is small and isolated and is at risk of decline.
<b>Fish:</b>	Fish likely present on lower gradient streams; some winter open water areas, one known sea-run fish spawning site on Vittrekwa River.
<b>Grizzly Bear:</b>	Moderate to high habitat suitability, especially high in riparian zones.
<b>Birds:</b>	Pockets of high value waterbird habitat and in riparian areas; moderate breeding species richness and high concentration of species of conservation concern.
<b>Vegetation:</b>	Low – mid elev. shrub and conifer forest, subalpine shrub and alpine exposed rock.
<b>Wetlands and Lakes:</b>	A few scattered wetlands.
<b>Riparian Areas:</b>	Upper watersheds of Canyon Creek, Vittrekwa, Road, Trail, and Caribou Rivers.
<b>Major River Corridors:</b>	None (headwaters of several rivers only).
<b>Special Features:</b>	Wildlife passes and possible pass.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	High concentration of VG and TG archaeological sites. Several TG culturally important places. Travel route through Road River from Kit Creek; Travel route from Rat River to Peel River. Route along unnamed creek from Dempster to Peel River. Travel route from Caribou River to lower Peel River.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	One old winter roads; a conceptual access route has been identified in this unit <sup>43</sup> from Dempster Hwy to Road River.
<b>Traditional Economy:</b>	TG seasonal land use and traditional harvesting and wildlife areas; TH fish harvest on Trail River.
<b>Recreation and Tourism:</b>	High value hiking in with access from Dempster Highway. Snowmobiling and wildlife viewing.
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	TG group trapping concession.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Some quartz claims <sup>44</sup> ; low to moderate general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. All-season roads are not allowed to cross this unit in order to minimize impact to the migration and wintering of the Porcupine Caribou herd.</li> <li>2. A cooperative management plan for Dall's sheep should be developed following the principals outlined by the Working Group for Northern Richardson Mountains Dall's Sheep (2008).</li> <li>3. NND Traditional Territory (all of unit); TGFN Primary Use Area (most of unit). Small western portion of unit in VGFN Traditional Territory and TGFN Secondary Use Area.</li> </ol>	

<sup>43</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>44</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

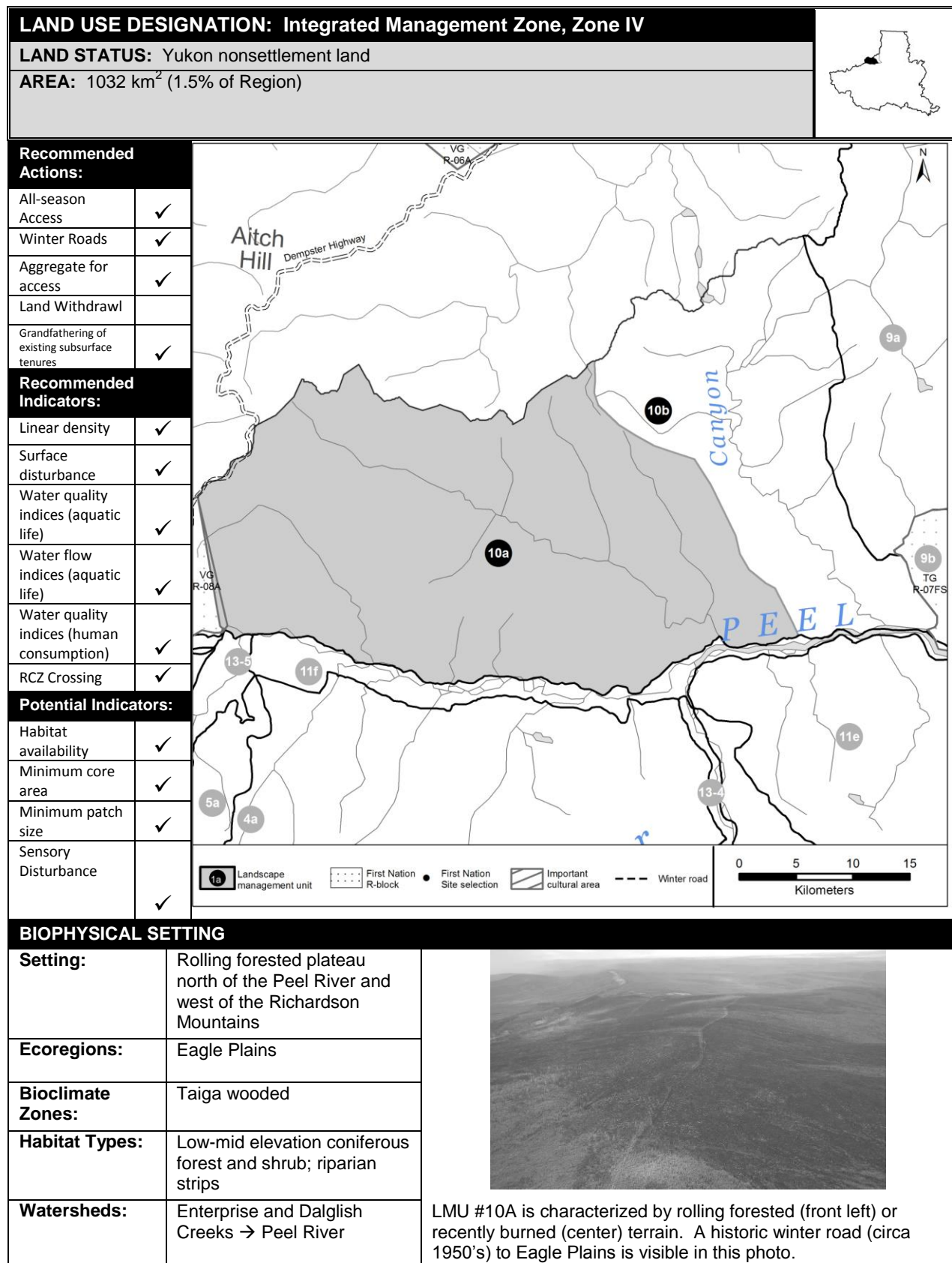
**LMU #9: Richardson Mountains****Sub-unit #9B: Doll Creek**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	A general use area for Porcupine herd at north end of unit, despite low predicted habitat potential for the Porcupine herd. Exposed slopes are important foraging areas, especially in high snow years.
<b>Moose:</b>	Generally poor late winter habitat, though ribbons of high value habitat follows Doll Creek with documented use.
<b>Marten:</b>	Variable winter habitat suitability, except for extensive high value winter habitat on north slopes of Doll Creek.
<b>Sheep:</b>	Large areas of highly suitable winter habitat with documented TGFN hunting areas.
<b>Fish:</b>	Fish likely present on lower gradient streams; documented presence at mouth of Doll Ck.
<b>Grizzly Bear:</b>	Extensive high habitat suitability.
<b>Birds:</b>	Pockets of high value waterbird habitat and in riparian areas; moderate breeding species richness and high concentration of species of conservation concern.
<b>Vegetation:</b>	Low – mid elev. shrub and conifer forest, subalpine shrub and alpine exposed rock.
<b>Wetlands and Lakes:</b>	A few subalpine lakes.
<b>Riparian Areas:</b>	Doll Creek.
<b>Major River Corridors:</b>	Adjacent to Peel River (LMU 11D)
<b>Special Features:</b>	Wildlife passes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Scattered VG and TG archaeological sites and TG culturally important places.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Adjacent to floatplane landing on the Peel River at Canyon Creek.
<b>Traditional Economy:</b>	TG seasonal land use and traditional harvesting and wildlife areas.
<b>Recreation and Tourism:</b>	High potential for tourism at north end; current tourism activity corridor at south end.
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	TG group trapping concession.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	No quartz claims <sup>45</sup> ; low to moderate general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory and TGFN Primary Use Area (all of unit).	

<sup>45</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

## LMU #10: Eagle Plains

### Sub-unit #10A: Eagle Plains

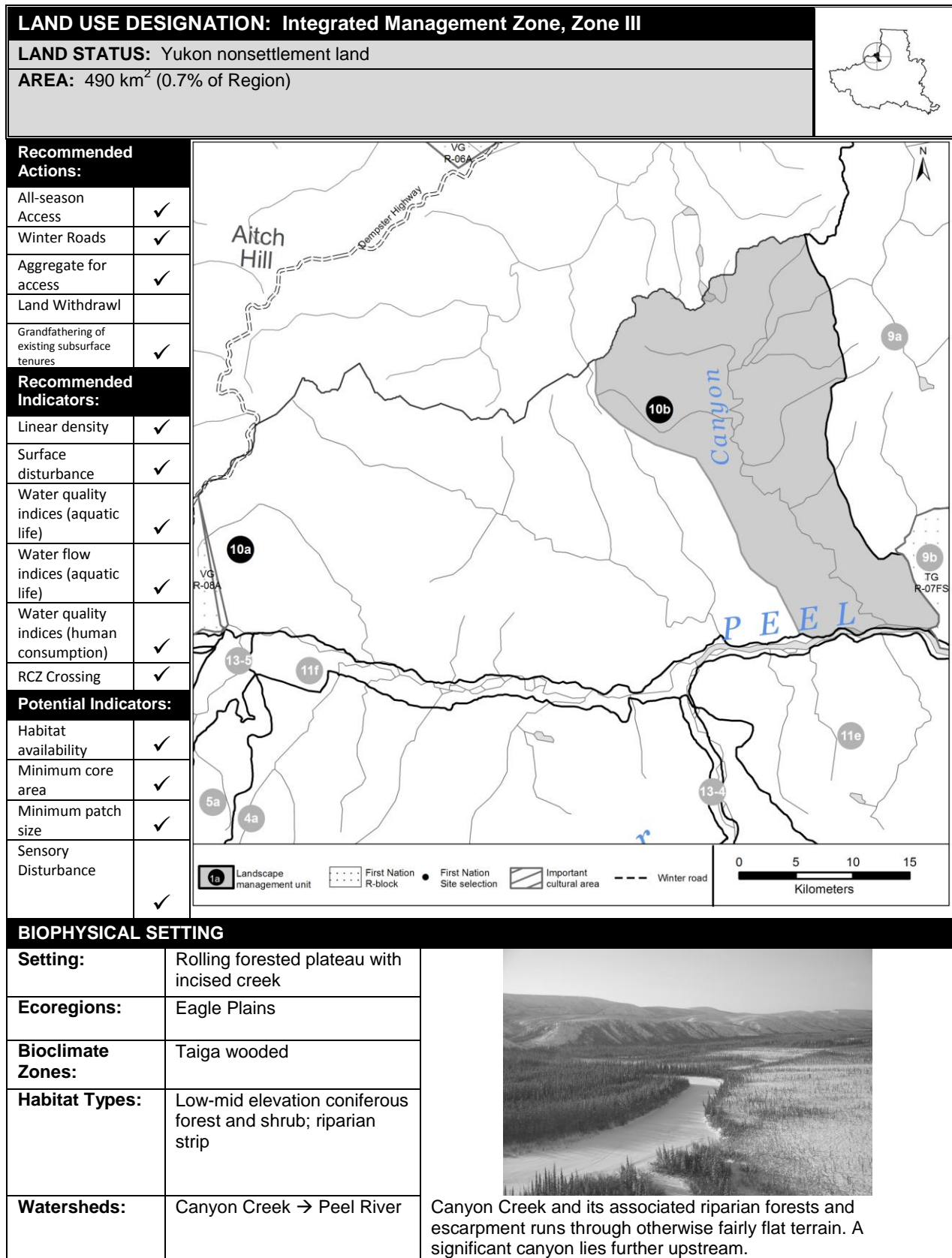




<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Moderate habitat suitability for the Porcupine herd, and includes general use areas for the fall migration, rutting, and winter seasons.
<b>Moose:</b>	Generally low late winter habitat quality, though ribbons of high value habitat follow major creeks.
<b>Marten:</b>	Variable winter habitat value, though generally moderate or high.
<b>Sheep:</b>	Virtually no sheep habitat.
<b>Fish:</b>	Fish likely present throughout unit.
<b>Grizzly Bear:</b>	Moderate to high habitat suitability.
<b>Birds:</b>	Some peregrine foraging habitat along Peel River; high value waterbird habitat, riparian areas; low to high breeding spp. richness and moderate species of conservation concern (high pockets)
<b>Vegetation:</b>	Low-mid elev. wet/dry herb and shrub, and dry coniferous forest.
<b>Wetlands and Lakes:</b>	Wetlands along Peel River and a few scattered wetlands within unit.
<b>Riparian Areas:</b>	Dalglish Creek and Enterprise Creek.
<b>Major River Corridors:</b>	Adjacent to Peel River (LMU 11F).
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	TG and TH travel routes along Dalglish to Peel; many VG and TG archaeological sites; TG culturally important places.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Few old unclassified linear features and historic trail to Eagle Plains via the Wind River; a conceptual access route has been identified in this unit <sup>46</sup> ; two airstrips.
<b>Traditional Economy:</b>	TG seasonal land use and traditional harvesting and wildlife areas.
<b>Recreation and Tourism:</b>	No identified high value recreation.
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	Partially in TG group trapping concession.
<b>Oil and Gas Resources:</b>	Eagle plains basin; highest potential in the PWPR; three abandoned wells, one capped well. Oil and gas permit (#0014 & #0015) and Significant Discovery Licenses (SDL-020 & SDL-021).
<b>Mineral Resources:</b>	No quartz claims <sup>47</sup> ; low general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Approximately 50% of unit was affected by fire in the summer of 2005.</li> <li>2. NND Traditional Territory, VGFN Traditional Territory (north and west ends of unit), TGFN Primary and Secondary Use Areas (all of unit).</li> </ol>	

<sup>46</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

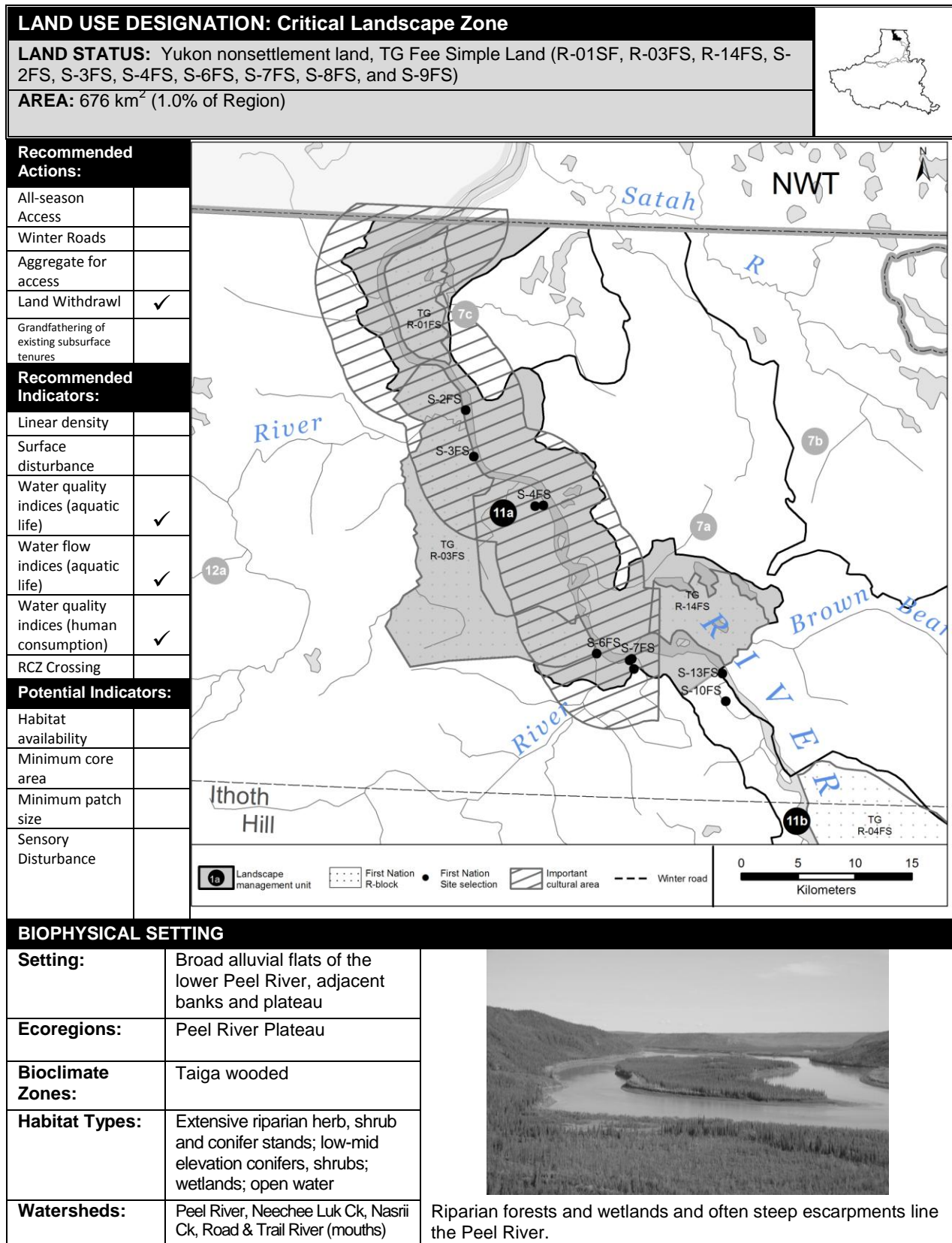
<sup>47</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LMU #10: Eagle Plains****Sub-unit #10B: Canyon Creek**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Moderate habitat suitability for the Porcupine herd, and is often part of the migratory route.
<b>Moose:</b>	Generally low late winter habitat quality, though ribbons of high value habitat follow Canyon Creek.
<b>Marten:</b>	Variable winter habitat value, though generally moderate or high.
<b>Sheep:</b>	Virtually no sheep habitat.
<b>Fish:</b>	Fish likely present throughout unit.
<b>Grizzly Bear:</b>	Moderate to high habitat suitability.
<b>Birds:</b>	High value waterbird habitat along riparian areas; low to high breeding spp. richness and moderate species of conservation concern (high pockets)
<b>Vegetation:</b>	Low-mid elev. wet/dry herb and shrub, and dry coniferous forest.
<b>Wetlands and Lakes:</b>	Wetlands along Peel River.
<b>Riparian Areas:</b>	Canyon Creek.
<b>Major River Corridors:</b>	Canyon Creek; adjacent to Peel River (LMU 11F)
<b>Special Features:</b>	Wildlife passes, Canyon Creek Canyon.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	TG and TH travel routes along Canyon Creek to Peel River (and Vyah Creek); TG culturally important places.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Few old unclassified linear features. Adjacent to floatplane landing on the Peel River at Canyon Creek.
<b>Traditional Economy:</b>	TG seasonal land use and traditional harvesting and wildlife areas.
<b>Recreation and Tourism:</b>	Little current tourism, though the canyon on Canyon Creek has very high tourism potential.
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	Partially in TG group trapping concession.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Some quartz claims <sup>48</sup> ; some moderate general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory (entire unit), VGFN and TGFN Secondary Use Area (northern half of unit), and TGFN Primary Use Area (southern half of unit).	

<sup>48</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.



**LMU #11: Peel River Mainstem****Sub-unit #11A: Teet'it njik**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Variable habitat suitability for the Porcupine herd, and moderate to high habitat suitability for the Boreal herd.
<b>Moose:</b>	Extensive moderate valued late winter habitat with pockets of high value habitat along the Peel River. Traditional place to hunt moose.
<b>Marten:</b>	Generally moderate to high value winter habitat.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Fish present throughout; several known spawning sites, sea-run fish spawning at southern end.
<b>Grizzly Bear:</b>	Mostly low to moderate habitat suitability.
<b>Birds:</b>	Very high peregrine foraging and nesting habitat along Peel River; moderate waterbird habitat, riparian areas; low to mod breeding spp. richness and species of conservation concern.
<b>Vegetation:</b>	Low-mid elev. dry/wet shrub and coniferous forest, and some dry herb.
<b>Wetlands and Lakes:</b>	Wetland complexes scattered along Peel River. Chi Itree and Seguin Lakes
<b>Riparian Areas:</b>	Peel River, Trail River, Road River and several large tributaries.
<b>Major River Corridors:</b>	Peel River.
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Travel route along the Peel River, several connecting routes from the Peel River to the east; highest concentration of TG cabins and culturally important places. Highest concentration of VG and TG archaeological sites.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Many old winter roads, use of Peel River for winter access, limited barging.
<b>Traditional Economy:</b>	TG fishing location; VG general harvesting location; TG traditionally harvesting and wildlife areas and seasonal land use areas.
<b>Recreation and Tourism:</b>	High value wilderness paddling; one primitive campsite.
<b>Big Game Outfitters:</b>	No registered trapping concessions.
<b>Trapping:</b>	Several traplines spur off and along the Peel River. TG group trapping concession.
<b>Oil and Gas Resources:</b>	Peel Plateau and Plain basin; moderate potential; two abandoned wells.
<b>Mineral Resources:</b>	No mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. The Gwich'in Social and Cultural Institute (2003) proposed a "Heart of the TGFN National Historic Site" covering the core of this unit and LMU 11C. The management direction of this unit should be harmonious with that proposal.</li> <li>2. The extensive cultural value and proximity to Fort McPherson give this unit high potential for the location of cultural camps.</li> <li>3. Indicators of potability should be tracked on the Peel mainstem with results being communicated to the community of Fort McPherson.</li> <li>4. TGFN Primary Use Area and NND Traditional Territory (entire unit).</li> </ol>	

**LMU #11: Peel Mainstem****Sub-unit #11B: Peel Mainstem****LAND USE DESIGNATION: Critical Landscape Zone**

**LAND STATUS:** Yukon nonsettlement land, TG Fee Simple Land (R-04FS, R-05SF, R-08FS, R-1213FS, S-10FS, S-11FS).

**AREA:** 977 km<sup>2</sup> (1.5% of Region)

**Recommended Actions:**

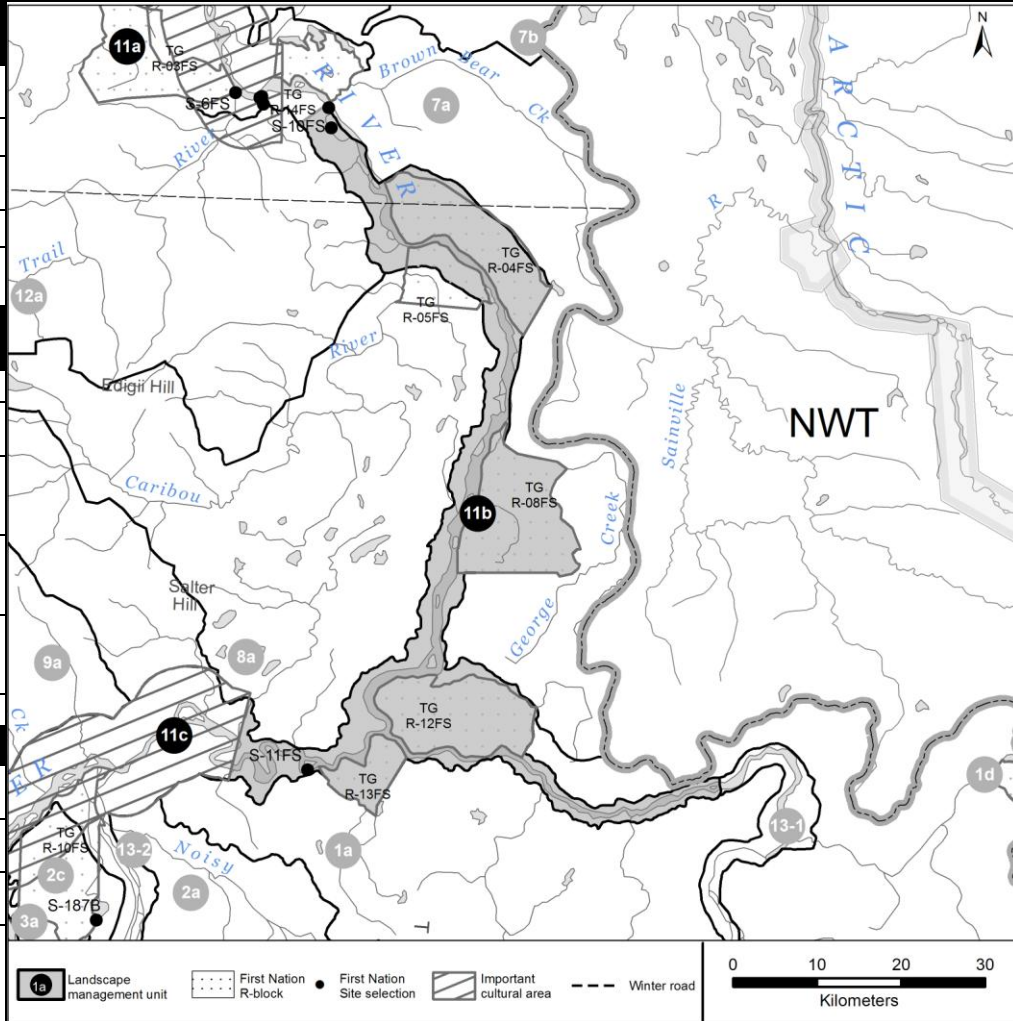
All-season Access	~
Winter Roads	~
Aggregate for access	
Land Withdrawal	✓
Grandfathering of existing subsurface tenures	

**Recommended Indicators:**

Linear density	
Surface disturbance	
Water quality indices (aquatic life)	✓
Water flow indices (aquatic life)	✓
Water quality indices (human consumption)	✓
RCZ Crossing	

