Peel Watershed

Regional Land Use Plan | August 2019

Vuntut Gwitchin Government

CHUU TL’TI GEENJIT KHETOK
TOGETHER FOR THE PEEL

About the Peel Watershed Planning Commission

The Peel Watershed Planning Commission (the 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 Nyäk Dun, Gwich'in Tribal Council, Vuntut Gwitchin, Tr'ondëk Hwëch'in and Yukon governments.

Commission Members
From left to right: Robert Bruce Jr., Member; Connie Buyck, Member; Ray Hayes (seated), Vice-chairman; Peter J. Kaye, Member; David Loeks, Chairman; Steve Taylor, Member

Office
Peel Watershed Planning Commission
201 – 307 Jarvis Street, Whitehorse, YT Y1A 2H3
Tel: 867-667-7397 | Fax: 867-667-4624
ylupc@planyukon.ca
peel.planyukon.ca

Cover Photo
Wind River
Peter Mather

Table of Contents

About the Peel Watershed Planning Commission iv
Table of Contents v
Letter of Approval 2019 ix
2019 Acknowledgements xii
List of Acronyms xiii
Plan Highlights xiv
Using the Plan xvi

1. Introduction 1
1.1. Context 1
1.2. Scope of the Plan 2
1.3. History of the Plan 2
1.4. What the Plan is About 5
1.4.1. Planning Issues 5
1.5. General Terms of Reference 7
1.5.1. Sustainable Development 8
1.6. Statement of Intent 9
1.7. Plan Goals 9

2. Description of Planning Region 11
2.1. Setting 11
2.2. Land Ownership, Regulation, and Management 11
2.2.1. Land Ownership and Governance 11
2.2.2. Designated Areas in the Peel Watershed Planning Region 14
2.2.3. Surrounding Designations in the Yukon 15
2.2.4. Surrounding Designations in the NWT 15
2.3. Environment 16
2.4. People 16
2.5. Heritage Resources 16
2.6. Economy 17
2.6.1. Renewable Resource Use 18
2.6.2. Non-Renewable Resource Use 21
2.7. Transportation and Communications 24
2.8. Significant Ecological Values 26
2.8.1. Fish, Wildlife, and Plants 26
2.8.2. Wetlands 29
2.8.3. Water 29
2.8.4. Other Ecological Goods and Services 30
2.9. Climate Change 31

3. Plan Concepts 33
3.1. Landscape Management Units 33
3.2. Land Use Designation System 33
3.2.1. Conservation Area 36

3.2.2. Integrated Management Area 37
3.2.3. Overlay Zones 38
3.3. General Management Direction 38
3.4. Cumulative Effects Indicators 40
3.4.1. Cumulative Effects Indicator Levels 40
3.4.2. Monitoring of Cumulative Effects Indicators 42

4. General Management Direction 43
4.1. Environment 44
4.1.1. Cumulative Effects Management 44
4.1.2. Disturbance to Wildlife and Terrestrial Habitats 47
4.1.3. Disturbance to Fish, Aquatic Habitats and Hydrology 49
4.1.4. Contaminated Sites 52
4.2. Social Values (Heritage and Culture) 52
4.2.1. Heritage and Historic Resources 54
4.2.2. Community Use Areas 55
4.3. Economy 57
4.3.1. Transportation (Access) 57
4.3.1.1. Existing Access 59
4.3.1.2. New Surface Access 62
4.3.1.3. Air Access 64
4.3.1.4. Water Access 65
4.3.2. Mineral Resources 65
4.3.3. Oil and Gas Resources 67
4.3.4. Tourism and Recreation 68
4.3.5. Aggregate Resources 70
4.3.6. Forest Resources 71
4.3.7. Subsistence Harvesting 71
4.3.8. Trapping 72
4.3.9. Big Game Outfitting 73

5. Landscape Management Units 75
LMU 1: Ogilvie River Headwaters 76
LMU 2: Kit Range / North Cache Creek 79
LMU 3: Central Ogilvie 82
LMU 4: West Hart River 85
LMU 5: Blackstone River 88
LMU 6: Hart River 91
LMU 7: Dalglish Creek 94
LMU 8: Wind and Bonnet Plume Watersheds 97
LMU 9: Snake River 101
LMU 10: Richardson Mountains - South 104
LMU 11: Turner Lake Wetlands and Caribou River 107
LMU 12: Richardson Mountains and Vittrekwa River 110
LMU 13: Peel Plateau West 113
LMU 14: Peel River 116
LMU 15: Peel Plateau East 119
LMU 16: Jackfish Creek Lakes 122

6. Plan Implementation and Revision 125
6.1. Plan Implementation 125
6.1.1. Implementation Responsibilities 125
6.1.2. Implementing Landscape Management Units and their Designations 126
6.1.2.1. Conservation Area 126
6.1.2.2. Integrated Management Area 127
6.1.3. Plan Conformity 127
6.2. Changing the Plan 127
6.2.1. Plan Variance and Amendment 128
6.2.2. Plan Review 128

7. References 133

8. Glossary of Terms 139

Appendix A: Maps 151
Map 1: Current Status 153
Map 2: Landscape Management Units 155
Map 3: Ecologically Important Areas 157
Map 4: First Nation Land Use and Heritage / Cultural Resources 159
Map 5: Economic Development Potential and Interests: Renewable Resources 161
Map 6: Economic Development Potential and Interests: Non-Renewable Resources 163

Appendix B: Summary of Plan Goals, Strategies and Best Management Practices 165
Table B.1: Plan goal and management strategy summary 165
Table B.2: Best Management Practice references 168

Appendix C: Summary of Recommendations 169
Table C.1: Policy recommendations summary 169
Table C.2: Research recommendations summary 172

Appendix D: Land Use Designation and LMU Summary 175
Table D.1: Land use designation summary 175
Table D.2: Landscape Management Unit (LMU) summary 176

Appendix E: Other Management Plans 177
Table E.1: Management plans, agreements and planning processes 177

Appendix F: Peel Planning Commission Documents 181

Appendix G: Letter of Understanding 2018 193

List of Figures

Figure 1.1: Peel Watershed Planning Region 1
Figure 1.2: Sustainable development 8
Figure 1.3: Principle, intent and goals 9
Figure 2.1: Tetłit Gwich'in Yukon lands 12
Figure 2.2: Na-Cho Nyäk Dun lands 13
Figure 2.3: Tr'ondëk Hwëch'in lands 13
Figure 2.4: Vuntut Gwitchin lands 14
Figure 2.5: Designated Areas in the Region 14
Figure 2.6: Designated Areas around the Region 15