**Potential Indicators:**

Habitat availability	
Minimum core area	
Minimum patch size	
Sensory Disturbance	

**BIOPHYSICAL SETTING**

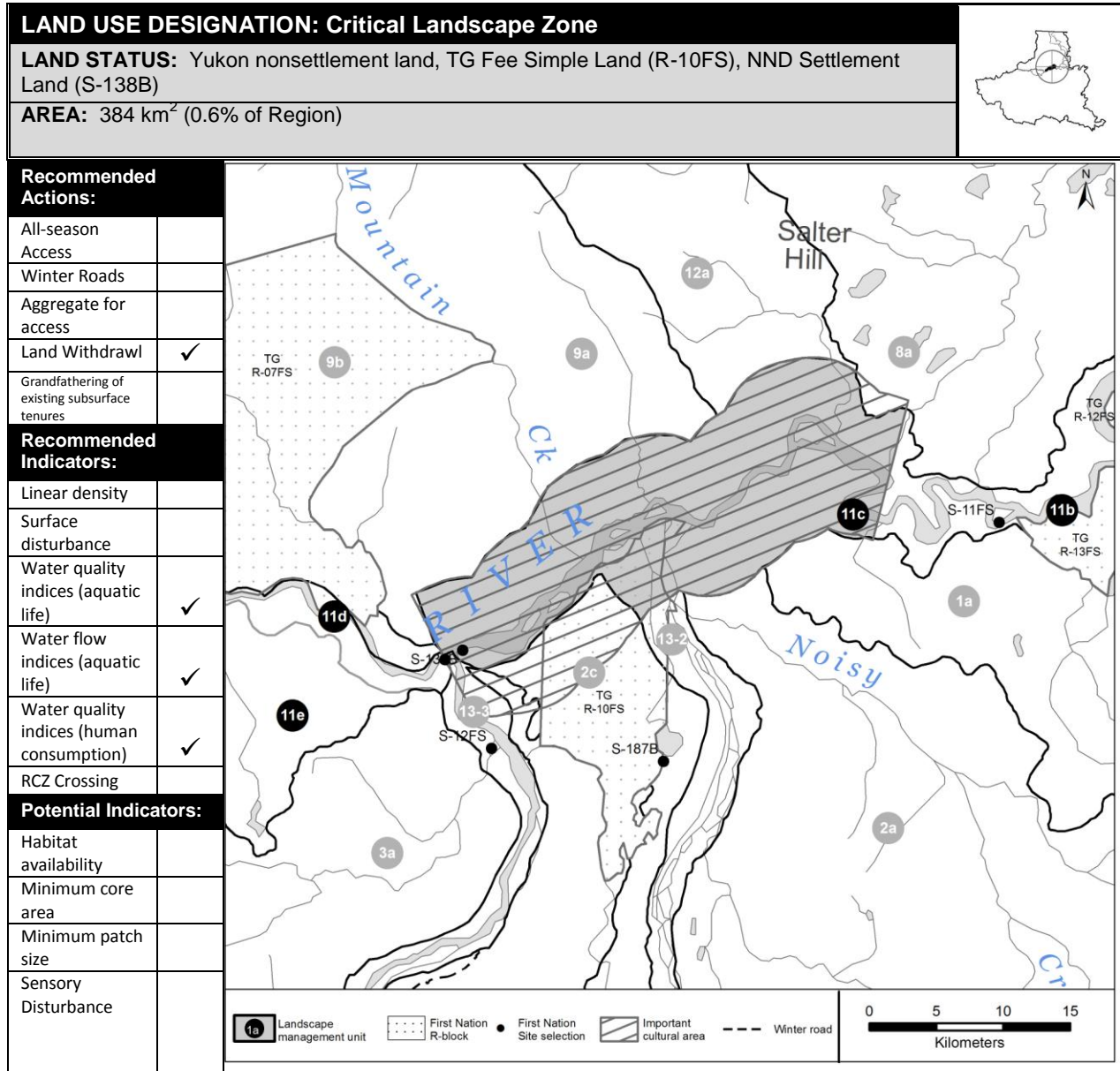
<b>Setting:</b>	Broad alluvial flats of the lower Snake River and mid Peel River, adjacent banks and plateau
<b>Ecoregions:</b>	Peel River Plateau
<b>Bioclimate Zones:</b>	Taiga wooded
<b>Habitat Types:</b>	Extensive riparian herb, shrub and conifer stands; low-mid elevation conifers, shrubs; wetlands; open water
<b>Watersheds:</b>	Peel River, lower snake River, Cooking Rocks Ck, George Ck




The Snake River about 3km about its mouth. Riparian forests, gravel bars and escarpments are common along the lower Snake and Peel Rivers.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	This area is a general border between the Porcupine (west & south), Bonnet Plume (south), and Boreal herds (north & east), and generally contains moderate habitat potentials.
<b>Moose:</b>	Extensive moderate valued late winter habitat with pockets of high value habitat along the Peel River. Traditional place to hunt moose.
<b>Marten:</b>	Generally moderate to high value winter habitat.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Fish present throughout Peel River, several known spawning locations, sea-run fish spawning throughout; a few winter open water sites.
<b>Grizzly Bear:</b>	Mostly low to moderate habitat suitability.
<b>Birds:</b>	Very high peregrine foraging and nesting habitat along Peel River; moderate waterbird habitat, riparian areas; low to mod breeding spp. richness and species of conservation concern.
<b>Vegetation:</b>	Low-mid elevation dry/wet shrub and coniferous forest.
<b>Wetlands and Lakes:</b>	Large lake and wetland complexes along Peel River
<b>Riparian Areas:</b>	Peel River, Snake River, George Creek and Caribou River mouth.
<b>Major River Corridors:</b>	Peel River, Snake River.
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	High concentration of VG and TG cabins along the Peel River (especially Caribou River and Brown Bear Creek); several culturally important places on the Peel.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Many old winter roads, use of Peel River for winter access; one floatplane landing.
<b>Traditional Economy:</b>	Many fishing locations, big game/fur-bearer locations; TG traditional harvesting and wildlife areas and seasonal land use.
<b>Recreation and Tourism:</b>	High value wilderness paddling; one primitive campsite.
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	Traplines along Peel River and lower Snake River; TG group trapping concession.
<b>Oil and Gas Resources:</b>	Peel Plateau and Plain basin; moderate potential; two abandoned wells.
<b>Mineral Resources:</b>	No mineral potential; one coal occurrence found.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. This unit has extensive cultural value to the TG.</li> <li>2. NND Traditional Territory and TGFN Primary Use Area (entire unit).</li> </ol>	

**Sub-unit #11C: Tshuu tr'adaojiich'uu**



**BIOPHYSICAL SETTING**

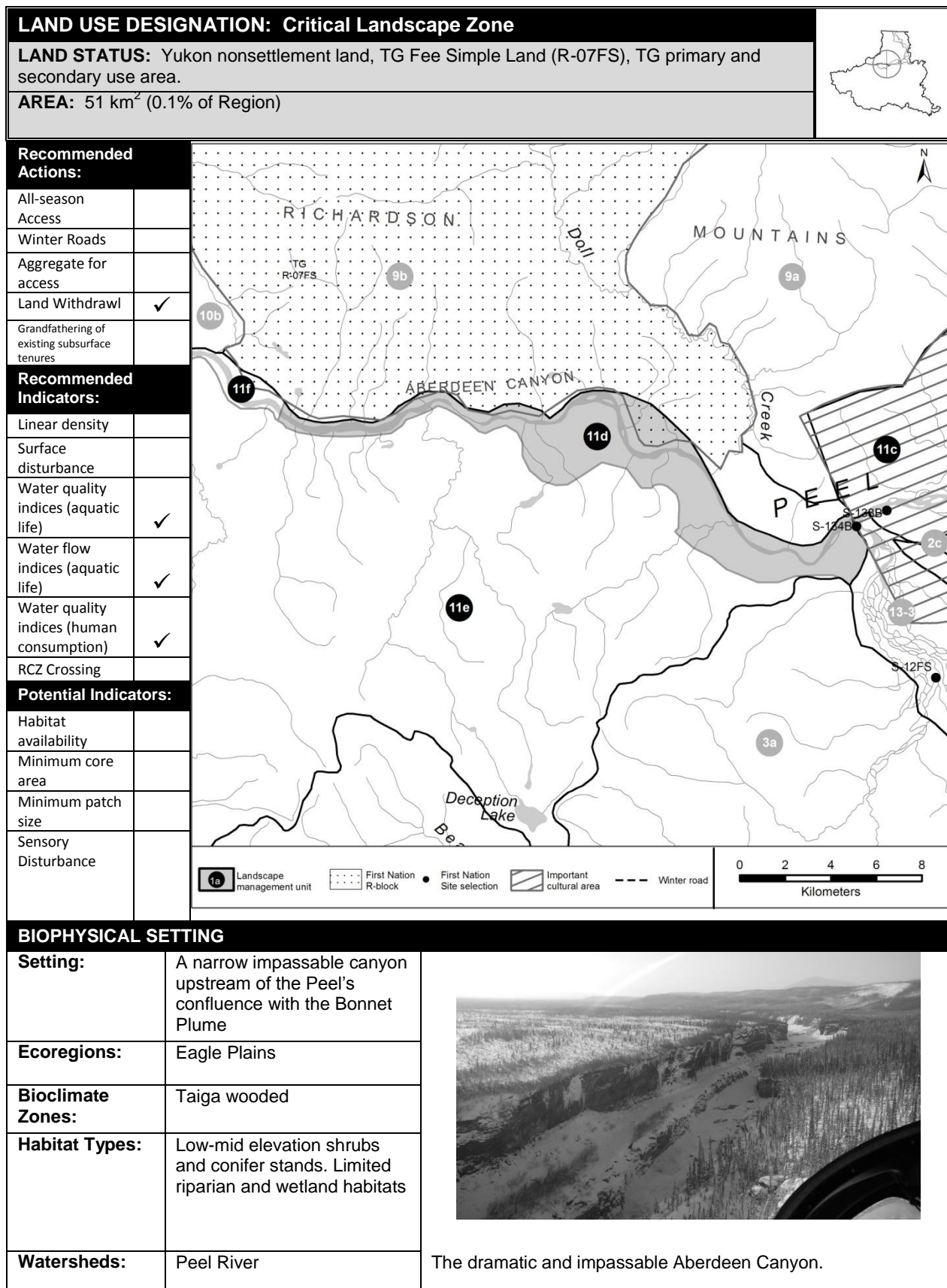
<b>Setting:</b>	Broad alluvial fans at confluences of the Peel with the Wind & Bonnet Plume Rivers funneling into the Peel Canyon.	
<b>Ecoregions:</b>	Peel River Plateau and British Richardson Mountains	
<b>Bioclimate Zones:</b>	Taiga wooded	
<b>Habitat Types:</b>	Extensive riparian herb, shrub and conifer stands; low-mid elevation conifers, shrubs and herbs; wetlands; open water	
<b>Watersheds:</b>	Peel River, Bonnet Plume River, Mountain, Aghoo and Diikee Creeks (mouths)	

Exposed and smoking coal seams are visible along the escarpment of the Peel River between the Wind and Bonnet Plume Rivers.



<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Variable habitat suitability for the Porcupine herd, and low to nil habitat suitability for the Bonnet Plume herd.
<b>Moose:</b>	Extensive moderate valued late winter habitat with pockets of high value habitat along the Peel River. Traditional place to hunt moose.
<b>Marten:</b>	Generally moderate value winter habitat.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Fish present throughout, several known spawning locations, sea-run fish spawning throughout; a few winter open water sites; winter surface groundwater throughout.
<b>Grizzly Bear:</b>	Low to high habitat suitability, highest at river confluences and riparian areas.
<b>Birds:</b>	Very high peregrine foraging and nesting habitat along Peel River; moderate waterbird habitat; low to mod breeding spp. richness and species of conservation concern.
<b>Vegetation:</b>	Low-mid elev. dry/wet herb and shrub.
<b>Wetlands and Lakes:</b>	Wetland complexes along Peel River and confluences; key wetland area (YG) Chappie Lake.
<b>Riparian Areas:</b>	Peel River, Wind River and Bonnet Plume River.
<b>Major River Corridors:</b>	Peel River.
<b>Special Features:</b>	Peel Canyon; Ezhinakàn (Burning Rock).
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	High concentration of VG and TG culturally important places; One cabin identified. Several travel routes connecting to the Peel River with travel route along the Peel.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Many old winter roads; a conceptual access route has been identified in this unit <sup>49</sup> downstream of the Bonnet Plume River confluence with the Peel River. Small motorboats can go up the Peel Canyon.
<b>Traditional Economy:</b>	TG seasonal land use.
<b>Recreation and Tourism:</b>	High value wilderness paddling.
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	Trapline along the Bonnet Plume; TG group trapping concession.
<b>Oil and Gas Resources:</b>	Peel Plateau and Plain basin; moderate potential; four abandoned wells.
<b>Mineral Resources:</b>	A little moderate general mineral potential; coal potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. NND Traditional Territory and TGFN Primary Use Area (entire unit).</li> <li>2. The Gwich'in Social and Cultural Institute (2003) proposed a "Heart of the TGFN National Historic Site" covering the core of this unit and LMU 11A. The management direction of this unit should be harmonious with that proposal.</li> </ol>	

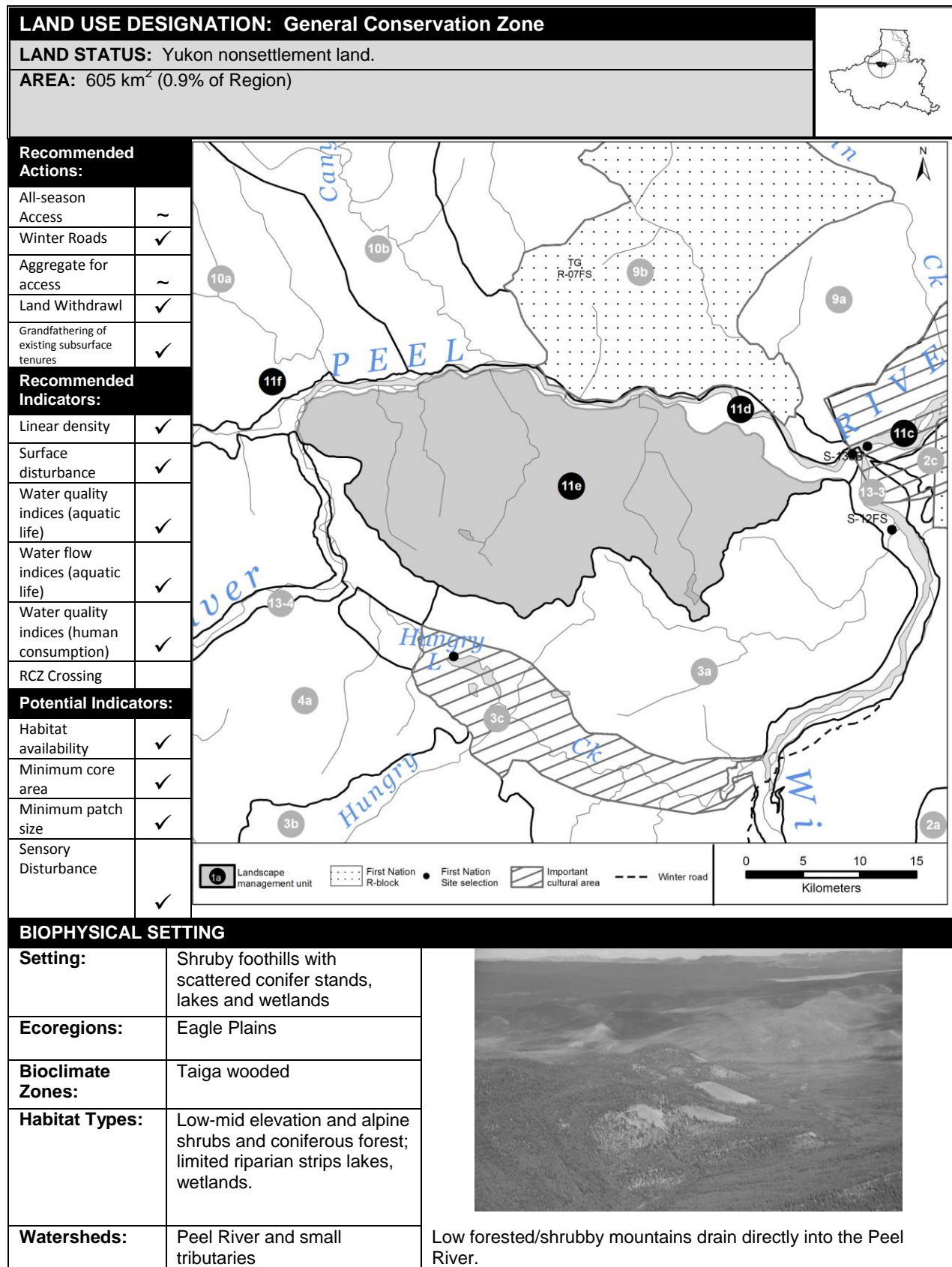
<sup>49</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

**LMU #11: Peel River Mainstem****Sub-unit #11D: Aberdeen Canyon**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Moderate habitat suitability for the Porcupine herd, with winter and rutting general use areas at the western end near the Ogilvie-Blackstone confluence.
<b>Moose:</b>	Extensive moderate to high valued late winter habitat.
<b>Marten:</b>	Generally moderate to high value winter habitat.
<b>Sheep:</b>	Pockets of suitable winter habitat.
<b>Fish:</b>	Upper limit to migrating anadromous fish; barrier between some distinct fish populations, one known winter open water site.
<b>Grizzly Bear:</b>	Low to high habitat suitability, highest at river confluences and riparian areas.
<b>Birds:</b>	Very high peregrine foraging and nesting habitat along Peel River (esp. Aberdeen Canyon); high value waterbird habitat; low to high breeding spp. richness and low to moderate species of conservation concern.
<b>Vegetation:</b>	Low-mid elev. wet and dry shrub, dry conifer forest, riparian shrub and subalpine shrub.
<b>Wetlands and Lakes:</b>	Wetland complexes along Peel River and confluences.
<b>Riparian Areas:</b>	Peel River and several large tributaries.
<b>Major River Corridors:</b>	Peel River.
<b>Special Features:</b>	Aberdeen Canyon.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Travel routes along the Peel River with connection to Canyon Creek travel routes. Some culturally important places in Aberdeen Canyon.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	One old winter road; one floatplane landing.
<b>Traditional Economy:</b>	Overlap between TH, TG and VG traditional harvesting and wildlife areas.
<b>Recreation and Tourism:</b>	Offers a challenging portage to wilderness paddlers; scenic views in Aberdeen Canyon.
<b>Big Game Outfitters:</b>	No registered trapping concessions.
<b>Trapping:</b>	Connectivity to traplines along the Hart River; TG group trapping concession.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Adjacent to some quartz claims <sup>50</sup> ; some moderate general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. The hydroelectric potential of this canyon was assessed in the 1960s and 70s to be high; however, the scale, limited demand and hydrologic concerns related to this project makes its feasibility unlikely.</li> <li>2. The scenic views of Aberdeen Canyon should be maintained.</li> <li>3. NND Traditional Territory and TGFN Primary Use Area (entire unit).</li> </ol>	

<sup>50</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.



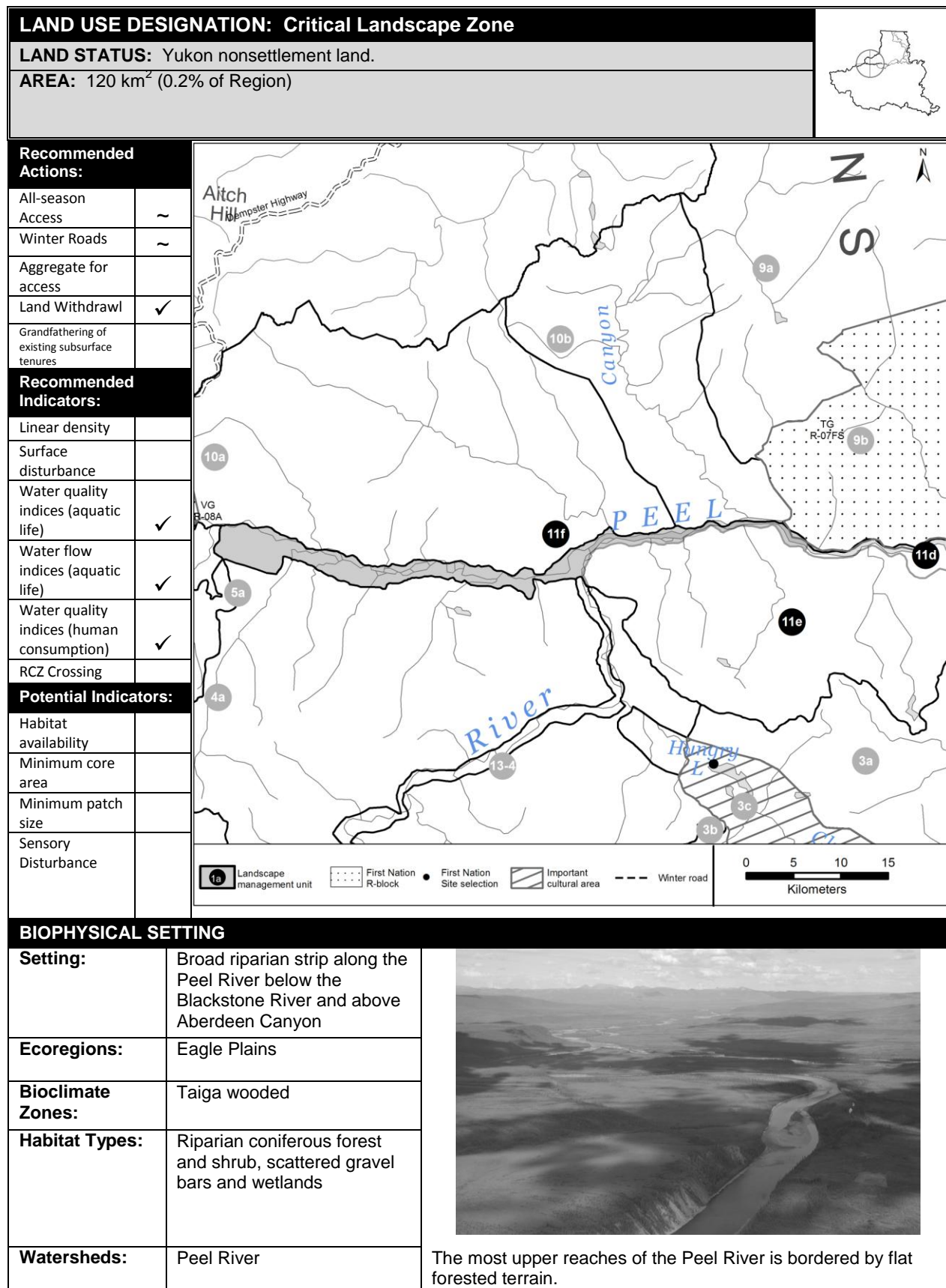
**LMU #11: Peel River Mainstem****Sub-unit #11E: Deception Lake**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Moderate habitat suitability for the Porcupine herd and some general winter use.
<b>Moose:</b>	Extensive moderate to high valued late winter habitat.
<b>Marten:</b>	Generally moderate to high value winter habitat.
<b>Sheep:</b>	Little/no suitable winter habitat.
<b>Fish:</b>	Fish presence probable throughout.
<b>Grizzly Bear:</b>	Moderate to high habitat suitability.
<b>Birds:</b>	Peregrine foraging habitat; scattered waterbird habitat; low to high breeding spp. richness and low to moderate species of conservation concern.
<b>Vegetation:</b>	Low-mid elev. wet and dry shrub, dry conifer forest, riparian shrub and subalpine shrub.
<b>Wetlands and Lakes:</b>	Scattered lakes and wetlands.
<b>Riparian Areas:</b>	Peel River.
<b>Major River Corridors:</b>	Peel River.
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Some culturally important places.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Adjacent to floatplane landing on the Peel River at Canyon Creek.
<b>Traditional Economy:</b>	Overlap between TH and TG traditional harvesting and wildlife areas.
<b>Recreation and Tourism:</b>	Adjacent to high value wilderness paddling.
<b>Big Game Outfitters:</b>	No registered trapping concessions.
<b>Trapping:</b>	Connectivity to traplines along the Hart River; TG group trapping concession.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	One large block of quartz claims <sup>51</sup> ; some moderate general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory and TGFN Primary Use Area (entire unit).	

<sup>51</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

# LMU #11: Peel River Mainstem

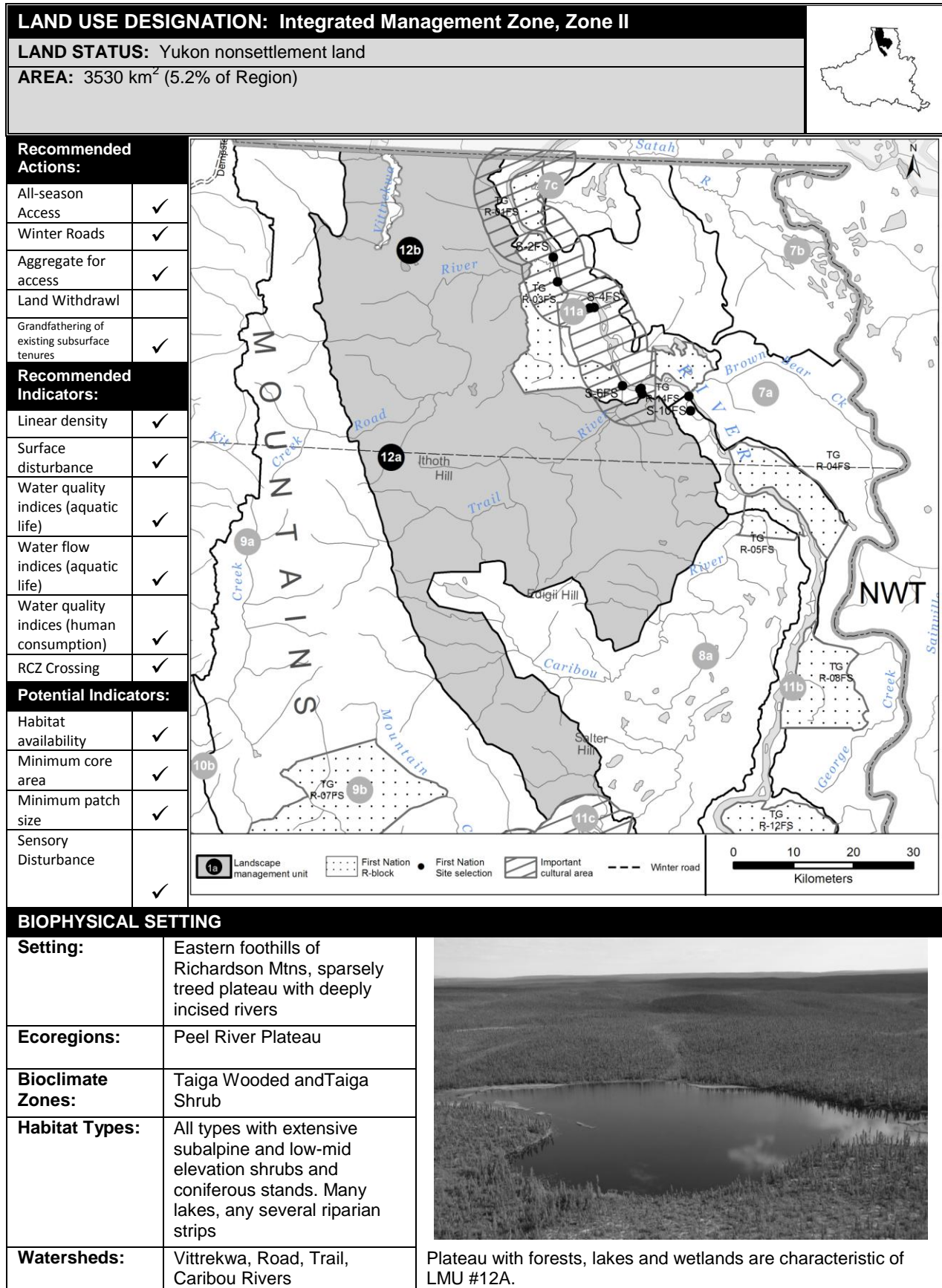
## Sub-unit #11F: Upper Peel River



<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Moderate habitat suitability for the Porcupine herd, with winter and rutting general use areas at the western end near the Ogilvie-Blackstone confluence.
<b>Moose:</b>	Extensive moderate to high valued late winter habitat.
<b>Marten:</b>	Generally moderate to high value winter habitat.
<b>Sheep:</b>	No suitable winter habitat.
<b>Fish:</b>	Fish presence throughout; several larger confluences.
<b>Grizzly Bear:</b>	Low to high habitat suitability, highest at river confluences and riparian areas.
<b>Birds:</b>	Peregrine foraging habitat; high value waterbird habitat; high breeding spp. richness and low to moderate species of conservation concern.
<b>Vegetation:</b>	Riparian shrub, herb and conifers.
<b>Wetlands and Lakes:</b>	Wetland complexes along Peel River and confluences.
<b>Riparian Areas:</b>	Peel River and several large tributaries including Hart River.
<b>Major River Corridors:</b>	Peel River.
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Travel routes along the Peel River with connection to Canyon Creek travel routes. Some culturally important places.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	One old winter road linking Eagle Plains and the Wind River; a conceptual access route has been identified in this unit <sup>52</sup> that roughly follows this old winter road.
<b>Traditional Economy:</b>	Overlap between TH, TG and VG traditional harvesting and wildlife areas.
<b>Recreation and Tourism:</b>	High value wilderness paddling.
<b>Big Game Outfitters:</b>	No registered trapping concessions.
<b>Trapping:</b>	Connectivity to traplines along the Hart River; TG group trapping concession.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Some quartz claims <sup>53</sup> ; some moderate general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. Straddles TGFN Primary and Secondary Use Areas and the Traditional Territories of the VGFN, NND, THFN.	

<sup>52</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>53</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

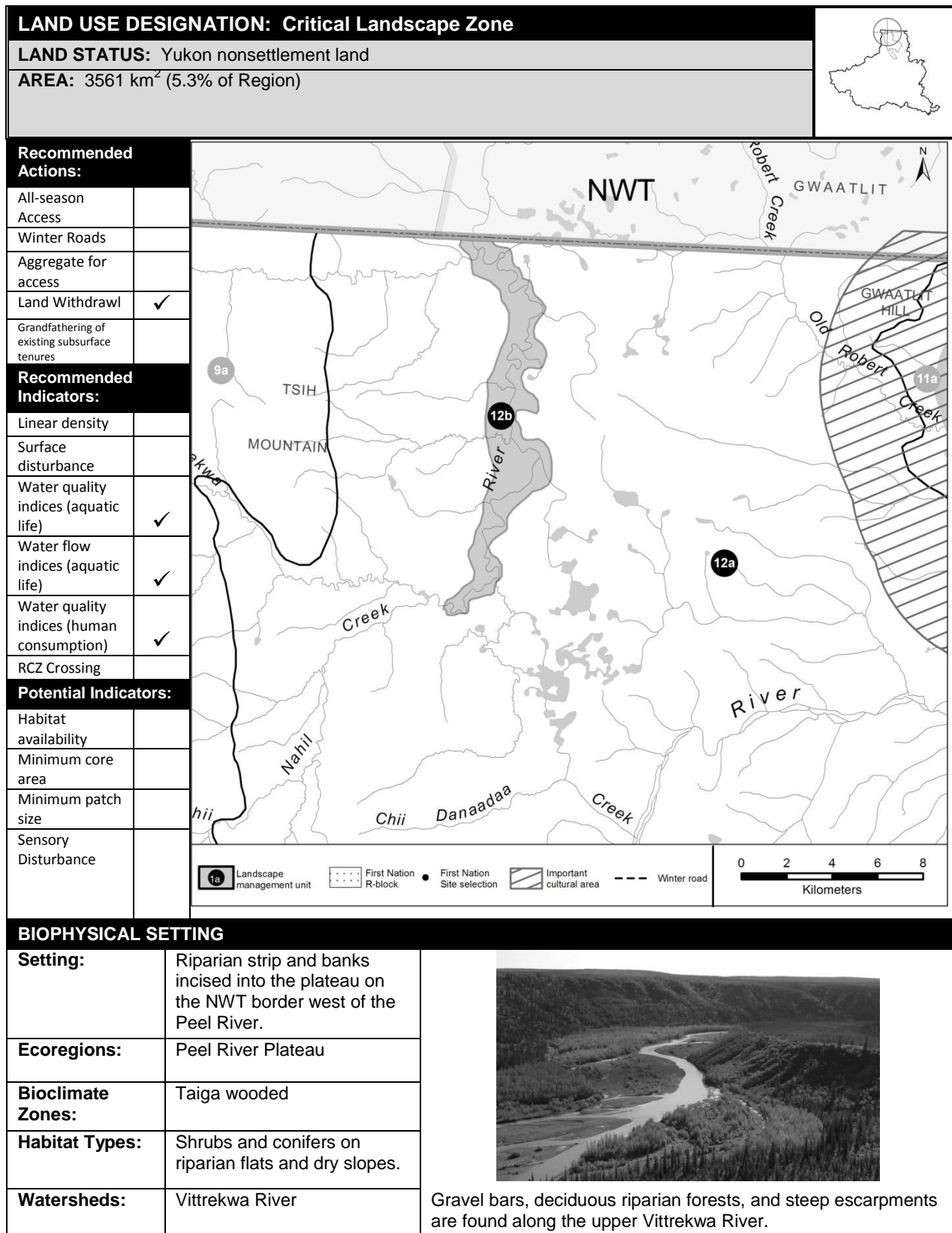
**LMU #12: Peel River Drainage - Peel Plateau****Sub-unit #12A: Peel Plateau**



<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Variable habitat suitability for the Porcupine herd, with concentrated use in two seasons: winter (foothill tributaries to the Road River), and rutting (west of the Vittrekwa River). Evidence of more frequent and intense use in the past.
<b>Moose:</b>	Variable quality late winter moose habitat – generally moderate, with ribbons of high. High habitat use along incised tributaries.
<b>Marten:</b>	Extensive and concentrated moderate to high winter habitat suitability.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Fish presence likely throughout; Trail River upstream of key sea-run fish spawning site; sea-run fish spawning site on Vittrekwa River; other known fish spawning sites; and known winter overflow site.
<b>Grizzly Bear:</b>	Low habitat suitability increasing to moderate towards the Richardson foothills and riparian areas.
<b>Birds:</b>	Very high peregrine foraging and nesting habitat along Peel River; moderate waterbird habitat; low to high breeding spp. richness and species of conservation concern (high near Richardsons).
<b>Vegetation:</b>	Low-mid elev. dry/wet shrub and conifer forest; riparian forests and shrubs
<b>Wetlands and Lakes:</b>	Several large lakes and wetland complexes and hundreds of scattered wetlands; key wetland area (YG) around Vittrekwa River and Lakes.
<b>Riparian Areas:</b>	Road River, Trail River, Caribou River, Vittrekwa River.
<b>Major River Corridors:</b>	Road River, Trail River, Caribou River, Vittrekwa River.
<b>Special Features:</b>	Mineral lick; wildlife passes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Highest concentration of connecting travel routes between the Peel River (upper and lower) and Richardson Mountains; concentration of VG and TG archeological sites on the foothills on the Richardson Mountains; several TG and VG culturally important places.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Highest concentration of old winter roads and linear features; a conceptual access route has been identified in this unit <sup>54</sup> connecting Road River to the Bonnet Plume River watershed; one airstrip.
<b>Traditional Economy:</b>	TG traditional harvesting and wildlife areas and seasonal land use; TG fish harvest on Trail River.
<b>Recreation and Tourism:</b>	No identified current recreation values, though high potential along Road and Caribou Rivers
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	Several traplines; TG group trapping concession.
<b>Oil and Gas Resources:</b>	Peel Plateau and Plain basin; low (west) to moderate (east) potential on either side of the Trevor fault; five abandoned wells. Oil and gas permit (#0018).
<b>Mineral Resources:</b>	A few quartz claims <sup>55</sup> ; some low to moderate general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Much of this unit is underlain with permafrost. Significant changes in permafrost can lead to catastrophic shifts in hydrology because of the proximity of “perched wetlands” to incised valleys. Surface disturbance should be minimized to reduce permafrost damage.</li> <li>2. Several slopes have failed in recent years, thus underscoring slope instabilities.</li> <li>3. The preferred access route to this unit is south from the Dempster Highway in the NWT.</li> <li>4. NND Traditional Territory and TGFN Primary Use Area (entire unit).</li> </ol>	

<sup>54</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

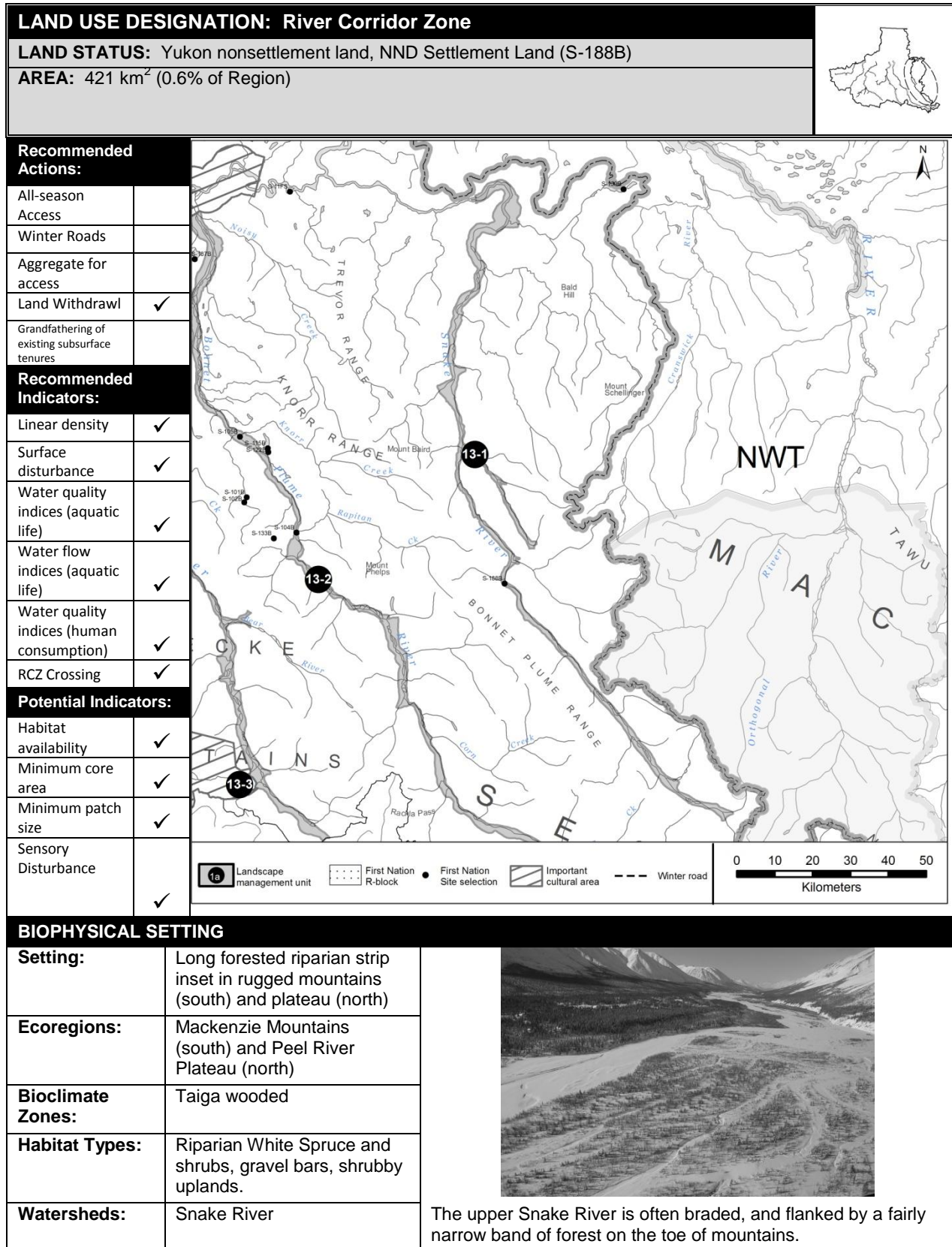
<sup>55</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LMU #12: Peel River Drainage - Peel Plateau****Sub-unit #12B: Vittrekwa River**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Variable habitat suitability for the Porcupine herd, with general use in winter and concentrated use in rutting season.
<b>Moose:</b>	High habitat use and quality.
<b>Marten:</b>	Concentrated moderate to high winter habitat suitability.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Regionally unique sea-run fish (Dolly Varden) spawning site just upstream; Fish presence likely throughout;
<b>Grizzly Bear:</b>	Moderate to high habitat suitability.
<b>Birds:</b>	Moderate waterbird habitat; Moderate breeding spp. richness and species of conservation concern .
<b>Vegetation:</b>	Low-mid elev. dry/wet shrub and conifer forest.
<b>Wetlands and Lakes:</b>	Several large lakes and wetland complexes and hundreds of scattered wetlands; key wetland area (YG) around Vittrekwa River and Lakes.
<b>Riparian Areas:</b>	Vittrekwa River
<b>Major River Corridors:</b>	Vittrekwa River
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Concentration of TG travel routes; includes TG culturally important place.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	No surface access, though is bisected by several seismic lines or trails.
<b>Traditional Economy:</b>	TG traditional harvesting and wildlife areas and seasonal land use..
<b>Recreation and Tourism:</b>	No identified recreation values.
<b>Big Game Outfitters:</b>	No registered concessions.
<b>Trapping:</b>	Several traplines; TG group trapping concession.
<b>Oil and Gas Resources:</b>	Peel Plateau and Plain basin with low potential.
<b>Mineral Resources:</b>	Noquartz claims <sup>56</sup> ; lowest general mineral potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
1. NND Traditional Territory and TGFN Primary Use Area (entire unit).	

<sup>56</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.



**LMU #13: Southern River Corridors****Sub-unit #13-1: Snake River Corridor**

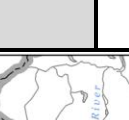
<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Extensive high value winter habitat and key winter use areas of the Bonnet Plume herd
<b>Moose:</b>	High habitat suitability late winter habitat.
<b>Marten:</b>	Generally high quality winter habitat.
<b>Sheep:</b>	No sheep habitat except around mineral licks and trails to them.
<b>Fish:</b>	Fish presence throughout in summer; over wintering sites limited.
<b>Grizzly Bear:</b>	High grizzly bear habitat suitability – riparian areas are key in the mountains.
<b>Birds:</b>	High potential for peregrine falcon nesting and foraging habitat; moderate - high waterbird habitat; high breeding birds species richness; moderate to high species of concern.
<b>Vegetation:</b>	Riparian White Spruce and shrubs, gravel bars, shrubby uplands.
<b>Wetlands and Lakes:</b>	Pockets of small wetlands and lakes throughout the unit.
<b>Riparian Areas:</b>	Snake River
<b>Major River Corridors:</b>	Significant corridor.
<b>Special Features:</b>	Regionally significant concentration of mineral licks, caribou migration corridor
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Very few cabins, travel routes on the Snake River.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Old winter road; a conceptual access route has been identified in this unit <sup>57</sup> running the length of this corridor south of Popcornfish Lake. Floatplane access to adjacent Duo Lakes.
<b>Traditional Economy:</b>	Fishing and access to game hunting and trapping areas.
<b>Recreation and Tourism:</b>	Highest current value in the region. High value wilderness paddling and access to hiking.
<b>Big Game Outfitters:</b>	Bonnet Plume Outfitters Ltd. and Widrig Outfitting Ltd. Extensive high value hunting.
<b>Trapping:</b>	TG group trapping concession, and single trapping concessions 10, 11, 12, 46, 47 & 48.
<b>Oil and Gas Resources:</b>	Moderate oil and gas potential in Peel Plateau and Plain Basin at north end.
<b>Mineral Resources:</b>	Moderate-high mineral potential (zinc-lead, iron); small area of coal potential; no existing claims <sup>58</sup> .
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. No surface access allowed in this unit (including river crossings).</li> <li>2. NND Traditional Territory (entire unit) and TGFN Primary Use Area (northern portion).</li> </ol>	

<sup>57</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>58</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LMU #13: Southern River Corridors**  
**Sub-unit #13-2: Bonnet Plume River Corridor**

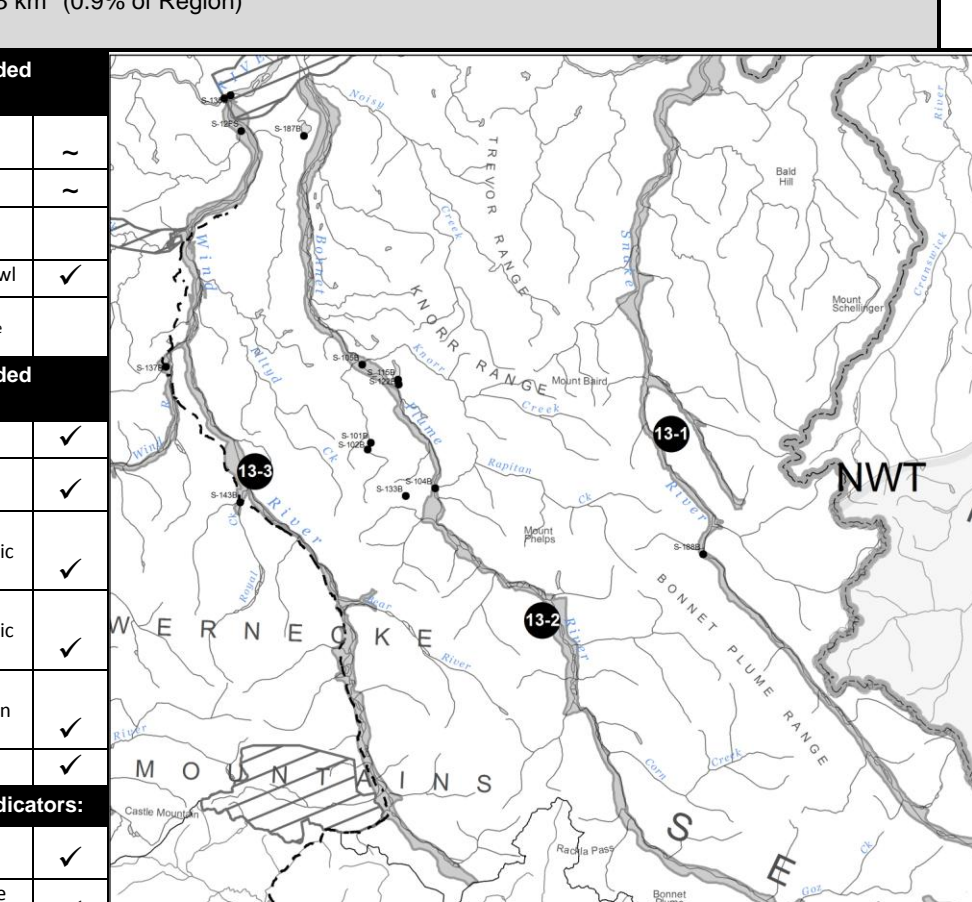
<b>LAND USE DESIGNATION:</b> River Corridor Zone	
<b>LAND STATUS:</b> Yukon nonsettlement land, TG Fee Simple Land (R-10FS), NND Settlement Lands (S-104B, S-105B).	
<b>AREA:</b> 613 km <sup>2</sup> (0.9% of Region)	



<b>Recommended Actions:</b>	
All-season Access	~
Winter Roads	~
Aggregate for access	
Land Withdrawal	✓
Grandfathering of existing subsurface tenures	

<b>Recommended Indicators:</b>	
Linear density	✓
Surface disturbance	✓
Water quality indices (aquatic life)	✓
Water flow indices (aquatic life)	✓
Water quality indices (human consumption)	✓
RCZ Crossing	✓

<b>Potential Indicators:</b>	
Habitat availability	✓
Minimum core area	✓
Minimum patch size	✓
Sensory Disturbance	✓



1a

Landscape management unit

First Nation R-block

First Nation Site selection

Important cultural area

Winter road

0 10 20 30 40 50

Kilometers

BIOPHYSICAL SETTING	
<b>Setting:</b>	Long forested riparian strip inset in rugged mountains (south) and plateau (north)
<b>Ecoregions:</b>	Mackenzie Mountains (south) and Peel River Plateau (north)
<b>Bioclimate Zones:</b>	Taiga wooded
<b>Habitat Types:</b>	Riparian White Spruce and shrubs, gravel bars, shrubby uplands.
<b>Watersheds:</b>	Bonnet Plume River

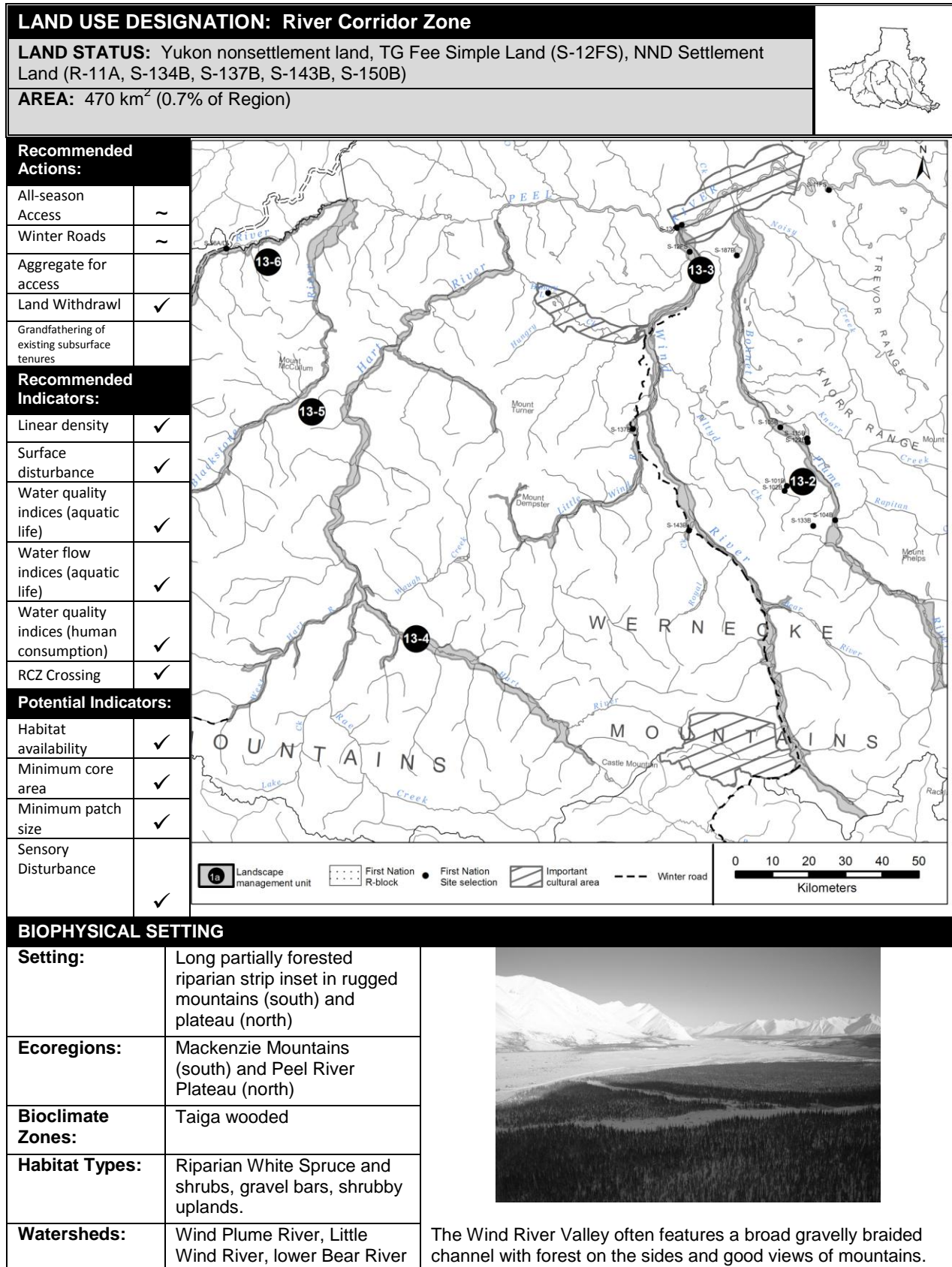
The braided Bonnet Plume River above a narrowing of the valley. The valley generally has a broad, forested bottom.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Extensive high value winter habitat. Most dense collection of key areas of the Bonnet Plume herd
<b>Moose:</b>	High habitat suitability late winter habitat.
<b>Marten:</b>	Generally high quality winter habitat.
<b>Sheep:</b>	No sheep habitat except around mineral licks and trails to them.
<b>Fish:</b>	Fish presence throughout in summer; over wintering sites limited.
<b>Grizzly Bear:</b>	High grizzly bear habitat suitability – riparian areas are key in the mountains.
<b>Birds:</b>	High potential for peregrine falcon nesting and especially foraging habitat; moderate - high waterbird habitat; high breeding birds species richness; moderate to high species of concern.
<b>Vegetation:</b>	Riparian White Spruce and shrubs, gravel bars, shrubby uplands.
<b>Wetlands and Lakes:</b>	Pockets of small wetlands and lakes throughout the unit.
<b>Riparian Areas:</b>	Bonnet Plume River
<b>Major River Corridors:</b>	Significant corridor.
<b>Special Features:</b>	Regionally significant concentration of mineral licks, caribou migration corridor
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Upper corridor less intensely travelled; scattered identified cabins or other sites. TH travel route from McClusky Lake (Wind Watershed) to Bonnet Plume River. Lower reaches important to VGFN.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Conceptual access routes have been identified in this unit <sup>59</sup> crossing near Margaret Lake and also running from Bonnet Plume Pass to Duo Lakes. Floatplane access to adjacent Lakes.
<b>Traditional Economy:</b>	Fishing and access to game hunting and trapping areas (NND, TG, TH).
<b>Recreation and Tourism:</b>	High value wilderness recreation along the Bonnet Plume River including high value hiking, viewsapes and wildlife viewing; Canadian Heritage River.
<b>Big Game Outfitters:</b>	Bonnet Plume Outfitting Ltd. and Widrig Outfitting Ltd. Extensive high value hunting.
<b>Trapping:</b>	TGFN group trapping concession & single trapping concessions 9,11,12, 42, 46, 47, 48, 50 & 51.
<b>Oil and Gas Resources:</b>	Low oil and gas potential in Bonnet Plume Basin at north end.
<b>Mineral Resources:</b>	Highest concentration of quartz claims <sup>60</sup> in river corridor; coal licenses with highest coal potential; some iron potential; mostly moderate with some high copper/gold/uranium potential; moderate to high zinc-lead.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. NND Traditional Territory (entire unit) and TGFN Primary Use Area (northern portion).</li> <li>2. Only one river crossing is permitted to provide access for a mine development on existing claims. Roads running along this unit are not allowed.</li> <li>3. Surface access for mine development on existing claims should parallel the river for the minimum distance possible.</li> </ol>	

<sup>59</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>60</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

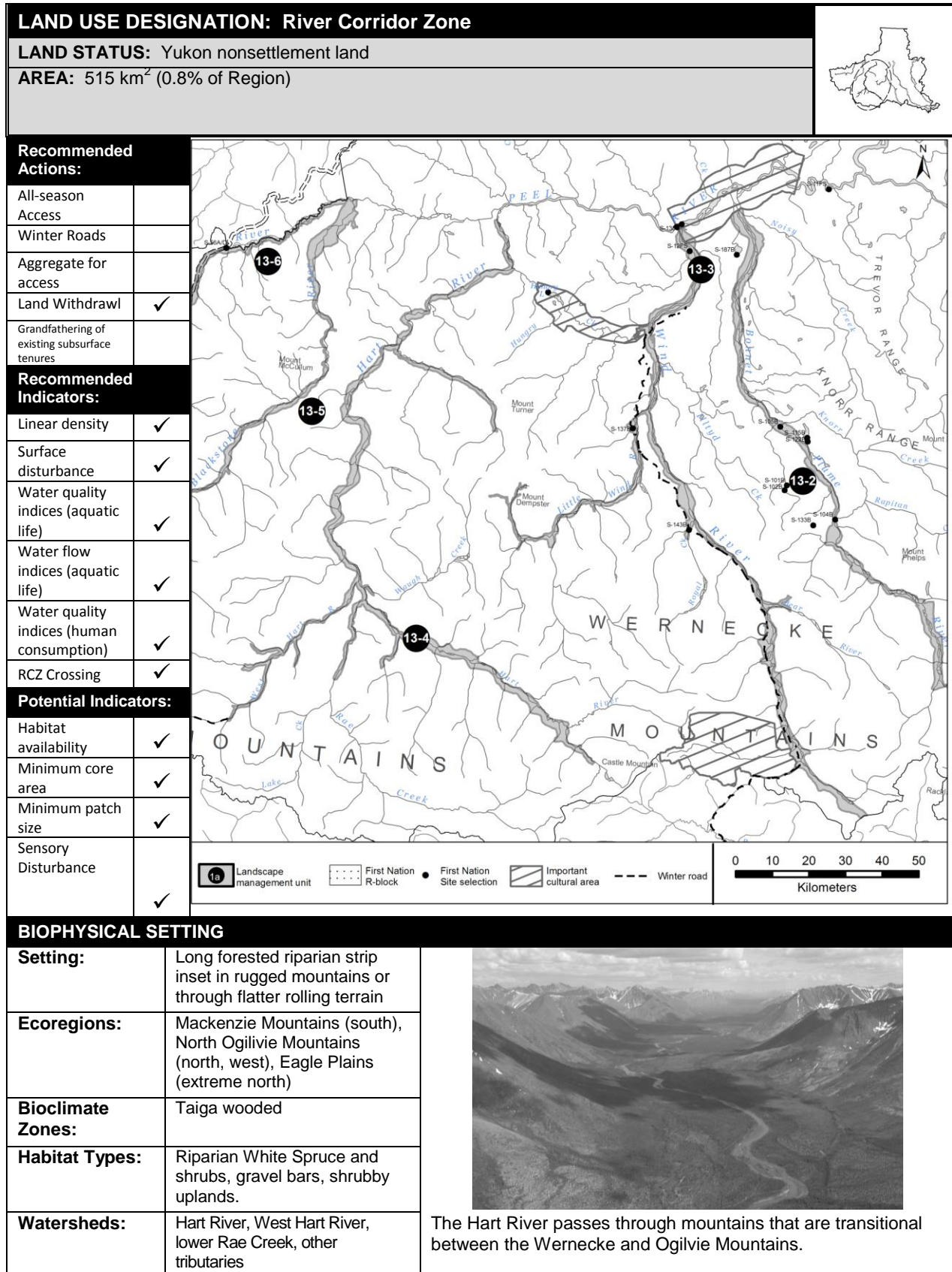


**LMU #13: Southern River Corridors****Sub-unit #13-3: Wind River Corridor**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value winter habitat of the Hart River and Bonnet Plume herds concentrated along forested valley bottoms, with corresponding key winter and fall use. Extensive moderate winter habitat potential for the Porcupine herd.
<b>Moose:</b>	High habitat suitability and use in valley bottoms especially north and south of McClusky Lk and at mouth of Bear River.
<b>Marten:</b>	High value winter habitat in valley-bottom forests. More extensive habitat near mouths of both Bear and Royal Cks.
<b>Sheep:</b>	No sheep habitat except around mineral licks and trails to them.
<b>Fish:</b>	Winter overflow, open water and surface groundwater locations, known fish occupancy and spawning sites, fish presence likely in rivers and larger tributaries.
<b>Grizzly Bear:</b>	High grizzly bear habitat suitability – riparian areas are key in the mountains.
<b>Birds:</b>	High potential for peregrine falcon nesting and foraging habitat; moderate - high waterbird habitat; high breeding birds species richness; moderate to high species of concern.
<b>Vegetation:</b>	Riparian White Spruce and shrubs, gravel bars, shrubby uplands.
<b>Wetlands and Lakes:</b>	Scattered small wetlands and lakes.
<b>Riparian Areas:</b>	Little Wind River, lower Bear Creek, Wind River.
<b>Major River Corridors:</b>	Wind River.
<b>Special Features:</b>	Several mineral licks, especially along Wind River; documented and possible wildlife passes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Important travel route on along Wind River with connectivity to areas south of the Wind River Watershed and from McClusky Lake to Bonnet Plume River. Cabins with concentration around McClusky Lake; culturally important place identified in lower Little Wind River.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Wind River trail winter road; a conceptual access route has been identified in this unit <sup>61</sup> along the Wind River with connectivity to the Little Wind and Bonnet Plume Rivers. Five airstrips and two floatplane landings (McClusky Lake and Wind River)
<b>Traditional Economy:</b>	NND traditional harvesting and wildlife areas and TG seasonal land use; NND big game/fur-bearing locations along Wind River, Bear Creek and McClusky Lake (most sites located in upper watershed).
<b>Recreation and Tourism:</b>	High value wilderness paddling, hiking and wildlife viewing especially in connected river valleys; put-in access at McClusky Lake.
<b>Big Game Outfitters:</b>	Midnight Sun Outfitting Ltd and Bonnet Plume Outfitting Ltd. High value hunting.
<b>Trapping:</b>	Three trapping leases (camps); single trapping concessions 7, 33, 40, & 42.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Some quartz claims <sup>62</sup> ; one partial coal license; moderate copper/gold/uranium potential and zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. NND Traditional Territory (entire unit) and TGFN Primary Use Area (northern portion).</li> <li>2. Only one river crossing is permitted to provide access for a mine development on existing claims.</li> <li>3. Surface access for mine development on existing claims should parallel the river for the minimum distance possible; however, for accessing existing claims in LMU 2, routes should be selected to primarily minimize the distance parallel to the Bonnet Plume River, and secondarily minimize the distance parallel to the Wind River. The existing right-of-way should be used notwithstanding other considerations in the plan.</li> </ol>	

<sup>61</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>62</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

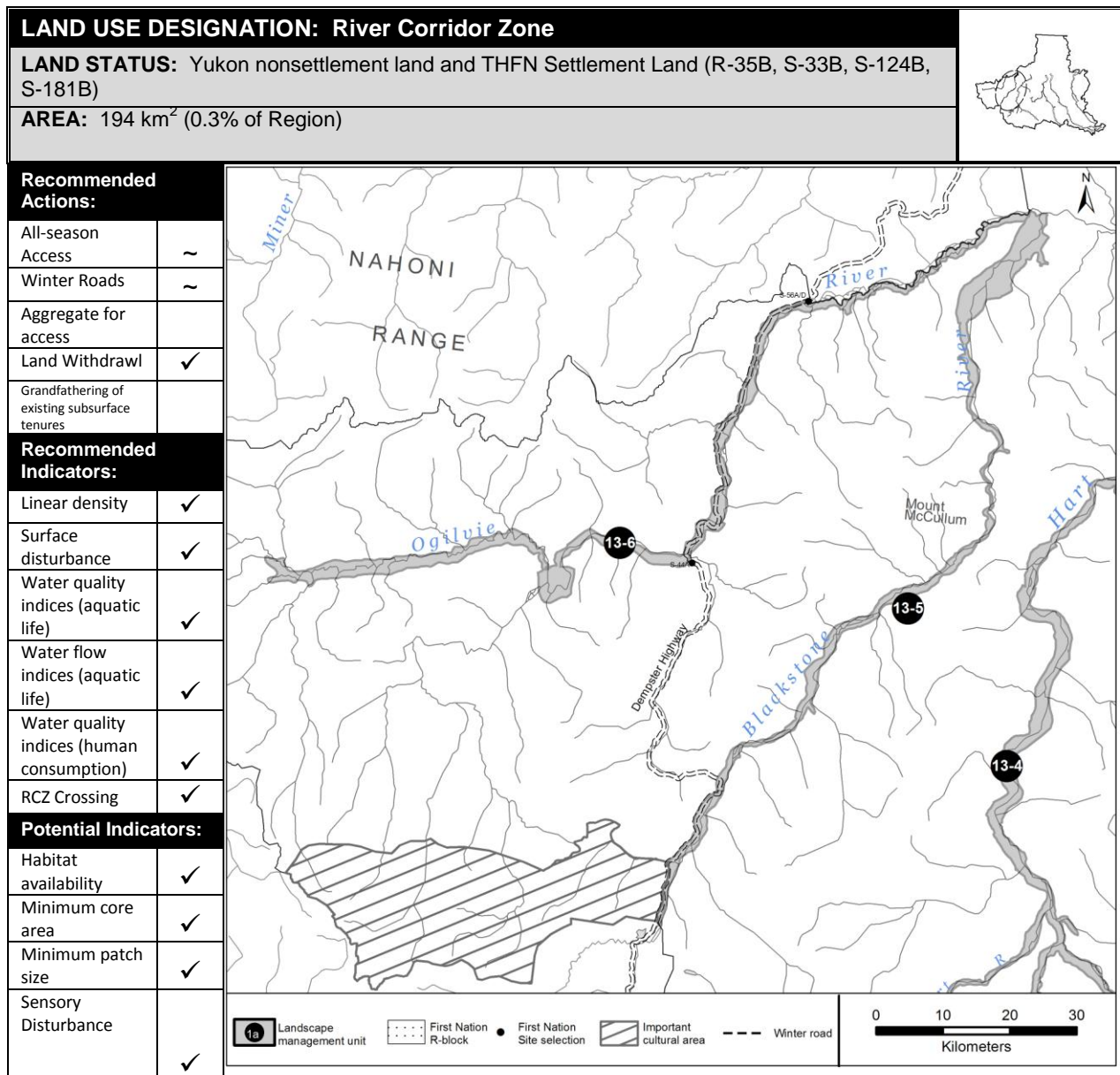
**LMU #13: Southern River Corridors****Sub-unit #13-4: Hart River Corridor**

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	High value migratory habitat of the Hart with corresponding key winter and fall use. Extensive moderate winter habitat potential for the Porcupine herd and corresponding use.
<b>Moose:</b>	Broad swathes of high habitat suitability and use.
<b>Marten:</b>	High value winter habitat especially in the headwaters.
<b>Sheep:</b>	No sheep habitat except around mineral licks and trails to them.
<b>Fish:</b>	Known fish occupancy sites, fish presence likely in rivers; overwintering sites are limiting.
<b>Grizzly Bear:</b>	High grizzly bear habitat suitability – riparian areas are key in the mountains.
<b>Birds:</b>	High potential for peregrine falcon foraging and nesting along lower Hart River ; high value waterbird habitat in riparian areas; high breeding birds species richness; moderate number species of conservation concern.
<b>Vegetation:</b>	Riparian White Spruce and shrubs, gravel bars, shrubby uplands.
<b>Wetlands and Lakes:</b>	Scattered small wetlands and lakes.
<b>Riparian Areas:</b>	Hart River, West Hart River, lower Rae Creek, other tributaries
<b>Major River Corridors:</b>	Hart River, West Hart River
<b>Special Features:</b>	Scattered mineral licks; documented and possible wildlife passes. Broad valley bottom in headwaters is regionally significant.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Extensive travel routes connecting to Blackstone River, to Dempster Hwy/Tombstone (via West Hart River), to Little Wind River (via Waugh Creek), and to Wind River (via Hungry Lakes). Travel route also through Rae Creek.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Few old winter roads in the lower section of unit; a conceptual access route has been identified in this unit <sup>63</sup> between Hungry Lakes and Peel River, and Waugh Creek to West Hart/Dempster Hwy. Three airstrips.
<b>Traditional Economy:</b>	TH traditional harvesting and wildlife areas and TG seasonal land use; TH fish harvesting.
<b>Recreation and Tourism:</b>	Very high values for wilderness paddling. Extensive wilderness hiking in the headwaters of West Hart and Hart Rivers. Road access to West Hart, Fly-in put-in access in upper Hart River (Hart Lake, Elliot Lake and Worm lake); horseback touring.
<b>Big Game Outfitters:</b>	Blackstone Outfitting Ltd., Midnight Sun Outfitting Ltd and Pete Jensen Outfitting Ltd.; high value hunting.
<b>Trapping:</b>	Trapline between Hungry Lakes and Hart River to Blackstone River; lower Hart River group trapping concession 402; Eight trapping leases (camps); single trapping concessions 6, 7, 16, 21, 33, 34, 35, 40, & 41; partially in TG group trapping concession.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Few quartz claims <sup>64</sup> ; low copper/gold/uranium potential; moderate zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. No surface access allowed in this unit (including river crossings).</li> <li>2. NND Traditional Territory (all of unit), THFN Traditional Territory (western portion), VGFN Traditional Territory and TGFN Primary and Secondary Use Areas (northern portion).</li> </ol>	

<sup>63</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>64</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.



**LMU #13: Southern River Corridors****Sub-unit #13-5: Blackstone River Corridor****BIOPHYSICAL SETTING**

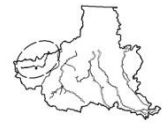
<b>Setting:</b>	Long forested riparian strip passing through two bands of mountains with flatter rolling terrain between
<b>Ecoregions:</b>	North Ogilvie Mountains
<b>Bioclimate Zones:</b>	Taiga wooded
<b>Habitat Types:</b>	Riparian White Spruce and shrubs, gravel bars, shrubby uplands.
<b>Watersheds:</b>	Blackstone River, North Cache Creek



The Blackstone River passes through both open, flat terrain, and, as above, narrow valleys.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Probable migratory habitat of the Hart herd. Extensive moderate winter habitat potential for the Porcupine herd and corresponding use.
<b>Moose:</b>	Swathes of high habitat suitability and use.
<b>Marten:</b>	Moderate value winter habitat.
<b>Sheep:</b>	No sheep habitat except around mineral licks and trails to them.
<b>Fish:</b>	Known fish occupancy sites, fish presence likely in rivers; overwintering sites limiting.
<b>Grizzly Bear:</b>	High grizzly bear habitat suitability – riparian areas are key in the mountains.
<b>Birds:</b>	High potential for peregrine falcon foraging and nesting ; high value waterbird habitat; high breeding birds species richness; moderate number species of conservation concern.
<b>Vegetation:</b>	Riparian White Spruce and shrubs, gravel bars, shrubby uplands.
<b>Wetlands and Lakes:</b>	Scattered small wetlands/oxbows and lakes.
<b>Riparian Areas:</b>	Blackstone River
<b>Major River Corridors:</b>	Blackstone River
<b>Special Features:</b>	Scattered mineral licks; documented and possible wildlife passes.
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	Culturally important area, few culturally important sites and several cabins (TGfN, THfN, NND) along Blackstone River; important travel routes along Blackstone River and across unit from Engineer Creek to Hart River.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Proposed pipeline ROW runs through/near the unit; Dempster Highway Development Area along river in southern portion of unit. Old unidentified trails; two airstrips in lower section of unit.
<b>Traditional Economy:</b>	Several TH big game/fur-bearer locations concentrated close to the Dempster Hwy; TH traditional harvesting and wildlife areas in lower Blackstone River; TH fish harvesting.
<b>Recreation and Tourism:</b>	Wilderness hiking and high value road-accessible “wilderness” paddling opportunities.
<b>Big Game Outfitters:</b>	Blackstone Outfitters Ltd. and high value hunting.
<b>Trapping:</b>	TH trapline along Blackstone River; single trapping concessions 6, 16, & 20.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	Some quartz claims <sup>65</sup> ; some low copper/gold/uranium potential; moderate zinc-lead potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Culturally important first hunt of the THfN occurs at the south end of this unit, often in the North Cache Creek area. Unrelated development is discouraged in this area.</li> <li>2. Maintaining the visual quality of mountain views along this segment of the Dempster Highway is a management priority.</li> <li>3. NND Traditional Territory (east of Dempster Highway), VGfN Traditional Territory (north end of unit), THfN Traditional Territory (all of unit).</li> <li>4. Only one river crossing is permitted to provide access for a mine development on existing claims.</li> <li>5. All-season road access for mine development on existing claims should parallel the river for the minimum distance possible.</li> </ol>	

<sup>65</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

**LMU #13: Southern River Corridors****Sub-unit #13-6: Ogilvie River Corridor****LAND USE DESIGNATION: River Corridor Zone****LAND STATUS:** Yukon nonsettlement land, THFN Settlement Land (R-40B) and VGFN Settlement Land (S-56A/D)**AREA:** 236 km<sup>2</sup> (0.4% of Region)**Recommended Actions:**

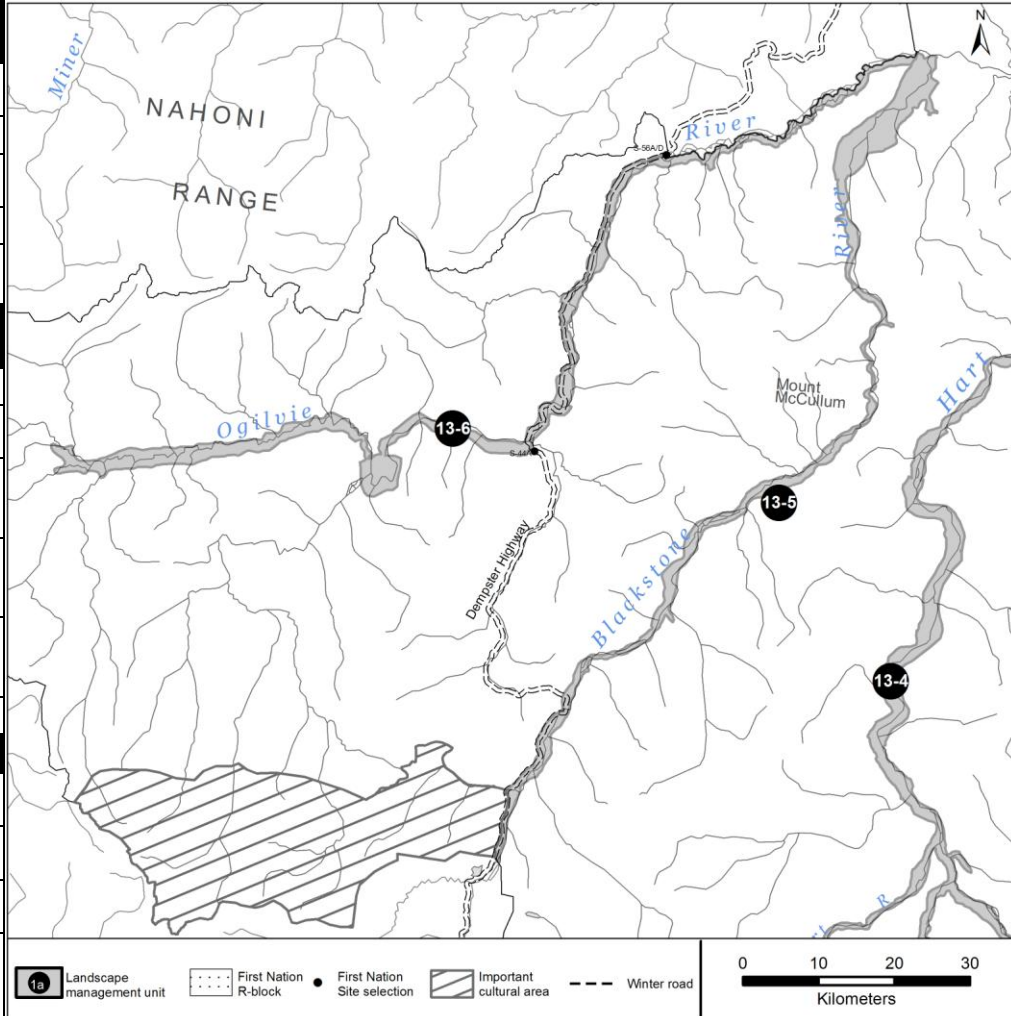
All-season Access	~
Winter Roads	~
Aggregate for access	
Land Withdrawal	✓
Grandfathering of existing subsurface tenures	

**Recommended Indicators:**

Linear density	✓
Surface disturbance	✓
Water quality indices (aquatic life)	✓
Water flow indices (aquatic life)	✓
Water quality indices (human consumption)	✓
RCZ Crossing	✓

**Potential Indicators:**

Habitat availability	✓
Minimum core area	✓
Minimum patch size	✓
Sensory Disturbance	✓

**BIOPHYSICAL SETTING**

<b>Setting:</b>	Long forested riparian strip passing through a band of mountains with flatter rolling terrain on either side
<b>Ecoregions:</b>	North Ogilvie Mountains
<b>Bioclimate Zones:</b>	Taiga wooded
<b>Habitat Types:</b>	Riparian White Spruce and shrubs, gravel bars, shrubby uplands.
<b>Watersheds:</b>	Ogilvie River



The Ogilvie River is paralleled by the Dempster Highway for much of its length.

<b>ECOLOGICAL RESOURCES</b>	
<b>SIGNIFICANT WILDLIFE and FISH HABITATS</b>	
<b>Caribou:</b>	Extensive moderate winter habitat potential for the Porcupine herd and corresponding use.
<b>Moose:</b>	Swathes of high habitat suitability and use.
<b>Marten:</b>	Moderate value winter habitat.
<b>Sheep:</b>	No sheep habitat.
<b>Fish:</b>	Known fish occupancy sites, fish presence likely in rivers; overwintering sites limiting.
<b>Grizzly Bear:</b>	High grizzly bear habitat suitability – riparian areas are key in the mountains.
<b>Birds:</b>	High potential for peregrine falcon foraging and nesting ; high value waterbird habitat; moderate breeding birds species richness; moderate number species of conservation concern.
<b>Vegetation:</b>	Riparian White Spruce and shrubs, gravel bars, shrubby uplands.
<b>Wetlands and Lakes:</b>	Scattered small wetlands/oxbows and lakes.
<b>Riparian Areas:</b>	Ogilvie River
<b>Major River Corridors:</b>	Ogilvie River
<b>Special Features:</b>	
<b>HERITAGE, SOCIAL and CULTURAL RESOURCES</b>	
<b>Routes and Sites:</b>	A few travel corridors around Engineer Creek. Several cabins (THFN, VGFN, TGFN, NND) along Dempster Hwy. TH culturally important areas.
<b>ECONOMIC DEVELOPMENT</b>	
<b>Transportation and Access:</b>	Some old unclassified trails; Dempster Highway, Dempster Highway Development Area; Proposed pipeline ROW; A conceptual access route has been identified in and parallel to this unit <sup>66</sup> along Ogilvie River and connecting to Miner River and Fifteenmile River.
<b>Traditional Economy:</b>	TH traditional harvesting and wildlife area and fishing (TH&NND) locations. TG traditional harvest and wildlife area along Dempster Hwy. Some VG traditional harvesting and wildlife area in northern section of unit.
<b>Recreation and Tourism:</b>	High recreation potential along Dempster Highway with great scenery available to motorists/"front-country" tourists. Day trip paddles are possible in this unit.
<b>Big Game Outfitters:</b>	Blackstone Outfitting Ltd.; high value hunting;
<b>Trapping:</b>	Several TH traplines; two trapping leases (camps); single trapping concessions 3, 6, 16, and 387.
<b>Oil and Gas Resources:</b>	No potential.
<b>Mineral Resources:</b>	No quartz claims <sup>67</sup> ; some moderate general potential.
<b>SPECIAL MANAGEMENT CONSIDERATIONS</b>	
<ol style="list-style-type: none"> <li>1. Maintaining the visual quality of mountain views along this segment of the Dempster Highway is a management priority.</li> <li>2. Potential new all-season access roads into LMU #6A from the Dempster corridor require careful assessment and management.</li> <li>3. Only one river crossing is permitted to provide access for a mine development on existing claims.</li> <li>4. All-season road access for mine development on existing claims should parallel the river for the minimum distance possible.</li> <li>5. NND Traditional Territory (east of Dempster Highway), VGFN Traditional Territory (north end of unit), THFN Traditional Territory (all of unit)</li> </ol>	

<sup>66</sup> Source: Yukon Government, Department of Energy Mines and Resources. 2003.

<sup>67</sup> Claims spatial database, Department of Energy Mines and Resources. Feb, 2009.

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## 7. Plan Implementation and Revision

The implementation of a land use plan is a crucial stage in the planning process, which provides clear directions for moving forward on key Plan recommendations. The Draft Plan is presented without prejudice to any decision the Parties may wish to take. It is intended primarily to demonstrate the Commission's regard for its Guiding Documents. Its Terms of Reference, in particular, require that the Plan to give effect to provisions of the following Agreements:

1. Yukon First Nation Land Claim Agreements of the Vuntut Gwitchin First Nation, Tr'ondëk Hwëch'in First Nation, and First Nation of the Nacho Nyak Dun;
2. Gwich'in Comprehensive Land Claim Agreement (Yukon Transboundary Agreement, Chapter 3 and Chapter 7); and,
3. Yukon Northern Affairs Program Devolution Transfer Agreement (Chapter 2, Chapter 7, Appendix D).

It is during implementation that the guiding principles, goals, and objectives of the Plan are put into action. Periodic monitoring of Plan implementation activities provides an opportunity to evaluate its effectiveness, to determine if goals and objectives are being met, and to determine whether the Plan has been used in land and resource decision-making processes. If land-use circumstances change in the region, changes to the Plan may be necessary.

The Parties will develop a detailed Plan implementation strategy concurrently with, or subsequent to, the approval of a Final Land Use Plan.

### 7.1 Plan Implementation Responsibilities

The governments of the Yukon, Na-Cho Nyak Dun, Tr'ondëk Hwëch'in, Vuntut Gwitchin, and the Gwich'in Tribal Council are the Parties to the Peel Watershed Regional Land Use Plan. They have primary responsibilities for Plan implementation. These responsibilities may also involve other groups, including the following:

- Peel Watershed Planning Commission (PWPC);
- Yukon Land Use Planning Council (YLUPC);
- Yukon Environmental and Socio-economic Assessment Board (YESAB);
- Government of Canada; and,
- UFA boards and committees.

Until such time as an agreement between the Parties has been reached, implementation roles and responsibilities for other groups are uncertain.

<b>RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>A detailed Plan implementation strategy should be developed on a timeline concurrent with that of the review and approval process for a Final Land Use Plan.</i></li> </ul>
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In the following table, we outline how the Plan goals and objectives are linked to relevant sections of the Umbrella Final Agreement and the associated individual Final Agreements of Na-Cho Nyak Dun, Tr'ondëk Hwëch'in and Vuntut Gwitchin, the Gwich'in Comprehensive Land Claim Agreement, and Yukon Northern Affairs Program Devolution Transfer Agreement.

**Table 7.1. Peel Watershed Regional Land-Use Plan Linkages<sup>1</sup> (11.1.1.6, 11.2.1.2, 11.4.5.8).**

Land-Use Plan Management Goals and Objectives		Suggested Linkages	
		To Umbrella Final Agreement	To Yukon and Canada Land-Use Regulations and Policies
<i>Management Goal 1: Promote plan principles by ensuring social, cultural, economic, and environmental policies are applied to the management, protection, and use of land, water, and resources in an integrated and coordinated manner.</i>			
<b>Coordinated Land Use Management</b>			
	<b>Integrated Land-Use Management</b>	11.1.1.6, 11.4.5.9, 11.2.1.2, 11.4.5.8	<ul style="list-style-type: none"> <li>• Waters Act</li> <li>• Environment Act</li> <li>• Special Waste Regulation</li> <li>• Contaminated Sites Regulation</li> <li>• Canadian Environmental Protection Act</li> <li>• Yukon-Northwest Territories River Basin Transboundary Water Mgt Agreement</li> <li>• YG Climate Change &amp; Energy Policies</li> </ul>
	<b>Cumulative Effects</b>	12.17.0, 12.4.1.2	
	<b>Surface Disturbances</b>	12.17.0	
	<b>Hydrological Disturbances</b>	12.17.0 14.11.0 14.12.0	
	<b>Contaminated Sites</b>	12.17.0	
	<b>Climate Change Effects</b>		
<i>Management Goal 2: Provide for the management, protection, and use of water and related ecosystems and the species they support for the future.</i>		14.8.0 14.11. 14.12	
<b>Aquatic Resources Management</b>			
	<b>Wetlands, Lakes and Rivers Fish, Waterbirds</b>	16.1.1.1, 16.1.6, 10. 6,14.8.0	<ul style="list-style-type: none"> <li>• Waters Act</li> <li>• Environment Act</li> <li>• Migratory Bird Sanctuary Regulation</li> <li>• Yukon-Northwest Territories River Basin Transboundary Water Mgt Agreement</li> <li>• Migratory Bird Sanctuary Regulation</li> <li>• Species At Risk Act</li> </ul>
<i>Management Goal 3: Provide for the management, protection, and use of land and related ecosystems and the species they support for the future.</i>			
<b>Terrestrial Resources</b>	<b>Focal Species Management</b> <i>Terrestrial Resources, Caribou spp., Marten, Moose Sheep, Grizzly Bear, Peregrine Falcon, Rare and Endemic Plants</i>	16.1.1.1, 16.1.6, 10.	<ul style="list-style-type: none"> <li>• Wildlife Act</li> <li>• Wildlife Regulation</li> <li>• Wildlife Area Regulation</li> <li>• Species At Risk Act</li> </ul>
<i>Management Goal 4: Promote long-term integrity of sensitive/important landforms or biophysical features.</i>			
<b>Special Features Management</b>		16.1.6.10	<ul style="list-style-type: none"> <li>• Territorial Lands (Yukon) Act</li> <li>• Lands Act</li> </ul>
<i>Management Goal 5: Recognize, conserve, and promote the heritage and cultural resources, and values of affected First Nations and the Yukon.</i>			
<b>Heritage and cultural resources</b>	<b>Traditional use sites/areas</b>	<b>13.1.1.8</b>	<ul style="list-style-type: none"> <li>• Parks &amp; Land Certainty Act</li> <li>• Historic Resources Act</li> <li>• Possibly National Parks Act</li> <li>• Archaeological Sites Regulation</li> </ul>
	<b>Archaeological and Paleontological sites</b>	<b>13.1.1.8</b>	

<sup>1</sup> Please note this is a preliminary analysis and subject to confirmation by the Parties to the Plan, and that YESAA legislation relates to all proposed new land-use proposals.

Land-Use Plan Goals and Objectives		Suggested Linkages	
		To Umbrella Final Agreement	To Yukon and Canada Land-Use Regulations
<i>Management Goal 6: Land, water, and air access is managed to respect ecological, cultural-heritage, and wilderness values of the areas, while providing for the full range of user needs as deemed compatible for specific sustainable development opportunities.</i>		6.2.0	
<b>Access Management</b>	<i>Water and Air-Based Access</i>	15.5.1, 6.3.0, 6.4.0	<ul style="list-style-type: none"> <li>• Territorial Lands (Yukon) Act</li> <li>• Highways Act &amp; Regulation</li> <li>• Navigable Waters Act</li> </ul>
	<i>Dempster Highway</i>		<ul style="list-style-type: none"> <li>• Dempster Hwy Area Development Regulation</li> <li>• Area Development Act</li> </ul>
<b>Management Goal 7: Facilitate sustainable development opportunities and activities that result in socio-economic benefits to the affected First Nations, northern communities, and the Yukon as a whole.</b>		Sustainable Dev: Chpt 1 Def. 12.1.1.4, 12.1.1.4	
<b>Current &amp; Potential Economic Activity</b>	<i>First Nations Traditional Economy and Community Development</i>	12.4.2.1, 22.3.1 16.1.1.1, 5.5.9 12.1.1.1, 22.0	
	<i>Tourism and Recreation</i>		<ul style="list-style-type: none"> <li>• Wilderness Tourism Licensing Act</li> <li>• Bonnet Plume Canadian Heritage River</li> <li>• Environment Act (Wilderness Mgt Areas)</li> <li>• Parks &amp; Land Certainty Act</li> <li>• Oil &amp; Gas Best Mgt Practices for Wilderness Tourism</li> <li>• Draft Commercial Backcountry Tourism Policy</li> </ul>
	<i>Guide-Outfitting &amp; Trapping</i>	22.3.6	<ul style="list-style-type: none"> <li>• Big Game Outfitting Land Application Policy</li> <li>• Wildlife Act</li> <li>• Wildlife Regulation</li> <li>• Fisheries Act</li> <li>• Wildlife Area Regulation</li> <li>• Species At Risk Act</li> </ul>
	<i>Mineral Resources</i>	18.3.0, 18.4.1	<ul style="list-style-type: none"> <li>• Quartz Mining Act, and Land Use Regulation</li> <li>• Placer Mining Act and Land Use Regulation</li> <li>• Environment Act</li> <li>• Special Waste Regulation</li> <li>• Yukon Mining Incentive Program</li> </ul>
	<i>Oil &amp; Gas Resources</i>	18.1.0	<ul style="list-style-type: none"> <li>• Oil and Gas Act</li> <li>• Geoscience Exploration Regulation</li> <li>• Drilling and Production Regulation</li> <li>• License Administration Regulation</li> <li>• Lands Act</li> <li>• Environment Act</li> <li>• Special Waste Regulation</li> <li>• Territorial Lands (Yukon) Acts</li> <li>• Land Use Regulation</li> <li>• Air Emissions Regulation</li> </ul>
	<i>Aggregate (Gravel) Resources</i>	18.2.0	<ul style="list-style-type: none"> <li>• Quarry Regulations</li> <li>• Lands Act</li> <li>• Territorial Lands (Yukon) Act</li> <li>• Air Emissions Regulation</li> </ul>



General Mgt Direction	Objectives	Suggested Linkages	
		To Umbrella Final Agreement	To Yukon and Canada Land-Use Regulations
	<i>Forest Resources</i>	17.6.2, 17.5.5.1	<ul style="list-style-type: none"> <li>• Forest Management Act</li> </ul>
	<i>Renewal Energy Resources</i>		<ul style="list-style-type: none"> <li>• Waters Act</li> <li>• Environment Act</li> <li>• Territorial Lands (Yukon) Acts</li> <li>• Land Use Regulation</li> </ul>

## 7.2 Proposed Implementation Activities

A number of specific implementation activities for this Plan may be required and will evolve through submission of a Final Recommended Plan. They can be grouped under four general categories:

- 1) Adoption of Plan concepts, framework and general management directions/objectives/strategies;
- 2) Implementation of recommendations (land-use management, research and policy);
- 3) Development and implementation of ongoing monitoring and reporting protocols to determine if Plan goals and objectives are being met; and,
- 4) Creation and maintenance of efficient procedures to review and modify the Plan.

Proposed implementation activities for consideration by the Parties, once the Draft Plan has been finalized, are listed in Table 7.2. Implementation activities, along with responsible agencies and groups, will be finalized upon development of a detailed Plan implementation strategy. Suggested priorities for both further research and land-use policy development have been highlighted through the previous sections, and the Commission suggests they will be of considerable assistance in implementing this Plan and future plans.

**Table 7.2** Proposed implementation tasks, actions and timelines.

Task	Actions	Timeline
<b>Detailed Implementation Strategy</b>		
<b>1. Prepare detailed implementation strategy.</b>	<ul style="list-style-type: none"> <li>• Prepare a detailed implementation strategy as a separate document.</li> <li>• Develop the implementation strategy concurrently with the Plan approval process.</li> <li>• In the implementation strategy, address the tasks listed below.</li> </ul>	Final Plan Review and Approval
<b>Plan Concepts and Recommendations</b>		
<b>2. Apply land designation.</b>	<b>2.1 Adopt and implement Landscape Management Units and Land-Use Designation.</b> <ul style="list-style-type: none"> <li>• Incorporate landscape management units and land-use designation into existing Yukon land-status databases and land-use decision-making processes.</li> </ul>	Final Plan Approval
	In accordance with Section 10.3.0 of the Umbrella Final Agreement, Vuntut Final Agreement, Tr'ondëk Hwëch'in Final Agreement, and Nacho Nyak Dun Final Agreement respectively, undertake to establish the following types of Special Management Areas:	
	<b>2.2 Establish a contiguous Special Management Area for “Watershed Protection” as per Section 10.2.0 for the following LMU's: Drainage basins LMU's 1-4 (except 3d) as a contiguous landscape unit</b> <ul style="list-style-type: none"> <li>• Grandfather existing surface-use and subsurface tenures</li> <li>• Remove Yukon public lands within from disposition in River corridors LMU 13-1 to 13-4, Fairchild Lake (LMU 2d), Duo Lake (LMU 2e), Bonnet Plume Lake (LMU 2f), Margaret Lake (LMU 2g), Quartet Lakes (LMU 2h) , Elliot Lake, McLuskey Lake, Goz Lake by Order in Council withdrawal;</li> <li>• Remove Yukon public lands within LMU;s 1 c 2-a-c, 3a,b and 4 a,b for subsurface disposition by Order in Council withdrawal;</li> <li>• Prepare a “Sub-Regional Plans” in accordance with UFA 11.8.0 and Management Plan for each Special Mgt Area, including creation of a Management Advisory Board consistent with Final Agreements Section 10.5.2. and 10.5.7, respectively</li> </ul>	Land withdrawal immediate;  other TBD

Task	Actions	Timeline
	<p><b>2.3 Establish a Special Management Area for “Special Wildlife Management” as per Section 10.2.0 for the following LMUs:</b> Turner Wetlands and Caribou River (LMU 8a), Jackfish Lakes (LMU 7b), Tabor Lakes (LMU 7c), Vittrekwa River (LMU 12b), Chappie Lake (LMU 2c), and West Hart (4b)</p> <ul style="list-style-type: none"> <li>• Remove Yukon public lands from disposition by Order in Council Withdrawal;</li> <li>• Prepare “Sub-Regional Plans” in accordance with UFA 11.8.0 and Management Plan for each Special Mgt Area, including creation of a Management Advisory Board consistent with Final Agreements Section 10.5.2. and 10.5.7, respectively.</li> </ul>	<p>Land withdrawal immediate</p> <p>other TBD</p>
	<p><b>2.4 Establish a Special Management Area for “Designated Heritage Sites” as per Section 10.2.0 for:</b> Nihtavan diniinelee – Fish Lake (LMU 1d) Nash Creek (LMU 3d) Hungry Lakes (LMU 3c) Doll Creek (LMU 9b) and Aberdeen Canyon (LMU 11d)</p> <ul style="list-style-type: none"> <li>• Remove Yukon public lands from disposition by Order in Council Withdrawal.</li> <li>• Prepare a Prepare “Sub-Regional Plans” in accordance with UFA 11.8.0 and Management Plan for each Special Mgt Area, including creation of a Management Advisory Board consistent with Final Agreements Section 10.5.2. and 10.5.7, respectively</li> </ul>	<p>Land withdrawal immediate;</p> <p>other TBD</p>

Task	Actions	Timeline
<b>3. Establish cumulative effects indicators and thresholds.</b>	<b>3.1 Adopt and implement cumulative effects indicators and thresholds:</b> <ul style="list-style-type: none"> <li>Refine current surface-disturbance estimates.</li> <li>Refine exemptions list for surface-disturbance and linear-disturbance calculations.</li> <li>Determine revegetation rates and standards for surface disturbances.</li> <li>Confirm use of other land-management indicators (ecosystem, socio-economic)</li> </ul>	Final Plan approval;  TBD
<b>4. Develop heritage route management guidelines.</b>	<b>4.1 Develop management guidelines for identified heritage routes</b>	Final Plan approval;  TBD
<b>Monitoring and Assessment</b>		
<b>5. Develop and maintain regional database.</b>	<b>5.1 Compile and make accessible the regional maps and information collected during planning process.</b> <ul style="list-style-type: none"> <li>Yukon Planning Atlas project to provide central repository for storage and public distribution of maps and resource information.</li> <li>Determine ongoing information collection requirements.</li> <li>Perform annual updates of regional resource status, including indicator status.</li> </ul>	One year for development  Ongoing annual maintenance
<b>6. Perform annual regional assessment.</b>	<b>6.1 State of Region reporting.</b> <ul style="list-style-type: none"> <li>Following Final Plan approval, a general evaluation of land-use activities (type, level, and location) and land status from the previous year should occur annually.</li> <li>Current and anticipated future land uses should also be discussed.</li> <li>As part of this assessment, the status of cumulative effects indicators in relation to thresholds would be evaluated.</li> <li>Summarize results of annual assessment in a brief State of the Region report.</li> <li>Parties need to decide on potential course of management action for the upcoming year(s) if cautionary thresholds are reached.</li> <li>Indicator status and evaluation results could be included as part of Yukon State of the Environment reporting.</li> </ul>	Initial Assessment in year following Final Plan Approval  Ongoing annual reporting
	<b>6.2 Report on status of implementation tasks</b> <ul style="list-style-type: none"> <li>Carry out annual monitoring and reporting of progress toward completing identified implementation tasks.</li> </ul>	Initial Assessment in year following Final Plan Approval  Ongoing annual reporting

Task	Actions	Task
<b>6. Perform Annual Regional Assessment.</b>	<b>6.3 If required, implement provisional recommendations in advance of large-scale industrial activity.</b> <ul style="list-style-type: none"> <li>Develop access management plan for Eagle Plains and Peel Plateau oil and gas basin</li> <li>Undertake aggregate (gravel) assessment when large-scale industrial/infrastructure projects are proposed.</li> <li>Develop site closure/remediation plans for industrial land uses that create significant surface disturbance.</li> <li>Identify historic and heritage resources where exploration and development activities are proposed.</li> <li>Identify ecologically sensitive wetland habitats where industrial water withdrawals are proposed.</li> <li>Identify sensitive in-stream and lake overwintering fish habitat where industrial water withdrawals are proposed.</li> </ul>	Initial Assessment in year following Final Plan Approval  Ongoing annual reporting
<b>7. Assess Project Conformity.</b>	<b>7.1 Develop protocol for YESAB project conformity check.</b> <ul style="list-style-type: none"> <li>As per Final Agreement clause <u>12.17.0</u>, develop detailed protocols for YESAB project conformity checks.</li> <li>Involve PWPC in project conformity checks for large projects assessed under YESAA Screenings and Reviews.</li> </ul>	Protocols in place by Final Plan Approval

<b>RECOMMENDATION</b>	<ul style="list-style-type: none"> <li><i>As per Final Agreement clause <u>12.17.0</u>, the PWPC recommends that an assessment of individual project conformity with the Plan, where such projects are evaluated at the level of a YESAB Designated Office, be undertaken on an annual basis as part of an annual regional assessment, rather than on a project-by-project basis.</i></li> </ul>
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<b>RECOMMENDATION</b>	<ul style="list-style-type: none"> <li><i>It is the perspective of the PWPC that the Plan establishes adequate management direction for YESAB to assess conformity of most individual projects, as part of a Designated Office evaluation, however where land-use <u>variances</u> are being considered within Areas Designated for Protection and Conservation it is recommended that such technical reviews be undertaken by a qualified professional planner who would serve as a representative of the PWPC.</i></li> </ul>
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<b>RECOMMENDATION</b>	<ul style="list-style-type: none"> <li><i>Where Plan amendments are required, it is recommended that the PWPC be reconvened on a periodic basis to consider such proposals.</i></li> </ul>
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### 7.3 Plan Revision

This Plan is intended to be a living document, open to change and revision as circumstances change. The Final Agreement provides opportunities for these revisions. Periodic revisions to the plan can incorporate new research findings and contribute to improved decision making. This process supports adaptive management.

Changes to the Plan may be required when:

- New land-management concepts emerge;
- New land and resource information becomes available;
- Knowledge about land-use impacts is advanced;
- Land-management values that the Plan is based upon change; or,
- Demand for land and resources in the region changes.

The Final Agreements identify three ways to accommodate changes to the Plan:

- Plan Variance: when minor changes to the Plan are required;
- Plan Amendment: when alterations to management strategies presented in the Plan are required; and,
- Plan Review: a formal process when the entire Plan is re-evaluated, usually when major changes and revisions to the Plan are deemed necessary.

Plan review would occur on an agreed-upon schedule, or whenever the Parties agree it is required. Methods and timelines for changing the Plan are to be developed as part of the detailed implementation strategy.

<b>RECOMMENDATION</b>	<ul style="list-style-type: none"> <li>• <i>To facilitate adaptive management and provide a formal process to evaluate Plan effectiveness, the maximum length of time between Plan Reviews should be seven years.</i></li> </ul>
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#### 7.3.1 Plan Review check-list

The status of Plan recommendations should be evaluated at the first Plan review. During consultation on the Draft Plan, the PWPC received comments regarding research or management items for additional consideration. Some have been deferred for future consideration. Table 7.3 lists suggested items for consideration at the first Plan review.

**Table 7.3.** Suggested items for consideration at first Plan Review.

Task	Actions
<b>Plan Review</b>	
<b>1. Evaluate success of Plan in achieving goals and objectives.</b>	<ul style="list-style-type: none"> <li>• Determine if recommendations from Plan were successfully implemented.</li> <li>• Consider if the goals and objectives of Plan were met and/or if they are still achievable.</li> <li>• If required, revise Plan content.</li> </ul>
<b>2. Develop and implement additional indicators for sustainable development (ecosystem and socio-economic sustainability)</b>	<ul style="list-style-type: none"> <li>• Consider inclusion of focal species habitat targets for specific LMUs.</li> <li>• Consider indicators of aquatic habitat integrity and water quality (e.g., stream crossing index, CCME water quality index, etc.) to complement current terrestrial indicators.</li> <li>• Consider inclusion of regional ecosystem, and socio-economic sustainability indicators as outlined in Table 3.3.</li> </ul>
<b>3. Consider zoning system for Dempster Highway Corridor.</b>	<ul style="list-style-type: none"> <li>• Consider Dempster Highway Corridor zoning system that is complementary to the existing land designation system proposed in the Plan.</li> </ul>
<b>4. Refine application of cumulative effects indicators and thresholds.</b>	<ul style="list-style-type: none"> <li>• Consider weighting of linear disturbance impacts within different habitat types (e.g., floodplains versus upland habitats).</li> <li>• Incorporate new information on revegetation rates and standards for surface disturbances.</li> </ul>

**Table 7.4.** Potential regional ecosystem and socio-economic indicators for sustainable development.

Indicator-Type	Indicator	Current Indicator Status	Description
<b>Socio-Economic</b>	<b>Mayo, Fort McPherson, and Dawson City Population</b>	Current census results	Provides measure of local communities' population trends – reflective of general social and economic conditions. Reported by Yukon Bureau of Statistics.
	<b>Resident time-on-the-land</b>	From ABEKC reports	Provides measure of resident participation in subsistence economy and traditional pursuits. Reported by Arctic Borderlands Ecological Knowledge Co-op (ABEKC); available for Vuntut Gwitchin at Old Crow and could be available for other affected First Nation communities.
	<b>Availability of Current-Use Areas</b>	From VGG Natural Resources Dept.	Provides measure of loss/gain of current-use areas for subsistence harvesting and cultural purposes as a result of other land-use activities. Not currently reported, but current-use areas were documented in this Plan. Available for Vuntut Gwitchin at Old Crow, and could be available for other affected First Nation communities.
	<b>Number of First Nation residents receiving social assistance</b>	From VGG Social Services	Provides measure of self-sufficiency of individuals. Reflective of general social and economic conditions. Reported by VGG Social Services. Available for Vuntut Gwitchin at Old Crow, and could be available for other affected First Nation communities
	<b>Regional Gross Domestic Product (GDP)</b>	From Yukon Economic Development	Provides measure of regional economic activity and production.
	<b>Median Household Income</b>	TBD	Provides measure of household monetary wealth / wage income. Reported by Canada Census. Available for Vuntut Gwitchin at Old Crow (estimate: \$28,224, 120 households) and could be available for other affected First Nation communities.
	<b>Median Individual Income for Women</b>	TBD	Provides measure of individual female (15 yrs and older) monetary wealth / wage income. Female vs. male income levels should be tracked to establish gender wage-based equity. Reported by Canada Census. Available for Vuntut Gwitchin at Old Crow (estimate: \$14,667, 105 females) and could be available for other affected First Nation communities.
	<b>Median Individual Income for Men</b>	TBD	Provides measure of individual male (15 yrs and older) monetary wealth / wage income. Reported by Canada Census. Available for Vuntut Gwitchin at Old Crow (estimate: \$15,232, 105 males) and could be available for other affected First Nation communities.



**Table 7.4** (cont'd).

<b>Indicator-Type</b>	<b>Indicator</b>	<b>Current Indicator Status</b>	<b>Description</b>
<b>Ecological</b>	<b>Porcupine caribou herd population status</b>	Estimated at 100,000 animals	PCH is the most important ecological and social value to Vuntut Gwitchin residents. Population declines in neighbouring Canadian barren-ground herds are being experienced. Reported by YG/Alaska Department of Fish and Game/PCMB.
	<b>Regional habitat integrity</b>	Annual Regional Assessments	Regional assessment of terrestrial habitat conditions, including “hot spot” identification. Surface-disturbance and linear-density indicators provide measure of habitat integrity.
	<b>Landscape Management Unit habitat integrity</b>	Annual Regional Assessments	Assessment of terrestrial habitat conditions by LMU. Surface-disturbance and linear-density indicators provide measure of habitat integrity.
	<b>Regional aquatic habitat integrity</b>	Annual Regional Assessments	Regional assessment of aquatic habitat conditions, including “hot spot” identification. Stream-crossing index and water quality and quantity suggested as future indicators.
	<b>Landscape Management Unit (or watershed) aquatic habitat integrity</b>	Annual Regional Assessments	Regional assessment of aquatic habitat conditions by LMU or watershed. Stream-crossing index and water quality and quantity suggested as future indicators.

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## Glossary of Terms

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**Adaptive Management:** A systematic approach to resource management that uses structured, collaborative research and monitoring with the goal of improving land and resource management policies, objectives, and practices over time.

**Aggregate Resources:** Any combination of sand, gravel, or crushed stone in a natural or processed state. Aggregates are used in the construction of highways, dams, and airports, as well as residential, industrial, and institutional buildings. Also known as granular resources.

**Beringia:** An ancient landscape of northwestern North America and eastern Siberia that remained unglaciated during the last Ice Ages (3 million to 10,000 years ago).

**Best Management Practices:** A range of practices that can reduce the time, intensity, or duration of industrial activities (i.e., footprints) on the land base.

**Bioclimate Zone:** An ecological zone, observable at broad spatial scales, that represents a relatively stable, observable vegetation type or environment. Four bioclimate zones, organized by elevation and latitude, are recognized in the planning region: Taiga Wooded, Taiga Shrub, Alpine, and Tundra.

**Biodiversity:** The amount of variation of life forms within a given ecosystem or area. A simple measure of biodiversity is the number of species found in an area.

**Category A:** Settlement land owned fully by a Yukon First Nation, including both surface and subsurface (mines and minerals) rights.

**Category B:** Settlement land owned fully by a Yukon First Nation, not including subsurface (mines and minerals) rights.

**Community Area:** A land-use category in the Plan land-use designation system. Community Areas are located around communities or municipalities, such as Old Crow, where local planning is undertaken.

**Concentrated Use Area:** A geographic area or habitat that is occupied at a higher density of animals (e.g., area where animals are congregated) compared to other areas within the animals' range. This term is specifically used in the plan to describe areas where satellite-collared Porcupine caribou herd cows congregate, for various seasons. Concentrated use areas are often referred to as core areas.

**Conservation (principle of):** The management of fish and wildlife populations and habitats, and the regulation of users to ensure the quality, diversity, and long-term optimum productivity of fish and wildlife populations, with the primary goal of ensuring a sustainable harvest and its proper utilization (Chapter 1, Umbrella Final Agreement).

**Contaminated Site:** An area of land in which the soil, including groundwater lying beneath it, or the water, including the sediment and bed below it, contain a contaminant in an amount, concentration, or level which is equal to or greater than that prescribed by the *Contaminated Sites Regulations*, Yukon O.I.C. 2002/171 (YESAA).

**Critical Threshold:** The point where an indicator has reached or surpassed an acceptable limit of change.

**Cultural Resources:** Places and locations associated with events, stories, and legends. Cultural resources can include such things as the Porcupine caribou herd, moose, marten, wetlands, lakes and rivers, and locations associated with legends, traditional economic activities, and cultural activities.

**Cumulative Effects:** Changes to the environment and/or society that result from a land-use activity in combination with other past, present, and future activities. The changes can be positive or negative.

**Cumulative Impacts:** Negative consequences of cumulative effects; may involve both direct and indirect impacts.

**Direct Impacts:** Impacts that result directly from a land-use activity. Physical development footprints create direct habitat impacts.

**Direct Surface Disturbance:** Visible, human-caused disturbances that result in the physical disruption of soil or hydrology, or the clearing of trees and woody vegetation.

**Disposition Process:** A legal instrument (such as a sale, lease, license, or permit) that allows a government to give a benefit from public land to any person or company.

**Ecodistrict:** Part of an ecoregion characterized by a distinct assemblage of relief, geology, landforms, soils, and vegetation. Ecodistricts are sub-units of ecoregions and part of the National Ecological Framework.

**Ecological Integrity:** The degree to which the physical, chemical, and biological components, including composition, structure, and function, of an ecosystem and their relationships are present, functioning, and capable of self-renewal.

**Ecological Reserve:** A park established to protect an area of unique natural significance, unique ecological characteristics, or importance for a population of rare or endangered flora or fauna, which is intended to remain in its natural state (*Parks and Land Certainty Act*).

**Ecoregion:** An area of the earth surface characterized by distinctive physiography (geology and surface features) and ecological responses to climate as expressed by the development of vegetation, soil, water, fauna, etc. Under the National Ecological Framework, the planning region contains portions of six ecoregions.

**Ecosystem:** A community of organisms and their physical environment interacting as a distinct ecological unit at a range of spatial scales.

**Ecozone:** Very large areas of the earth's surface, representative of broad-scale and generalized ecological conditions. Major physiographic conditions (e.g., mountains versus plains) and climate are the primary basis for determining terrestrial ecozones. The planning region is entirely within the Taiga Cordillera Ecozone.

**Endangered Species:** Those species listed in Part 2 of Schedule 1 to the *Species at Risk Act*. (YESAA).

**Endemic:** A species or organism that is only found in a particular region and that has a relatively restricted distribution, due to factors such as isolation or response to soil or climatic conditions.

**Fish Habitat:** Spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes (YESAA).

**Focal Species:** The species of most value and interest, either socially or economically, to residents of a region. The focal species in this Plan (Porcupine caribou, moose, and marten) were determined by Vuntut Gwitchin First Nation and other Plan Partners.

**Footprint:** The area directly disturbed by a road, gravel pit, seismic line, or any other feature is considered the physical “footprint” of that feature.

**Fragmentation:** The disruption of large continuous areas of habitat into smaller, less continuous areas of habitat.

**Functional Disturbance(s):** Physical land-use disturbances that result in disruption of soil or hydrology, or that require the cutting of trees. Activities considered exempt from functional disturbance creation are: (i) new linear features less than 1.5 m in width; (ii) land-use activities that occur on frozen water-bodies; (iii) winter work with no required clearing of trees; (iv) winter work that utilizes existing unreclaimed disturbances and linear features from previous activities.

**Functional Integrity:** Maintaining the functional capacity of an area or value in an adequate state to maintain ecological integrity and ecosystem function, even though the area or value may be altered from its pristine state.

**General Management Direction:** In this Plan, prescriptive resource management recommendations and approaches that address region-wide issues (e.g., caribou habitat or river valleys).

**Habitat:** The particular kind of environment in which a plant or animal lives. Habitats provide the necessary life needs for plants and animals.

**Habitat Integrity:** The ability or capacity of habitat to support wildlife or plant populations. For wildlife, a landscape with high habitat integrity contains habitat of adequate amount, composition, structure, and function to support the long-term persistence of healthy wildlife populations.

**Habitat Protection Area (HPA):** An area identified as requiring special protection under the *Yukon Wildlife Act*. The level of protection varies depending on the management plan developed for each particular HPA.

**Heritage Resources:** Sites and objects that are 45 years old or older and relate to human history, including archaeological and historic sites and artefacts. This definition also includes palaeontological resources.

**Historic Site:** A location at which is found a work or assembly of works of human endeavour or of nature that is of value for its archaeological, palaeontological, prehistoric, historic, scientific, or aesthetic features. Yukon historic sites are designated under the *Yukon Historic Resources Act* and Chapter 10 of the Umbrella Final Agreement. Within the planning region, Rampart House and Lapierre House are designated Yukon Historic Sites. National Historic Sites are designated under the federal *Historic Sites and Monuments Act*.



**Hydric (soil):** Soils with a high water content and poor drainage capacity (i.e., wet soils).

**Hydrologic system:** The interconnected water system, including soil, surface water, groundwater, and atmosphere. Wetlands are complex hydrologic systems.

**Indicator:** A signal, typically measurable, that can be used to assess performance of a system.

**Indirect Impacts:** Impacts that result indirectly from a land-use activity. Habitat avoidance of impacted features or increased hunting mortality around roads are examples of indirect impacts of road development.

**Industrial Development:** (YESAA)

- a) mining and the development of an energy resource or of agricultural land;
- b) for commercial purposes, cutting standing or fallen trees or removing fallen or cut trees;
- c) the development of a townsite; and
- d) any land use or the construction, operation, modification, decommissioning or abandonment of a structure, facility or installation associated with any activity referred to in the paragraphs (a) to (c), above.

**Impact(s):** When a land-use activity or activities have a negative effect or influence on a value(s) and/or resource(s). Impacts may be direct or indirect.

**Integrated Management Area:** In the Plan, a land-use category. These are areas where mineral and oil and gas disposition processes, other industrial activities, and other land uses are allowed, subject to the approved recommendations of a regional plan and existing legislation/regulations. The Integrated Management Area is further divided into four Zones. This land category is also referred to as the working landscape.

**Integrated Resource Management:** A land management approach that uses and manages the environment and natural resources to achieve sustainable development. An integrated resource management approach considers environmental, social, and economic issues, and attempts to accommodate all uses with minimal conflict and impact.

**Landscape:** A large, observable land unit that has identifiable and repeating patterns of landforms and vegetation. Landscapes may also have characteristic natural disturbance regimes and hydrologic patterns. Landscapes with similar properties are assumed to respond in a consistent manner to management prescriptions. In this Plan, individual landscape management units are intended to represent similar landscapes.

**Landscape Management Unit (LMU):** An observable land unit that has identifiable and repeating patterns of landforms and vegetation (i.e., a landscape) and that forms a logical land management unit for regional planning. Some LMUs may contain sub-units that require special consideration. In this Plan, LMUs form the primary land management units to which land-use designation categories or zones are applied. LMU borders are usually drawn around rivers, roads, existing SMAs, or other identifiable features.

**Landscape Type:** A generalized vegetation-terrain association or land-cover class that is readily observable and has definable characteristics. Landscape types are the biophysical “building blocks” of landscapes. The February 2006 version of the North Yukon biophysical map recognizes 28 distinct landscape types.

**Land-Use Designation System:** A land-use designation system consists of different land categories that describe either the type or intensity of land uses that are allowed or recommended for each specific landscape management unit or sub-unit. A land-use designation system may also be referred to as land-use zoning or resource-management zoning.

**Land Withdrawal:** A land area that is not available, either permanently or temporarily, for land disposition and oil and gas or mineral exploration activities. Land withdrawals are enacted or terminated by government Orders in Council. Permanent land withdrawals are required to create Protected Areas.

**Limits (or Levels) of Acceptable Change:** A planning approach that establishes an acceptable limit or level of change for a specific value or resource. Under a results-based management system, limits of acceptable change for indicators are required to differentiate between acceptable and unacceptable conditions. The limits are based on a combination of science and social choice. *See* Threshold.

**Linear (Access) Density:** The total length of all linear features (measured in km), within a landscape management unit or sub-unit (measured in km<sup>2</sup>). Linear density is expressed as km/km<sup>2</sup>. Linear density provides a measure of landscape fragmentation and habitat integrity.

**Linear Feature:** A type of human-caused surface disturbance, including trails, survey lines, seismic lines, roads, power transmission lines, and any similar feature.

**Major River Corridor:** The large rivers in the region, with the greatest ecological and cultural significance. In this Plan, Major River Corridors are the Porcupine, Eagle, Bell, Fishing Branch, Old Crow, Whitestone, and Miner rivers.

**Mesic (soils):** Soils of moderate moisture content and drainage capacity.

**Mitigate:** Decrease the impact or effect of an action or land-use activity. Mitigation of the potential effects of land-use activities is a central role of the Yukon Environmental and Socio-economic Assessment Board (YESAB) during project assessments.

**Mixed Economy:** An economy where both traditional subsistence harvesting and wage-based (or market-based) activities co-exist.

**Mixed-wood:** Forests composed of a mixture of deciduous (trees with leaves) and coniferous (trees with needles) species.

**Non-settlement Land:** All public land in Yukon not affected by First Nation settlement lands. *See* Settlement Land.

**Palaeontological Resources:** Animal and plant remains from long ago.

**Pediment:** Broad, gently sloping land surfaces with low relief at the base of a steeper slope. Pediments are usually covered with unconsolidated sediments resulting from the transport and deposition of materials by gravity over very long time periods. Old Crow Basin Ecoregion contains extensive pediments.

**Permafrost:** Ground in which a temperature below 0°C has existed continuously for two or more years. Permafrost is defined exclusively on the basis of temperature; ground ice does not need to be present.

**Porcupine Caribou Herd:** A tundra (barren-ground) herd of Grant's caribou that ranges from northeastern Alaska to the Yukon/Northwest Territories border (west to east), and from the Beaufort Sea to the Ogilvie Mountains (north to south).

**Precautionary Principle:** A lack of conclusive scientific evidence does not justify inaction on managing the environment, particularly when the consequences of inaction may be undesirable or when the costs of action are negligible.

**Prescriptive:** Stipulation(s) applied to a land-use activity, with specific requirements as to how that activity should proceed or be conducted.

**Protected Area:** A land-use designation category that removes an area from oil and gas and mineral disposition, and prohibits exploration activities. Protection of ecological and cultural resources is the management goal. Protected Areas are intended to meet International Union for Conservation of Nature (IUCN) Protected Area Categories I, II, or III conservation criteria for "full protection." *See* Special Management Areas.

**R-Block:** Rural Yukon First Nation settlement lands. Generally, these are parcels of land larger than S-Sites, and are of heritage, cultural, or traditional economic significance to the First Nation.

**Reclamation:** Focused and deliberate actions that attempt to restore or return disturbed lands to a pre-disturbed state or to a former productive capacity.

**Regional Land Use Plan:** A collective statement about how to use and manage land and resources within a geographic area.

**Regional Sustainable Development Indicators:** General signals or information about the status and health of the region's economy, society, and environment.

**Renewable Energy:** The generation of heat or electricity from natural resources that are not depleted over time.

**Results-Based Management Framework:** A structured process to link a plan's goals and objectives, tools, approaches, and monitoring needs into one cohesive strategy. Monitoring and tracking progress toward meeting various plan goals and objectives is an important outcome in the delivery of results-based management.

**Riparian Zone (or area):** Flowing water (lotic) environments and their adjacent terrestrial surroundings influenced by the moving water (fluvial) processes of erosion and deposition, commonly referred to as river or stream valleys. In northern Yukon, riparian zones typically support the most productive vegetation and tree growth due to warmer and better drained soil conditions.

**S-Sites:** Site-specific Yukon First Nation settlement lands. Generally, these are parcels of land smaller than Category A and B land selections, and are of heritage, cultural, or traditional economic significance to the First Nation.

**Scenarios (land use scenarios):** In land use planning, the development of an outline or model of plausible land uses that may occur, including possible time-lines, benefits, and impacts of those land uses. The development of land-use scenarios differs from discrete options. Scenarios are used to explore potential alternative futures. They are considered to be more appropriate for a consensus-based planning model, such as the Chapter 11 process in Yukon.

**Secondary Use Area:** A large area of land in the Richardson Mountains and foothills where the Tetlit Gwich'in of NWT have the right to subsistence harvesting and trapping, use of water, and forest harvesting in relation to subsistence harvesting, under the terms of the Gwich'in Comprehensive Land Claim Agreement.

**Settlement Land:** All land in Yukon owned by a Yukon First Nation with a Final Agreement. Settlement land may be Category A or B (see above).

**Special Management Area (SMA):** A conservation area identified and established within a Traditional Territory of a Yukon First Nation under a Final Agreement. SMAs can be Yukon Parks, Habitat Protection Areas, National Parks or Wildlife Areas, or other types. The level of protection is defined in a management plan developed for each particular area, with management shared among the Yukon government, First Nation governments, and Renewable Resource Councils, depending on the area and jurisdiction (Chapter 10, VGFNFA).

**Subsistence Harvesting (for VGFN):** Defined as “(a) the use of Edible Fish or Wildlife Products, or edible Plant products, by Vuntut Gwitchin for sustenance and for food for traditional ceremonial purposes including potlatches; and (b) the use by Vuntut Gwitchin of Non-Edible By-Products of harvests of Fish or Wildlife under (a) for such domestic purposes as clothing, shelter or medicine, and for domestic, spiritual and cultural purposes; but (c) except for traditional production of handicrafts and implements by Vuntut Gwitchin, does not include commercial uses of: (i) Edible Fish or Wildlife Products; (ii) Non-Edible By-Products; or (iii) edible Plant products.” (Chapter 10, VGFN Final Agreement)

**Sustainable Development:** Beneficial socio-economic change that does not undermine the ecological and social systems upon which communities and societies are dependent (Chapter 1, VGFN Final Agreement).

**Target:** A point where an indicator is reaching, or has reached, a desired level. The target is a desired condition related to a specific management goal or objective.

**Threatened Species:** Those species listed in Part 3 of Schedule 1 to the *Species at Risk Act*. (YESAA)

**Threshold:** A point where an indicator is reaching, or has reached, a level such that undesired impacts to ecological, social/cultural, or economic resources may begin to occur. Thresholds are applied in a results-based management framework.

**Timing Windows:** The practice of conducting land-use activities during specific time periods with the purpose of minimizing potential impacts on a valued ecological or cultural resource.

**Traditional Economy:** An economy based on hunting, trapping, gathering, and fishing activities, for household use or barter; also called a subsistence or land-based economy.

**Ungulate:** A four-legged, plant eating mammal with hoofs. Caribou, moose, deer, and musk-oxen are ungulates.

**Viewshed:** The area of land visible from a vantage point or from a road or river.

**Wage-Based Economy:** An economic system in which goods and services are produced and exchanged for money. Old Crow maintains both a wage-based and traditional economy.

**Water Body:** An inland water body, up to its ordinary high-water mark, in a liquid or frozen state, including a swamp, marsh, bog, fen, reservoir, and any other land that is covered by water during at least three consecutive months of the year, but does not include a sewage or waste treatment lagoon, a dugout to hold water for livestock, and a mine tailings pond (YESAA).

**Watercourse:** A natural waterway, water body or water supply, including one that contains water intermittently, and includes groundwater, springs, swamps, and gulches (YESAA).

**Watershed:** The region or area drained by a river or stream system, divided from adjacent drainage basins by a height of land.

**Wetland:** For this Plan, wetlands are defined as all open-water aquatic environments, both still water (lentic) and moving water (lotic) features, or concentrations of those features, and their adjacent environments.

**Wetland Complex:** A concentrated geographic grouping of individual wetlands. Wetland complexes may include both wetland and non-wetland biophysical landscape types. Wetland complexes function as integrated hydrologic systems.

**Wilderness Preserve:** A park established with a view to protecting an ecological unit or representative core area by conserving biodiversity and ecological viability (*Parks and Land Certainty Act*).

**Wildlife Key Areas:** Locations used by wildlife for critical, seasonal life functions. Loss or disturbance of these habitats may result in wildlife population decreases.

**Winter Road:** A temporary road constructed during the winter period without the use of gravel or other soil materials. Packed snow typically forms the roadbed.

**Working Landscape:** See Integrated Management Area.

**Yukon First Nations:** As stated in the Yukon Umbrella Final Agreement, any one of the following: Carcross/Tagish First Nation; Champagne and Aishihik First Nations; Tr'ondek Hwech'in First Nation; Kluane First Nation; Kwanlin Dun First Nation; Liard First Nation; Little Salmon/Carmacks First Nation; First Nation of Nacho Nyak Dun; Ross River Dena Council; Selkirk First Nation; Ta'an Kwach'an Council; Teslin Tlingit Council; Vuntut Gwitchin First Nation; or White River First Nation.

**Yukon Indian People:** A term used in the Yukon First Nations Final Agreements referring to people of aboriginal ancestry. A person enrolled under one of the Yukon First Nation Final Agreements in accordance with criteria established in Chapter 3, Eligibility and Enrolment.

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## Appendix A. Maps

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Map 1 – Current Status

Map 2 – Proposed Land Use Zones

Map 3 – Ecologically Important Areas

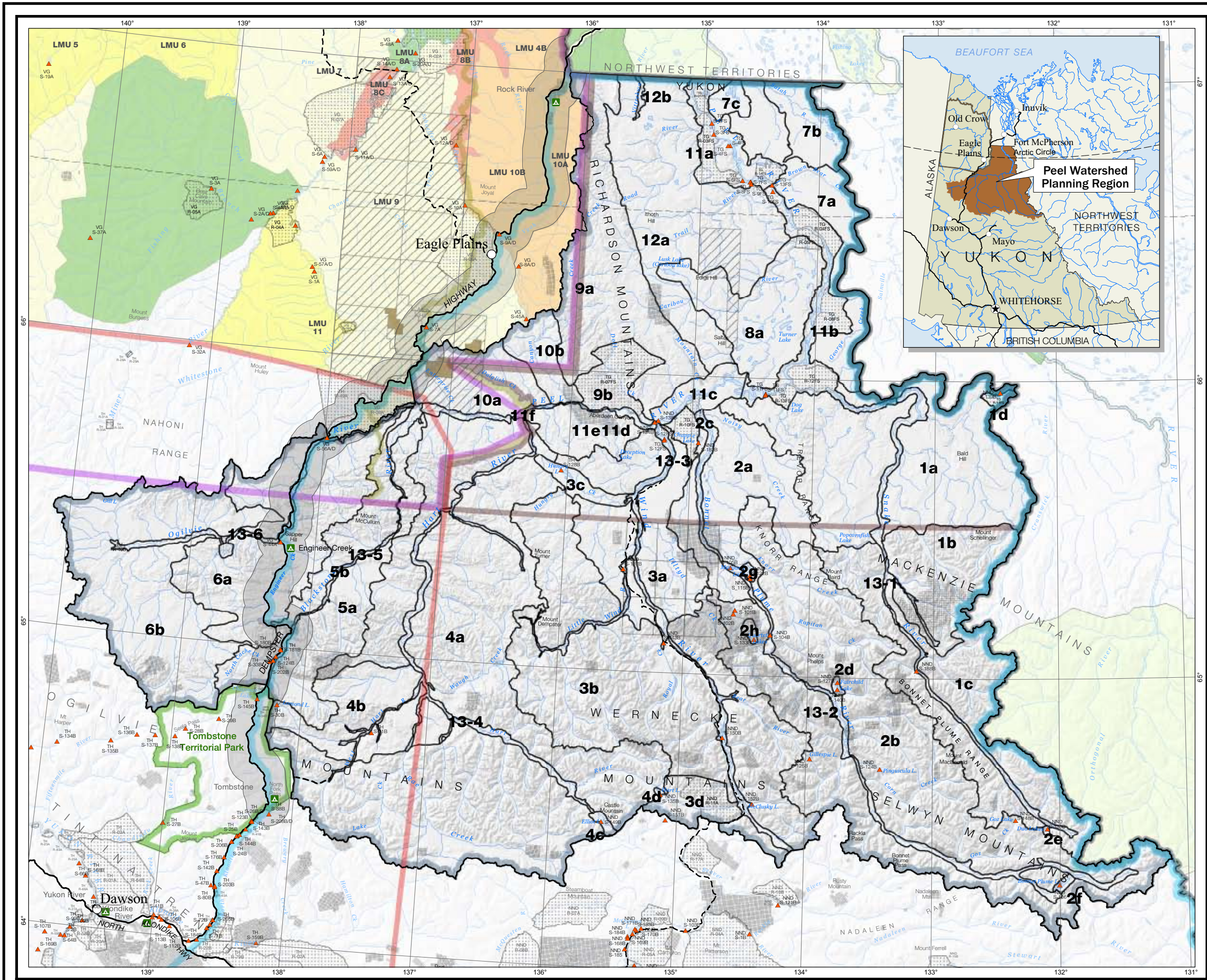
Map 4 – Heritage and Cultural Resources and Land Use

Map 5 – Economic Development Potential and Interests



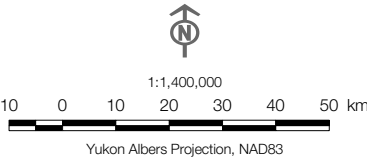
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# Current Status

PEEL WATERSHED PLANNING REGION, YUKON



## LEGEND

### First Nation Traditional Territory Boundary

- Nacho Nyak Dun
- Vuntut Gwitchin First Nation
- Tr'ondek Hwech'in Han Nation
- Teet'it Gwitch'in Primary Use
- Teet'it Gwitch'in Secondary Use

### First Nation Settlement Lands

- R-blocks
- Site selection

### Parks/SMA

- Yukon territorial park

### Transportation

- Major road/highway
- Winter Road

### Mineral Claims

- Active quartz claims
- Active coal license

### Oil and Gas Dispositions

- Significant discovery licence
- Oil and gas permit
- Dempster proposed gas pipeline

### Peel Watershed Draft Land Use Plan

- Peel Watershed planning region
- Landscape management unit
- Dempster Hwy Development Area
- Important cultural area

### North Yukon Regional Land Use Plan (not yet approved)

- LMU 1A PA - Protected area
- LMU 1B ZONE I
- LMU 1C ZONE II
- LMU 1D ZONE III
- LMU 1E ZONE IV

### Gwich'in Land Use Plan Zones (NWT)

- Gwich'in conservation zone
- Gwich'in heritage conservation zone
- Gwich'in special management zone

### DATA SOURCES

Base data: 1:1M hydrology (Digital Chart of the World); 1:250,000 National Topographic Database (NRCAN); 1:1M topography, 90m and 300m shaded relief, 1M First Nation Lands (R-block & Fee simple), 1:250,000 S-Sites, 1:250,000 territorial boundaries, 1:250,000 territorial parks and campgrounds (Yukon Environment); 1:250,000 Dempster Hwy (Yukon Highways).

Thematic data: 1:1,000,000 Yukon First Nation Traditional Territory Boundary, Gwich'in Primary & Secondary Use Areas (Yukon Environment); 1:1,000,000 Yukon First Nation R-Block, 1:250,000 S-Sites (Yukon Environment); 1:1,000,000 Gwich'in land use planning zones (Gwich'in Land Use Planning Board); 1:250,000 land management units (NYPC, PWPC); 1:250,000 planning regions (YLUPC); 1:250,000 territorial boundaries, 1:250,000 territorial parks and campgrounds (Yukon Environment); 1:50,000 oil dispositions, mineral claims, outfitting leases (Yukon Government, EMR, March 28, 2009).

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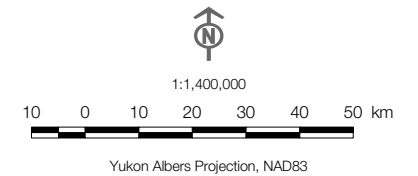


**PEEL WATERSHED**  
PLANNING COMMISSION



# Landscape Management Units & Land Use Plan Zones

## PEEL WATERSHED PLANNING REGION, YUKON



### LEGEND

- |  |  |
|--|--|
| <b>Ecosystem Protection Zones</b><br><ul style="list-style-type: none"> <li>Remote Access Lakes (RAL)</li> <li>River Corridor Zone (RCZ)</li> <li>Critical Landscape Zone (CLZ)</li> </ul>   | <b>Recommended Access Corridors</b><br><ul style="list-style-type: none"> <li>Potential routing</li> <li>Potential alternate routing</li> </ul>  |
| <b>Integrated Management Zones</b><br><ul style="list-style-type: none"> <li>Integrated Management Zone (IMZ) I</li> <li>Integrated Management Zone (IMZ) II</li> <li>Integrated Management Zone (IMZ) III</li> <li>Integrated Management Zone (IMZ) IV</li> </ul>                 | <b>Peel Watershed Land Use Plan</b><br><ul style="list-style-type: none"> <li>Peel Watershed planning region</li> <li>Landscape management unit</li> <li>Dempster Hwy Development Area</li> <li>Important cultural area</li> </ul> |
| <b>Wilderness Conservation Zones</b><br><ul style="list-style-type: none"> <li>General Conservation Zone (GCZ)</li> </ul>  |  |
| <b>North Yukon Regional Land Use Plan</b><br><ul style="list-style-type: none"> <li>LMU 1A PA - Protected area</li> <li>LMU 8B ZONE I</li> <li>LMU 4B ZONE II</li> <li>LMU 6 ZONE III</li> <li>LMU 7 ZONE IV</li> </ul>  | <b>Gwich'in Land Use Plan Zones (NWT)</b><br><ul style="list-style-type: none"> <li>Gwich'in conservation zone</li> <li>Gwich'in heritage conservation zone</li> <li>Gwich'in special management zone</li> </ul>                   |
| <b>First Nation Settlement Lands</b><br><ul style="list-style-type: none"> <li>R-blocks</li> <li>Site selection</li> </ul>   | <b>Parks/SMA</b><br><ul style="list-style-type: none"> <li>Yukon territorial park</li> </ul>   |
| <b>Oil and Gas and Mineral Tenures</b><br><ul style="list-style-type: none"> <li>Active quartz claim</li> <li>Active coal license</li> <li>Exploration Licence, Permit, Production Lease</li> <li>Significant Discovery Licence</li> <li>Dempster proposed gas pipeline</li> </ul> | <b>Transportation</b><br><ul style="list-style-type: none"> <li>Major road/highway</li> <li>Winter Road</li> </ul>   |
| <b>Mineral Claims</b><br><ul style="list-style-type: none"> <li>Active quartz claims</li> <li>Active coal license</li> </ul>   |  |

### DATA SOURCES

Base data: 1:1M hydrology (Digital Chart of the World); 1:250,000 National Topographic Database (NRCAN); 1:1M topography, 90m and 300m shaded relief, 1M First Nation Lands (R-block & Fee simple), 1:250,000 S-Sites, 1:250,000 territorial boundaries, 1:250,000 territorial parks and campgrounds (Yukon Environment); 1:250,000 Dempster Hwy (Yukon Highways);

Thematic data: 1:250,000 North Yukon planning region (YLUPC); 1:250,000 North Yukon land use plan zones (NYPC); 1:1M Gwich'in land use planning zones (Gwich'in Land Use Planning Board); Dempster Highway access management corridor (OIC 1979/064); 1:250,000 Peel Watershed planning region (YLUPC); 1:250,000 oil & gas basins; 1:250,000 mineral potential (YGS); 1:50,000 oil dispositions, mineral claims, outfitting leases (Yukon Government, EMR)

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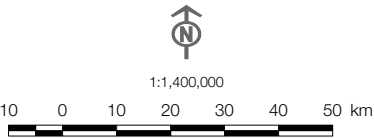


**PEEL WATERSHED**  
PLANNING COMMISSION



# Ecologically Important Areas

PEEL WATERSHED PLANNING REGION, YUKON



## LEGEND

- Porcupine Caribou Herd**

  - Winter concentrated use area
  - Winter moderate use area

**Hart River Caribou Herd**

  - Hart River caribou herd (winter)
  - Hart River caribou herd (fall)

**Bonnet Plume Caribou Herd**

  - Bonnet Plume caribou herd (winter)
  - Bonnet Plume caribou herd (fall)
- Dall's Sheep Key Areas**

  - Breeding
  - Lambing
  - Winter

**Traditional and local knowledge**

  - High quality habitat

**Waterbird Habitat Suitability**

  - High
  - Moderate

- Peel Watershed Land Use Plan**

  - Peel Watershed planning region
  - Landscape management unit
  - Dempster Hwy Development Area
  - Important cultural area

**North Yukon Regional Land Use Plan**

  - PA - Protected area
  - ZONE I
  - ZONE II
  - ZONE III
  - ZONE IV
- Gwich'in Land Use Plan Zones (NWT)**

  - Gwich'in conservation zone
  - Gwich'in heritage conservation zone
  - Gwich'in special management zone

**First Nation Settlement Lands**

  - R-blocks
  - Site selection

**Parks/SMA**

  - Yukon territorial park

**Transportation**

  - Major road/highway

## DATA SOURCES

Base data: 1:1M hydrology (Digital Chart of the World); 1:250,000 National Topographic Database (NRCAN); 1:1M topography, 90m and 300m shaded relief, 1M First Nation Lands (R-block & Fee simple), 1:250,000 S-Sites, 1:250,000 territorial boundaries, 1:250,000 territorial parks and campgrounds (Yukon Environment); 1:250,000 Dempster Hwy (Yukon Highways);

Thematic data: 1:250,000 North Yukon planning region (YLUPC); 1:250,000 North Yukon land use plan zones (NYPC); 1:1M Gwich'in land use planning zones (Gwich'in Land Use Planning Board); Dempster Highway access management corridor (OIC 1979/064); 1:250,000 Peel Watershed planning region (YLUPC); Porcupine caribou winter concentrated and general use areas (NYPC, CWS analysis 1985-2004); 1:250,000 Hart River & Bonnet Plume caribou winter habitat range (PWPC, derived from 1:250,000 regional terrain mapping (NYPC), 1:50,000 hydrology (NTDB) and wildlife key areas database (Yukon Environment)); Traditional and local knowledge (community interview and workshops, PWPC); 25m waterbird nesting habitat derived from 1:250,000 terrain mapping (PWPC)

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# Heritage Resources and First Nation Land Use

PEEL WATERSHED PLANNING REGION, YUKON



## LEGEND

Tr'ondëk Hwëch'in	Tetlit Gwich'in
Cabin/camp	Cabin; Cabin/Camp
Archaeological site	Archaeological Site
Culturally important place	Culturally Important place
General harvesting	General Harvesting
General land use*	General land use*
Travel route	Heart of TGFN proposed NHS
Trapline	Travel route
Cabin/camp	Trapline
General Harvesting	<b>Vuntut Gwitchin</b>
General land use*	Cabin/camp
	Archaeological site
	Culturally important place
	General harvesting
	General land use*

\*hunting, fishing, trapping & travel

Peel Watershed Land Use Plan	Gwich'in Land Use Plan Zones (NWT)
Peel Watershed planning region	Gwich'in conservation zone
Landscape management unit	Gwich'in heritage conservation zone
Dempster Hwy Development Area	Gwich'in special management zone
Important cultural area	<b>First Nation Settlement Lands</b>
<b>North Yukon Regional Land Use Plan</b>	R-blocks
LMU 1A	Site selection
LMU 8B	<b>Parks/SMA</b>
LMU 4B	Yukon territorial park
LMU 6	<b>Transportation</b>
LMU 7	Major road/highway

## DATA SOURCES

Base data: 1:1M hydrology (Digital Chart of the World); 1:250,000 National Topographic Database (NRCAN); 1:1M topography, 90m and 300m shaded relief, 1M First Nation Lands (R-block & Fee simple); 1:250,000 S-Sites; 1:250,000 territorial boundaries; 1:250,000 territorial parks and campgrounds (Yukon Environment); 1:250,000 Dempster Hwy (Yukon Highways);

Thematic data: 1:250,000 North Yukon planning region (YLUPC); 1:250,000 North Yukon land use plan zones (NYPC); 1:1M Gwich'in land use planning zones (Gwich'in Land Use Planning Board); 1:250,000 Peel Watershed planning region (YLUPC); Nacho Dyak Dun camps and cabins, routes, traplines, big game/fur-bearing locations, fish locations and wildlife areas (NND); Tr'ondëk Hwëch'in camps and cabins, routes, traplines and wildlife areas (THFN); Tetlit Gwich'in camps and wildlife areas, historic use area, Heart of TGFN (TGFN/MBBSMA/PWPC); Vuntut Gwitchin harvest locations and areas (VGFN);

## DATA DISCLAIMER

This map is a graphical representation, which depicts the approximate size, configuration and spatial relationship of known geographic features. While great care has been taken to ensure the best possible quality, this document is not intended for legal descriptions and/or to calculate precise areas, dimensions or distances. We do not accept any responsibility for errors, omissions or inaccuracies in this data.

Digital copies of this map may be obtained from the Peel Watershed Planning Commission website at: <http://www.peel.plan.yukon.ca>

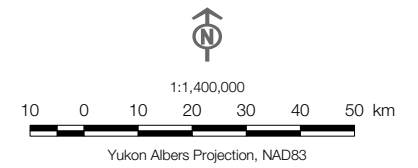


**PEEL WATERSHED**  
PLANNING COMMISSION



# Economic Development Potential and Interests

PEEL WATERSHED PLANNING REGION, YUKON



## LEGEND

<b>Oil and Gas Basin Potential</b> <ul style="list-style-type: none"><li>Higher</li><li>Lower</li></ul>	<b>Oil and Gas Dispositions</b> <ul style="list-style-type: none"><li>Significant discovery licence</li><li>Oil and gas permit</li><li>Dempster proposed gas pipeline</li></ul>
<b>Mineral Potential</b> <ul style="list-style-type: none"><li>Higher</li><li>Lower</li></ul>	<b>Mineral Claims</b> <ul style="list-style-type: none"><li>Active quartz claims</li><li>Active coal license</li></ul>
<b>Tourism Potential</b> <ul style="list-style-type: none"><li>Very high recreation potential</li><li>High recreation potential</li><li>High value hiking</li><li>Activity corridor</li><li>Dempster corridor</li></ul>	<b>Tourism Activity</b> <ul style="list-style-type: none"><li>Canoeing</li><li>Climbing</li><li>Horseback tour</li><li>Snowmobiling</li><li>Driving tour</li><li>Viewpoint</li><li>Wildlife viewing</li><li>Interpretive centre</li><li>Primitive campsite</li><li>Outfitting camp</li></ul>
<b>Peel Watershed Land Use Plan</b> <ul style="list-style-type: none"><li>Peel Watershed planning region</li><li>Landscape management unit</li><li>Dempster Hwy Development Area</li><li>Important cultural area</li></ul>	<b>Gwich'in Land Use Plan Zones (NWT)</b> <ul style="list-style-type: none"><li>Gwich'in conservation zone</li><li>Gwich'in heritage conservation zone</li><li>Gwich'in special management zone</li></ul> <b>First Nation Settlement Lands</b> <ul style="list-style-type: none"><li>R-blocks</li><li>Site selection</li></ul> <b>Parks/SMA</b> <ul style="list-style-type: none"><li>Yukon territorial park</li></ul> <b>Transportation</b> <ul style="list-style-type: none"><li>Major road/highway</li><li>Winter Road</li></ul>

## DATA SOURCES

Base data: 1:1M hydrology (Digital Chart of the World); 1:250,000 National Topographic Database (NRCAN); 1:1M topography, 90m and 300m shaded relief, 1M First Nation Lands (R-block & Fee simple), 1:250,000 S-Sites, 1:250,000 territorial boundaries, 1:250,000 territorial parks and campgrounds (Yukon Environment); 1:250,000 Dempster Hwy (Yukon Highways); 1:250,000 tourism infrastructure, recreation potential (Yukon Government, Tourism); Dempster Highway access management corridor (OIC 1979/064);

Thematic data: 1:250,000 North Yukon planning region (YLUPC); 1:250,000 North Yukon land use plan zones (NYPC); 1:1M Gwich'in land use planning zones (Gwich'in Land Use Planning Board); 1:250,000 Peel Watershed planning region (YLUPC); 1:250,000 oil & gas basins, 1:250,000 mineral potential (YGS); 1:50,000 oil dispositions, mineral claims, outfitting leases (Yukon Government, EMR)

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## Appendix B. LMU Descriptions and Summary Statistics

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Table B.1 – Existing Subsurface Dispositions within Land Use Management Units

Table B.2 – Linear Feature and Surface Disturbance Indicators within Land Use Management Units (updated March 25, 2009)

Table B.3 – Summary of Indicators and Access Provisions for Land Use Management Units

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Table B.1 – Existing Subsurface Dispositions within Land Use Management Units

		Coal License		Iron_Mica Claims		Quartz Claims		Quartz Claims and Coal License		Oil and Gas Permit		Oil and Gas Significant Discovery License		No Subsurface Dispositions		LMU Total (km2)
Land Use Management Unit	Zone Designation	Area (km2)	Percent of LMU	Area (km2)	Percent of LMU	Area (km2)	Percent of LMU	Area (km2)	Percent of LMU	Area (km2)	Percent of LMU	Area (km2)	Percent of LMU	Area (km2)	Percent of LMU	
11a	CLZ		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	676	100.0%	676
11b	CLZ		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	977	100.0%	977
11c	CLZ		0.0%		0.0%	3	0.7%		0.0%		0.0%		0.0%	382	99.3%	384
11d	CLZ		0.0%		0.0%	1	1.5%		0.0%		0.0%		0.0%	50	98.5%	51
11f	CLZ		0.0%		0.0%	3	2.6%		0.0%	30	25.1%		0.0%	87	72.3%	120
12b	CLZ		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	27	100.0%	27
1d	CLZ		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	50	100.0%	50
2c	CLZ		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	141	100.0%	141
3c	CLZ		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	217	100.0%	217
3d	CLZ		0.0%		0.0%	4	0.9%		0.0%		0.0%		0.0%	454	99.1%	458
4b	CLZ		0.0%		0.0%	14	1.0%		0.0%		0.0%		0.0%	1433	99.0%	1447
5b	CLZ		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	0	100.0%	0
7b	CLZ		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	614	100.0%	614
7c	CLZ		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	160	100.0%	160
8a	CLZ		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	1611	100.0%	1611
9b	CLZ		0.0%		0.0%	0	0.0%		0.0%		0.0%		0.0%	535	100.0%	535
11e	GCZ		0.0%		0.0%	97	16.1%		0.0%		0.0%		0.0%	508	83.9%	605
1c	GCZ		0.0%	6	0.2%	52	1.8%		0.0%		0.0%		0.0%	2934	98.1%	2992
2a	GCZ	23	1.1%		0.0%	32	1.6%	194	9.6%		0.0%		0.0%	1784	87.7%	2033
2b	GCZ	10	0.1%		0.0%	706	9.3%	5	0.1%		0.0%		0.0%	6894	90.5%	7615
3a	GCZ	756	34.0%		0.0%	6	0.2%	115	5.2%		0.0%		0.0%	1344	60.5%	2220
3b	GCZ	102	1.6%		0.0%	298	4.7%	150	2.4%		0.0%		0.0%	5762	91.3%	6313
4a	GCZ		0.0%		0.0%	203	1.9%		0.0%	0	0.0%		0.0%	10558	98.1%	10761
1a	IMZ1		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	4452	100.0%	4452
6b	IMZ1		0.0%		0.0%	59	1.6%		0.0%		0.0%		0.0%	3702	98.4%	3760
7a	IMZ1		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	1504	100.0%	1504
12a	IMZ2		0.0%		0.0%	34	1.0%		0.0%		0.0%		0.0%	3496	99.0%	3530
5a	IMZ2		0.0%		0.0%	103	3.9%		0.0%		0.0%		0.0%	2531	96.1%	2634
9a	IMZ2		0.0%		0.0%	60	2.1%		0.0%		0.0%		0.0%	2813	97.9%	2872
10b	IMZ3		0.0%		0.0%	28	5.7%		0.0%		0.0%		0.0%	462	94.3%	490
6a	IMZ3		0.0%		0.0%	19	0.6%		0.0%		0.0%		0.0%	3008	99.4%	3027
10a	IMZ4		0.0%		0.0%		0.0%		0.0%	491	47.5%	70	6.8%	472	45.7%	1033
1b	IMZ4		0.0%	261	17.8%		0.0%		0.0%		0.0%		0.0%	1209	82.2%	1470
2d	RAL		0.0%		0.0%	8	34.3%		0.0%		0.0%		0.0%	15	65.7%	22
2e	RAL		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	8	100.0%	8
2f	RAL		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	30	100.0%	30
2g	RAL		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	22	100.0%	22
2h	RAL		0.0%		0.0%	37	99.1%		0.0%		0.0%		0.0%	0	0.9%	37
4c	RAL		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	41	100.0%	41
4d	RAL		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	9	100.0%	9
13-1	RCZ-1		0.0%	11	2.6%		0.0%		0.0%		0.0%		0.0%	410	97.4%	421
13-2	RCZ-2		0.0%		0.0%	23	3.7%	19	3.1%		0.0%		0.0%	571	93.2%	613
13-3	RCZ-3	100	21.3%		0.0%	4	0.8%	3	0.6%		0.0%		0.0%	363	77.3%	470
13-4	RCZ-4		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	515	100.0%	515
13-5	RCZ-5		0.0%		0.0%	7	3.4%		0.0%	4	1.9%		0.0%	184	94.7%	194
13-6	RCZ-6		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	236	100.0%	236
Column Total (km2 and percent of region)		991	1.5%	278	0.4%	1800	2.7%	486	0.7%	524	0.8%	70	0.1%	63248	93.8%	67397

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**Table B.2 – Linear Feature and Surface Disturbance Indicators within Land Use Management Units (updated March 25, 2009)**

## OBJECTIVE

To facilitate an objective assessment of historical, current and potential future levels of linear features and surface disturbance in the Peel Watershed Planning Region.

## METHODS

Definitions for human-caused surface disturbance and linear features and a discussion of their contribution to regional cumulative effects may be found in the Resource Assessment Report (Section 11.0 – Existing land Use Impacts).

Linear features were previously identified for North Yukon Planning Commission by Yukon Geomatics, merging the Yukon Seismic Line database ([seismic.shp](#)) with 1:50K linear features ([base50k.mdb\transportation](#)), and extracting a single layer for each linear feature type: (NYPC, 2006. <http://nypc.planyukon.ca/Publications> » Resource Assessment Report & Maps » Background Reports).

The following linear features were mapped for the Peel watershed:

- ‘MR’ = Major Road – only used for Dempster Highway
- ‘WR’ = Winter Road
- ‘AR’ = Access Road – used for existing all season minor/resource access roads
- ‘SL’ = Seismic Line – only features identified in updated Yukon seismic line database
- ‘TR’ = Trail - unidentified linear feature; all unidentified historical linear features (survey lines, trails, tote roads and similar)
- ‘CUT’ = Cutline

Site features were compiled from various sources. Only those attributes identifying the type of site and its area(if known) were retained.

- Well sites – YG EMR, Oil and Gas Dispositions
- Traditional Camps – VGFN, TG, NND, THFN workshop data
- Outfitter Camps – Workshops, YG EMR, Land Disposition
- Trapper Cabins – Workshops, YG EMR, Land Disposition
- Airstrips – NYPC
- Gravel Pits, Campgrounds, Communication Towers, - YG EMR, Land Dispositions

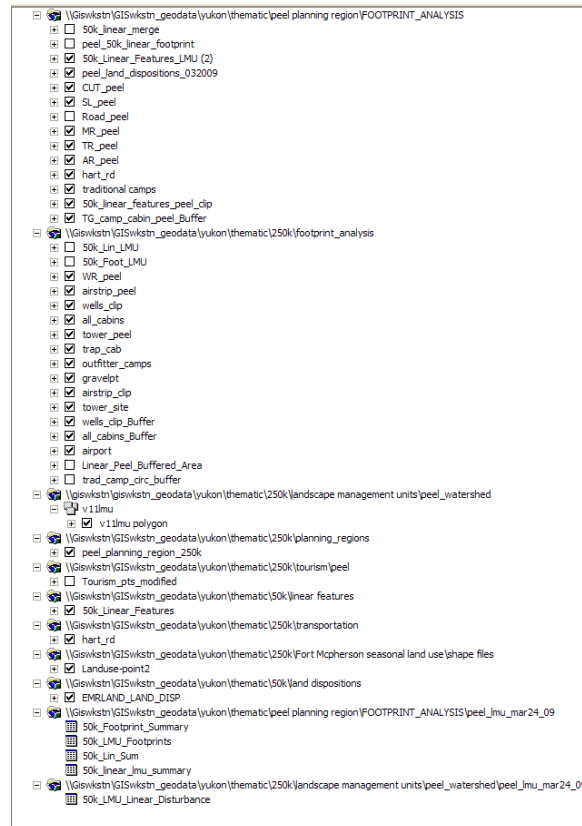
Where actual area or width of features is not known from the attribute data, the following values were used to buffer features:

<b>FEATURE WIDTH AND SIZE</b>	
<b>Linear Features</b>	<b>Width</b>
Major Road	60m
Access Road (incl Hart Rd)	10m
Winter Road	10m
Air Strip *	60m x 1000m
Trail	8m
Cutline	8m
Seismic Line	8m (pre-1995)
<b>Other Features</b>	<b>Area</b>
Well Site	100m x 100m
Gravel Pit	1/2 Lease Area
Communications Tower/Facility	60m x 60m
Cabins	10m x 10m
Traditional Use Camp	50m x 50m
Tourism/Visitor Facility **	Actual footprint
Outfitter Camp	Actual footprint
Primitive Campsite	10m x 10m

Spatial files were clipped to planning region boundaries. All working files are stored in the following network directory:

\\Nextserver\transfer\Planning Commissions\Peel Watershed Planning  
Commission\DRAFT\_PLAN\Footprint Analysis Working Files - Mar 2009

Linear and site feature layers were intersected with Landscape Management Unit - Version 11, March 25, 2009 for summary of disturbance by LMU.



## RESULTS

### ○ Results are reported here:

#### Peel Watershed Planning Region Historical Surface Disturbance

*Draft (Updated March 28, 2009)*

Feature Class	Historical Footprint			Historical Surface Disturbance		
	Feature Size/Width	Count	Area (m2)	Area (ha)	Area (%)	Length (km)
<b>Peel Watershed</b>						
<b>Planning Region</b>				<b>6739663.66</b>	<b>100.00</b>	<b>1,998.34</b>
<b>Linear Features</b>						
Major Road	60m		7779884	777.99	0.0115	129.66
Access Road (incl Hart Rd)	10m		150762	15.08	0.0002	15.07
Winter Road	10m		5501962	550.20	0.0082	750.77
Air Strip	60m x 1000m	40	4249123	424.91	0.0063	40.00
Trail	8m		26481168	2,648.12	0.0393	3,310.15
Cutline	8m		280857	28.09	0.0004	93.62
Seismic Line	8m (pre-1995)		20197494	2,019.75	0.0300	2,528.84
<i>Linear Features Total</i>				6,464.12	0.0959	6,868.12
<b>Other Features</b>						
Well Site	100m x 100m	23	22880	2.29	0.0000	--
Gravel Pit	1/2 Lease Area	1	1023738	102.37	0.0015	--
Communications Tower/Facility	60m x 60m		10804	1.08	0.0000	--
Cabins	10m x 10m	212	81579	8.16	0.0001	--
Traditional Use Camp	50m x 50m	24	6076	0.61	0.0000	--
Tourism/Visitor Facility	Actual footprint	1	405430	40.54	0.0006	--
Outfitter Camp	Actual footprint	2	58644	5.86	0.0001	--
Primitive Campsite	10m x 10m	7	700	0.07	0.0000	--
<i>Other Features Total</i>				160.99	0.0024	
<b>TOTAL</b>				<b>6,625.11</b>	<b>0.0983</b>	<b>6,868.12</b>

# Peel Watershed Planning Region Historical Surface Disturbance by LMU

*Draft (Updated March 28, 2009)*

LMU	AREA		Indicator Value		
	Ha.	% of Region	Indicator Name	Amount (ha OR km)	CE Metric (% or km/km2)
1a	445183.9232	6.61%	SD (%)	917.802	0.21%
			LD (km)	1314.335	0.295
1b*	147030.2318	2.18%	SD (%)	21.132	0.01%
			LD (km)	51.429	0.035
1c	142220.3016	2.11%	SD (%)	0.192	0.00%
			LD (km)	15.297	0.011
1d	4990.627955	0.07%	SD (%)	5.638	0.11%
			LD (km)	8.266	0.166
2a	203336.0769	3.02%	SD (%)	148.272	0.07%
			LD (km)	302.777	0.149
2b	761494.0249	11.30%	SD (%)	43.044	0.01%
			LD (km)	118.144	0.016
2c	14069.19636	0.21%	SD (%)	0.965	0.01%
			LD (km)	3.132	0.022
2d	2222.48542	0.03%	SD (%)	0.456	0.02%
			LD (km)	0.000	0.000
2e	763.183168	0.01%	SD (%)	0.000	0.00%
			LD (km)	0.000	0.000
2f	2975.634409	0.04%	SD (%)	2.584	0.09%
			LD (km)	0.000	0.000
2g	2223.584274	0.03%	SD (%)	0.177	0.01%
			LD (km)	0.000	0.000
2h	3722.083668	0.06%	SD (%)	0.152	0.00%
			LD (km)	0.000	0.000
3a	222000.5373	3.29%	SD (%)	131.689	0.06%
			LD (km)	225.990	0.102
3b	631203.7387	9.37%	SD (%)	70.497	0.01%
			LD (km)	114.968	0.018
3c	21691.32187	0.32%	SD (%)	42.189	0.19%
			LD (km)	58.709	0.271
3d	45832.17673	0.68%	SD (%)	4.180	0.01%
			LD (km)	17.590	0.038
4a	1076058.413	15.97%	SD (%)	96.869	0.01%
			LD (km)	115.719	0.011
4b	144693.7951	2.15%	SD (%)	0.025	0.00%
			LD (km)	0.000	0.000
4c	4093.225265	0.06%	SD (%)	0.177	0.00%
			LD (km)	0.000	0.000
4d	890.8239992	0.01%	SD (%)	2.078	0.23%
			LD (km)	0.000	0.000
5a	263403.5904	3.91%	SD (%)	177.485	0.07%
			LD (km)	168.730	0.064
5b	32.71183067	0.00%	SD (%)	0.000	0.00%
			LD (km)	0.000	0.000
6a	302706.3621	4.49%	SD (%)	518.805	0.17%
			LD (km)	279.369	0.092

LMU	AREA		Indicator Value		
	Ha.	% of Region	Indicator Name	Amount (ha OR km)	CE Metric (% or km/km2)
6b	376028.2911	5.58%	SD (%)	196.595	0.05%
			LD (km)	235.578	0.063
7a	150449.7997	2.23%	SD (%)	497.195	0.33%
			LD (km)	1050.006	0.698
7b	61399.05169	0.91%	SD (%)	206.940	0.34%
			LD (km)	441.396	0.719
7c	15960.44933	0.24%	SD (%)	84.314	0.53%
			LD (km)	202.864	1.271
8a	161069.3792	2.39%	SD (%)	614.516	0.38%
			LD (km)	903.275	0.561
9a	287226.2817	4.26%	SD (%)	14.325	0.00%
			LD (km)	140.679	0.049
9b	53451.39728	0.79%	SD (%)	0.000	0.00%
			LD (km)	0.000	0.000
10a	103260.0481	1.53%	SD (%)	500.074	0.48%
			LD (km)	586.658	0.568
10b	48965.05055	0.73%	SD (%)	39.612	0.08%
			LD (km)	60.309	0.123
11a	67616.84033	1.00%	SD (%)	181.900	0.27%
			LD (km)	247.770	0.366
11b	97747.87925	1.45%	SD (%)	164.607	0.17%
			LD (km)	431.640	0.442
11c	38438.81865	0.57%	SD (%)	13.755	0.04%
			LD (km)	99.291	0.258
11d	5122.36516	0.08%	SD (%)	0.000	0.00%
			LD (km)	0.000	0.000
11e	60501.86181	0.90%	SD (%)	25.574	0.04%
			LD (km)	37.213	0.062
11f	12044.73894	0.18%	SD (%)	13.916	0.12%
			LD (km)	63.577	0.528
12a	352993.4379	5.24%	SD (%)	1089.902	0.31%
			LD (km)	1475.847	0.418
12b	2728.682926	0.04%	SD (%)	9.600	0.35%
			LD (km)	70.147	2.571
13-1	42134.24864	0.63%	SD (%)	62.271	0.15%
			LD (km)	175.527	0.417
13-2	61250.80249	0.91%	SD (%)	39.810	0.06%
			LD (km)	350.116	0.572
13-3	46967.75291	0.70%	SD (%)	71.873	0.15%
			LD (km)	150.900	0.321
13-4	51458.6119	0.76%	SD (%)	3.886	0.01%
			LD (km)	29.771	0.058
13-5	19382.5557	0.29%	SD (%)	336.741	1.74%
			LD (km)	200.363	1.034
13-6	23598.17561	0.35%	SD (%)	534.000	2.26%
			LD (km)	104.138	0.441

\*Double counted a trail/winter road – future revisions of the historical surface disturbance will clean the existing linear features spatial database for double counted linear features.

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Table B.3 – Summary of Indicators and Access Provisions for Land Use Management Units

LMU Sub-unit Name	Teet'it njik	Peel Mainstem	Tshuu tr'adaojich'uu	Aberdeen Canyon	Upper Peel River	Vittrekwa River	Niitavan dininlee	Chapple Lake Wetlands	Hungry Lakes	Nash Creek	West Hart	Mid Blackstone Flats	Jackfish Lakes	Tabor Lakes	Turner Wetlands and Caribou River	Doll Creek	Deception Lake	Upper Snake Watershed	Lower Bonnet Plume Watershed – Noisy Creek	Lower Bonnet Plume Watershed	Lower Wind Watershed	Upper Wind Watershed	Hart Watershed	Lower Snake Watershed	Upper Ogilvie Watershed	Peel Plain	Peel Plateau	Blackstone Watershed	Southern Richardson Mountains	Canyon Creek	Lower Ogilvie Watershed – Engineer Creek	Eagle Plains	Middle Snake Watershed – Crest	Fairchild Lake - Bonnet Plume Watershed	Duo Lake - Bonnet Plume Watershed	Bonnet Plume Lake - Bonnet Plume Watershed	Margaret Lake - Bonnet Plume Watershed	Quartet Lakes - Bonnet Plume Watershed	Elliot Lake – Hart Watershed	Hart Lake – Hart Watershed	Snake River Corridor	Bonnet Plume River Corridor	Wind River Corridor	Hart River Corridor	Blackstone River Corridor	Ogilvie River Corridor				
LMU Sub-unit	11a	11b	11c	11d	11f	12b	1d	2c	3c	3d	4b	5b	7b	7c	8a	9b	11e	1c	2a	2b	3a	3b	4a	1a	6b	7a	12a	5a	9a	10b	6a	10a	1b	2d	2e	2f	2g	2h	4c	4d	13-1	13-2	13-3	13-4	13-5	13-6				
Management Zone	CLZ	CLZ	CLZ	CLZ	CLZ	CLZ	CLZ	CLZ	CLZ	CLZ	CLZ	CLZ	CLZ	CLZ	CLZ	CLZ	GCZ	GCZ	GCZ	GCZ	GCZ	GCZ	GCZ	IMZ1	IMZ1	IMZ1	IMZ2	IMZ2	IMZ2	IMZ3	IMZ3	IMZ4	IMZ4	RAL	RAL	RAL	RAL	RAL	RAL	RAL	RCZ	RCZ	RCZ	RCZ	RCZ	RCZ				
Area (km2)	676	977	384	51	120	27	50	141	217	458	1447	0	614	160	1611	535	605	2992	2033	7615	2220	6312	10761	4452	3760	1504	3530	2634	2872	490	3027	1033	1470	22	8	30	22	37	41	9	421	613	470	515	194	236				
% of Plan Area	1.0%	1.5%	0.6%	0.1%	0.2%	0.0%	0.1%	0.2%	0.3%	0.7%	2.1%	0.0%	0.9%	0.2%	2.4%	0.8%	0.9%	4.4%	3.0%	11.3%	3.3%	9.4%	16.0%	6.6%	5.6%	2.2%	5.2%	3.9%	4.3%	0.7%	4.5%	1.5%	2.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.6%	0.9%	0.7%	0.8%	0.3%	0.4%				
Recommended Actions:																																																		
All-season access		~			~												~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~				
Winter roads		~			~												~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~			
Aggregate for access																	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~			
Land withdrawal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Grandfather existing subsurface tenures																	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Recommended Indicators:																																																		
Linear density																	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Surface disturbance																	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Water quality indices (aquatic life)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Water flow indices (aquatic life)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Water quality indices (human consumption)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
River Corridor Zone Crossing Density																		✓		✓		✓	✓				✓	✓	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓	✓	✓	✓	✓		
Potential Indicators:																																																		
Habitat availability																	✓	✓		✓		✓					✓	✓	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓	✓	✓	✓	✓	✓	
Minimum core area																	✓	✓		✓		✓					✓	✓	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓	✓	✓	✓	✓	✓	
Minimum patch size																	✓	✓		✓		✓					✓	✓	✓	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓	✓	✓	✓	✓	
Sensory Disturbance									✓	✓					✓		✓	✓		✓		✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ Allowable access or recommended indicators for cumulative effects assessment  
~ Possible allowable access or recommended indicators for cumulative effects assessment (LMU specific management direction)

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## Appendix C. Key Issues

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Table C.1 – Summary of key issues by sector in the Peel Watershed Planning Region

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Table C.1 – Summary of key issues by sector in the Peel Watershed Planning Region

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
<b>Goal 2: Aquatic Resources</b>			
<b>Water</b>  (water quality/flows for both hydrological and ecosystem function for flora/fauna; domestic consumption to people at seasonal camps, and downstream community of Ft McPherson)	<b>Hydrology</b>	<i>Major river systems</i> (Peel, Bonnet Plume, Snake, Wind, Ogilvie, Blackstone, and Hart).  <i>Critical permafrost areas</i> (Fort McPherson Plain and Peel Plateau bog-fen complexes)  <i>Glaciers</i> (Bonnet-Plume Headwaters)	<ul style="list-style-type: none"> <li>❖ Lack of baseline hydrological and water quality data in the tributaries of the Peel Watershed are limits to establish threshold/indicator levels for land use management</li> <li>❖ Extent of available water flow rates, and storage capacity considered inadequate to support industrial activities</li> <li>❖ Lack of research on climate-change effects on watershed resources (permafrost, glacier melt, winter and peak flows) to evaluate effects from industrial activities (i.e. mine, gas developments)</li> <li>❖ Minor alterations to hydrology through construction of all season roads, well pads and similar features can result in significant impacts.</li> <li>❖ Large volumes of aggregate are typically required to support all-season infrastructure in wetland environments, making reclamation difficult.</li> <li>❖ Land use conflicts might arise between multiple uses of wetlands, lakes and rivers: a) travel along river corridors (both adjacent and along rivers), or b) fly-in</li> </ul>

	<p>All water producing and storage elements (snow-cover, glaciers, rivers, lakes, wetlands, permafrost) for ecosystem function</p> <p>Industrial use (tourism, mineral exploration and development, potential oil &amp; gas, hydro-electric development)</p>		<p>lakes.</p>
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Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
<b>Goal 2: Aquatic Resources – cont.</b>			
<b>Aquatic Focal Species</b>			
	<p><b>Fish</b></p> <p>Sea-run fish: (Anadromous coregonids, Salmonids species)</p> <p>Non sea-run fish: (Potadromous species)</p>	<p>Peel River mainstem, downstream of Aberdeen Canyon primary interest because of spawning habitat for sea-run fish</p> <p>Peel river tributaries for summer habitat</p>	<ul style="list-style-type: none"> <li>❖ Lack of fisheries information (species, critical habitats) particularly over-wintering species spawning areas, and First Nations occupancy and traditional use</li> <li>❖ Industrial land use activities may create direct fish habitat impacts including habitat loss, degradation and barriers to fish passage.</li> <li>❖ Human access facilitated by linear features related to industrial land use activity (seismic lines, trails and winter and all-season roads) may increase opportunities for harvesting, potentially leading to decreased fish populations.</li> <li>❖ Rates of fish harvest could become unsustainable; however, current rate of fish harvest are considered sustainable. Fish harvesting has been fairly high on some lakes and on stocks of whitefish, and Dolly Varden char in the lower Peel, but generally appears to be sustainable.</li> <li>❖ Climate change effects are anticipated to result in decreased peak stream-flow rates, potentially impacting fish habitats and populations.</li> </ul>

		Peel River mainstem, downstream of Aberdeen Canyon primary interest because of spawning habitat for sea-run fish	<p><b>Management issues specific to sea-run fish (anadromous):</b></p> <ul style="list-style-type: none"> <li>❖ Whitefish, Dolly Varden char, herrings and Inconnu are of immense current and historical importance as a food source for people along the Peel River and into the Mackenzie Delta.</li> <li>❖ The population size of sea-run fish is limited by spawning habitat – spawning habitat is localized and requires specific gravel deposition and channel complexity that is poorly understood.</li> <li>❖</li> </ul>
		Peel river tributaries for summer habitat	<p><b>Management issues specific to non-sea-run fish (potadromous):</b></p> <ul style="list-style-type: none"> <li>❖ Arctic Grayling and Lake Trout are of immense current and historical importance as a food source for people along the Peel River and into the Mackenzie Delta.</li> <li>❖ The population size of potadromous fish is limited by over-wintering habitat.</li> <li>❖ In-stream water withdrawals required for industrial land uses may lead to impacts on fish over-wintering habitat.</li> <li>❖ Over-wintering habitat is strongly associated with surface groundwater (aufeis are good indicators of surface groundwater), major confluences and lakes.</li> </ul>



	<b>Waterbirds</b>	<p><i>Waterfowl wetlands</i> (Chappie Lake, Turner Lakes, Tabor Lakes, and Jackfish Creek)</p> <p><i>Wetland ecosystems</i> (Peel River Plateau and Fort McPherson Plains)</p>	<ul style="list-style-type: none"> <li>❖ Waterbirds are highly dependent on wetlands</li> <li>❖ The connectivity between open water, vegetated wetlands and riparian areas are key elements for waterbird lifecycle for feeding, nesting, raising young, and moulting.</li> <li>❖ Lakes and wetlands are fairly uncommon elements in the planning region</li> <li>❖ Migratory waterbird use wetlands in the planning region as a staging and stop-over site – representing a seasonal but significant use</li> <li>❖ Several waterbird species are regulated under the migratory bird act – particular provisions for management of migratory birds under this act may identify areas for protection or provide management guidance.</li> </ul>
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Resource Sector/Val	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
<b>Goal 3: Terrestrial Resources</b>			<ul style="list-style-type: none"> <li>❖ No existing lands designated or managed as protected areas for fish and wildlife conservation purposes</li> </ul>
<b>Wildlife</b>	<b>Focal Wildlife Species</b>		<ul style="list-style-type: none"> <li>❖ Susceptibility of Caribou to human impacts and hunting pressure</li> <li>❖ Enough Caribou winter habitat needs to be protected to enable stable populations.</li> </ul>
	Caribou	BCH range primarily in NWT, but some winter range on Fort McPherson Plains	
	Boreal woodland caribou herd (BCH) – listed as “Threatened” under the Species at Risk Act	Southern Richardson Mountains, Mountains and area generally west of the Wind River (PCH winter range)	
	Porcupine caribou herd (PCH)	BPCH annual cycle almost entirely within the PWPR	
	Bonnet Plume caribou herd* (BPCH)	HRCH annual cycle almost entirely within the PWPR	
	Hart River caribou herd* (HRCH)	RCH has some winter range within upper Bonnet Plume and Snake drainages	
	Redstone caribou herd* (RCH)		
	*Northern Mountain Caribou are listed as “Special Concern” under the Species at Risk Act		
	Moose	Peel River Plateau, the Fort McPherson Plains, and valley bottoms	<ul style="list-style-type: none"> <li>❖ Management of species during critical late winter season</li> <li>❖ Lack of data on population structure</li> <li>❖ Protection of late winter riparian habitat</li> </ul>
	Dall Sheep	Alpine ecosystems	<ul style="list-style-type: none"> <li>❖ Management of critical winter habitat</li> <li>❖ Sensory disturbance during lambing periods</li> </ul>
	Grizzly – listed as “Special Concern” under the Species at Risk Act	Wide ranging habitats in mountainous areas of region (riparian valleys, and Boreal forest plateaus)	<ul style="list-style-type: none"> <li>❖ Mapping and ranking of feeding season habitats, cover habitat for nursing females, and denning habitats</li> </ul>
	Marten	the Taiga Plains ecozone, and the Eagle Plains ecoregion	

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
<b>Goal 3: Terrestrial Resources</b>			
<b>Other Conservation Indicators</b>	Bird Species		
	Peregrine Falcon – listed as “Threatened” under the Species at Risk Act	Nesting cliffs adjacent or close to wetland foraging habitats	❖ Disturbance due to human presence and activities on nesting.
	Breeding Birds	Wetlands, riparian forests, or shrubby areas at all elevations	❖ Need for protection of nesting migration stop-over habitat
	Birds of Conservation Concern (species at risk of extinction)	Well vegetated ranges (e.g., Richardsons)  Wetlands of Peel River Plateau, Edigii Hill and the Ogilvie pediments	❖ Lack of information on distribution and sensitivity of endangered bird species.  ❖ Lack of information on distribution of rare or endemic plants.
	Rare and Endemic Plants	Northern Ogilvie Mountains and Richardson Mountains	

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
<b>Goal 4: Special Features</b>			
	Mineral Licks, Thermal springs Permafrost, Peat bogs/fens Terrain (Caves, Hoodoos, Thermal Karsts, Canyons, Glaciers) Mountain Passes		<ul style="list-style-type: none"> <li>❖ Extensive areas of the planning region are underlain by permafrost. Associated terrestrial and aquatic species, their habitats, human infrastructure, and potentially the carbon balance of the region all rely on its continued stability. Surface disturbances and climate change both threaten to melt affected areas of permafrost.</li> <li>❖ For associated animals (primarily caribou and sheep), mineral licks are far more valuable per unit area than other habitats.</li> <li>❖ Disturbance to licks and trails to them will disproportionately disturb wildlife.</li> <li>❖ Like mineral licks, disturbance to certain mountain passes and associated trails could disproportionately disturb wildlife movements.</li> <li>❖ The Nash Creek thermal spring has high cultural, ecological, and potentially touristic values. Development in the area and/or increased or inappropriate recreational use of the area could diminish these values.</li> <li>❖ Very local terrain features have high cultural, ecological, and/or potentially touristic values. Development in these areas could diminish these values.</li> </ul>

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
<b>Goal 5: Heritage Conservation</b>			
<b>Heritage Resources</b>  <b>(Pre- and post-contact artifacts and sites)</b>	Traditional First Nation Use Sites (e.g. harvesting areas for fish and wildlife, camps, cabins, gravesites, trails)	Sites and areas not posted for public release	<ul style="list-style-type: none"> <li>❖ Designation of proposed Teetlit Gwich'in Historical Sites on Peel</li> <li>❖ First Nations seek to protect the location of traditional resource areas (e.g. fishing sites, springs, medicinal plant sites, gravesites)</li> <li>❖ Fish &amp; wildlife have a significant spiritual and other cultural significance</li> <li>❖ Need to support further historical research and traditional-use mapping</li> <li>❖ Conservation and maintenance of significant heritage and traditional use areas are important to maintain the First Nations traditional economy.</li> <li>❖ Integration of traditional skills camps with monitoring cultural or wildlife areas.</li> <li>❖ First Nations opportunities to participate in traditional economic activities and other cultural pursuits depend on the continued availability of and access to heritage and cultural areas.</li> <li>❖ Conflicts might arise between Cultural Resources (primarily gravesites) along the Dempster Highway Corridor and future industrial land use impacts within these areas.</li> </ul>
	Paleontological Resources (dinosaur fossils, Ice age mammal and plants)	<ul style="list-style-type: none"> <li>- Eroded riverbanks, generally;</li> <li>- Dempster Hwy Corridor</li> <li>- Hungry Creek for Ice Age mammal fossils;</li> <li>“Burning Rock” area near Peel Canyon;</li> <li>- Snake River bedrock areas</li> </ul>	<ul style="list-style-type: none"> <li>❖ Need to ensure protection of significant paleontological and archaeological resources</li> <li>❖ Need to undertake further heritage resource assessments in key target areas</li> </ul>
	Archaeological Resources (prehistoric, and pre-contact artifacts)	<ul style="list-style-type: none"> <li>- Western Richardson mtns</li> <li>- Snake/Peel River confluence</li> <li>- Upper Ogilvie &amp; Blackstone Riv</li> <li>- possibly Mackenzie Mtns</li> </ul>	

	<p>Post- Contact Heritage (village sites, Gold rush and trapping era artifacts,</p>	<ul style="list-style-type: none"> <li>- Black City and Calico Town on Blackstone River, Wind City, Hungry Creek</li> <li>- Route of the “Lost Patrol” (Ft MacPherson to Dawson City same as traditional trail of Teetlit Gwich’in and Tr’ondëk Hwëch’in.</li> <li>- “Lost Patrol” Historical Monuments on Peel River</li> <li>- Chappie Lake Trading Post</li> <li>- Individual trading posts of Teetlit Gwich’in (Road &amp; Trail River area)</li> <li>- Proposed National Historic Sites of Teetlit Gwich’in on Peel River</li> <li>- Bonnet-Plume Heritage River</li> </ul>	
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Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
<b>Goal 6: Access Management and Planning</b>			
<b>Access</b> (Existing seasonal, permanent and remote)	<i>All season access</i>	- Dempster Highway (130 km)	<ul style="list-style-type: none"> <li>❖ Need to maintain Dempster Highway as corridor for serving NWT communities, supporting rubber-tire tourism and recreation, First Nation subsistence harvesting, exploration and potential oil &amp; gas/mineral development including aggregates</li> <li>❖ Suitable soil conditions, topography and accessibility to aggregate (gravel) for new all-season road location and construction</li> <li>❖ Lack of comprehensive survey data on available aggregate deposits within the Peel region</li> <li>❖ Feasibility (socio-economic and environmental) of construction and reclamation of new all-season access for post-exploration extractive resource industries (oil &amp; gas and mining) including infrastructure corridors</li> <li>❖ Permanent road construction viewed as incompatible with wilderness values for all related tourism sectors in remote areas</li> <li>❖ (guide/outfitting, eco-tourism) including potential impacts as noise disturbance, ecosystem fragmentation, and degradation of the natural environment.</li> </ul>
	<i>Seasonal access</i>	- Wind River Trail via Braine Pass; Hart River Trail via Dempster Hwy; and Ft McPherson winter access route	<ul style="list-style-type: none"> <li>❖ Potential infringement on First Nations traditional cultural-use activities and sites</li> <li>❖ Not all access may be socially acceptable</li> </ul>

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
<b>Goal 7: Current and Potential Economic Activity</b>			
<b>First Nations Traditional Economy and Community Development</b>			<ul style="list-style-type: none"> <li>❖ The traditional economy is vital to maintaining First Nation's culture, community well-being and ties to the land;</li> <li>❖ Subsistence harvesting and traditional economic activities are important means of offsetting the high cost of food in northern communities;</li> <li>❖ Subsistence harvesting opportunities may benefit from construction of new roads and trails resulting in increased harvest of wildlife and fish resources</li> <li>❖ Land use conflicts might arise between: a) traditional economic activities and industrial land uses, b) traditional economic activities and wilderness/cultural tourism, and c) traditional economic activities and Porcupine Caribou Herd conservation.</li> </ul>
<b>Tourism &amp; Recreation</b> (views, wilderness experience, river activities, flora and fauna, peaceful enjoyment)			<ul style="list-style-type: none"> <li>❖ Socio-economic value and potential of wilderness tourism sector within the Peel region to Yukon, local communities and individual enterprise (direct, indirect and induced income, employment)</li> </ul>
	<i>Road-Accessible Recreation</i> (e.g. short term wildlife viewing, day hiking, bird-watching, camping, wildlife viewing), includes both commercial bus sight-seeing and guided trips.)	Dempster Highway Corridor	



	<i>Remote-Access Eco-tourism</i> (e.g. multi-day, intensive self-guided and commercial guided trips that include river paddling, hiking, wildlife viewing, camping and photography)	Snake, Wind, Bonnet Plume, Ogilvie, Blackstone and Hart River corridors  Also Richardson	<ul style="list-style-type: none"> <li>❖ High co-incidence of wilderness tourism activities and outfitting services within the Ogilvie, Wernecke, and Mackenzie Mountain requiring appropriate large, intact and road-less areas through zoning and management for sustained use</li> <li>❖ Recognition and implementation of Bonnet-Plume Heritage River designation and management objectives</li> <li>❖ Carrying capacity and compatibility of expanded remote-access tourism based on ecological, cultural, sociological and tourism sector factors (eco-tourism, guide-outfitting)</li> <li>❖ Lack of visual landscape inventory to enable sub-unit planning &amp; mgt</li> <li>❖ Limited data regarding recreation (self-guided) visitation by residents and non-residents to the Peel watershed.</li> <li>❖ Land use patterns of outfitters in all concessions.</li> </ul>
	<i>Remote-Access Recreation</i> (First Nations and local community self-guided and community trips for hunting, fishing, camping, cultural purposes etc.)	Through-out the Peel region (focus on traditional-use corridors and sites, including river corridors, and lakes)	
	<i>Commercial Guide/Outfitting</i> (six concessions including infrastructure for commercial hunts of various wildlife species, plus some guided eco-tourism activities)	Located in the major river sub-basins of the Peel watershed.	

Resource Sector/Values	Components	Key Geographic Area(s) of Interest	Key Issues to be Addressed
<b>Goal 7: Current and Potential Economic Activity</b>			
<b>Oil &amp; Gas</b> (oil and gas reserves)	Potential for oil and gas exploration and development (includes access road and well-pad construction, rig set-up and service for exploration/testing, followed by ancillary infrastructure for transmission from successful finds) – key interest is natural gas, and only existing footprint is seismic survey lines	Peel Plateau and Plain, and Eagle Plains	<ul style="list-style-type: none"> <li>❖ Compatibility of oil and gas infrastructure footprint (exploration and development) with First Nations traditional use, and critical waterfowl areas in Peel Plateau area</li> <li>❖ Disposal and monitoring of environmental impact of oil &amp; gas drilling waste materials</li> <li>❖ Impacts to permafrost areas from oil and gas operations</li> <li>❖ Accessibility to Bonnet-Plume Basin, and compatible management regime for exploration &amp; development</li> <li>❖ Access planning and management to and within Peel Plateau</li> <li>❖ Oil and gas exploration and development activities and associated land uses (transportation, gravel extraction, and water withdrawal) can cause cumulative and adverse change over large landscapes.</li> <li>❖ Impacts could affect valued ecological resources, including Porcupine Caribou Herd, other Mountain Caribou populations, moose, marten, wetlands, lakes and rivers.</li> <li>❖ The construction and ongoing operations of large-scale oil and gas infrastructure would bring many new workers to the region.</li> <li>❖ Coordinated and effective management of the Porcupine Caribou Herd habitat and population requires an integrated management approach, in advance of increasing industrial land use.</li> <li>❖ Land use conflicts might arise between: a) oil and gas and wilderness/cultural tourism, b) oil and gas and traditional economic activities and cultural pursuits, and c) oil and gas and Porcupine Caribou Herd use of winter range.</li> </ul>
<b>Mining</b> (minerals, coal, aggregate)	Existing exploration claims or licenses and potential development for various minerals and coal as per Table 8.2 (Resource Ass't	<ul style="list-style-type: none"> <li>- Bonnet-Plume Coal deposit</li> <li>- Crest Iron Ore deposit</li> <li>- Goz lead-zinc</li> </ul>	<ul style="list-style-type: none"> <li>❖ Availability of land to permit mineral exploration with particular interest in the Wernecke Breccias zone</li> <li>❖ Management of mineral exploration activities to minimize impacts on wilderness tourism operations (e.g. sensory</li> </ul>

	Report); also includes aggregate potential	deposit - Wernecke Breccias - Dempster Corridor (aggregates)	<p>disturbance) during peak summer season (June-Sept)</p> <ul style="list-style-type: none"> <li>❖ Feasibility of access to existing mineral claims, and extent of ancillary access for mine development including infrastructure are important considerations.</li> <li>❖ Mineral activities require access to large areas of land, and substantial exploration efforts are required to identify economically viable deposits.</li> <li>❖ The construction and ongoing operations of large-scale mining activity would bring many new workers to the region.</li> <li>❖ Mine site operations can lead to local and downstream water impacts and localized wildlife/habitat disturbance.</li> <li>❖ Land use conflicts might arise between: a) mineral activities and wilderness/cultural tourism, b) mineral activities and traditional economic activities and cultural pursuits, and c) mineral activities and Porcupine Caribou Herd use of seasonal ranges</li> </ul>
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## Appendix D. Links to other Land Use Plans

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Table D.1 – Existing management plans, agreements and planning processes in the Peel Watershed Planning Region.

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**Table D.1.** Existing management plans, agreements and planning processes in the Peel Watershed Planning Region.

Plan or Planning Process	Agency	Description	Relationship to the Peel Land Use Plan
<b>Existing Plans</b>			
	•		•
North Yukon Final Recommended Plan (2009)	• YG • VGFN	Provides land-use management recommendations for the North Yukon region	• Presents information on resource values, land-use mgt framework, mgt directions and recommendations of direct relevance to the north part of the Peel region
Gwich'in Land Use Plan	• GTC • TG	Provides land-use mgt guidance for the Gwich'in Land Claim area	• Presents information on resource values, land-use mgt framework, objectives and recommendations of relevant to the east and north part of the Peel region
Tombstone Park Management Plan	• YG • THN	Provides land-use mgt direction for the Tombstone Park	• Provides direction to manage land use issues along the south border of the Peel watershed
North Yukon Tourism Strategy (2004) * Approved in 2006	• VGG • YG	Tourism strategy for Vuntut Gwitchin Traditional Territory	• Identifies current and future potential tourism opportunities in the areas of interest within the Tourism region (Richardson Mtns)
Silver Trail Region Tourism Plan (1998)	• YG • NNDFN • THN	Tourism strategy for the Silver Trail Tourism Region	• Identifies current and future potential tourism opportunities in a large portion of the Peel planning region
Klondike Region Tourism Marketing Strategy	• YG • THN	Tourism strategy for the Klondike Region	• Identifies current and future strategic goals for tourism with implications for the Dempster Highway Corridor
Yukon Parks System Plan Implementation Project for the Porcupine-Peel Landscape #17	• YG	Report provides recommendations for implementation of the YPSP for Landscape #17	• Describes the natural and cultural features of Ecoregions 18-20, 22 to provide greater ecoregion representation, identification of natural environment parks and historic parks
Dempster Highway Economic Development Agreement (2006)	• VGFN • YG • NND • THHN	YG/FNs Development Partnership Agreement	• Scoping document that may lead to detailed study of economic opportunities within 50km of the Dempster Hwy
Porcupine Caribou Herd Management Plan (2000)	• PCMB	Transboundary management plan for Porcupine caribou herd	• Management objectives, recommendations and strategies for PCH inform Peel land use plan • Important PCH habitats identified in plan are considered in the Peel land use plan
Draft VGFN Chapter 22 Economic Development Plan (1998)	• VGFN • NNFN • THN • GTC	Strategic economic development plan for VGFN (See Chapter 22 of Final Agreements)	• PEEL land use plan considers strategic economic direction and goals for VGFN, THN, and their respective Settlement Lands/Traditional Territory

Other Relevant Plans			
Harvest Management Plan for the Porcupine Caribou Herd in Canada	<ul style="list-style-type: none"> <li>• PCMB</li> <li>• RRC's</li> <li>• NWT Gov't</li> </ul>	PCH management plan recommends different harvest management strategies based on different herd population levels	<ul style="list-style-type: none"> <li>• Peel Plan provides direction for managing Porcupine Caribou consistent with the recommendations of PCMB</li> </ul>
Management Plan for Dall's Sheep in the Northern Richardson Mountains	<ul style="list-style-type: none"> <li>• YG</li> <li>• VGG, NND, THN, TG</li> <li>• RRC's</li> <li>• NWT Gov't</li> <li>• Others</li> </ul>	Sheep management plan for North Richardson Mountains	<ul style="list-style-type: none"> <li>• Peel Plan provides direction for managing Dall Sheep consistent with the recommendations of this Plan</li> </ul>
North Yukon Fish and Wildlife Management Plan (updating of plan – reviewed on 5-year cycle)	<ul style="list-style-type: none"> <li>• VGFN</li> <li>• Yukon Environment</li> <li>• RRC's</li> </ul>	Management plan for fish and wildlife resources of Vuntut Gwitchin Traditional Territory (see Chapter 16 of VGFN Final Agreement)	<ul style="list-style-type: none"> <li>• Fish and wildlife management objectives and recommendations inform PEEL land use plan</li> <li>• Important fish and wildlife habitats identified in management plan are considered in Peel land use plan</li> <li>• Management plan informs PEEL land use plan regarding focal wildlife species</li> </ul>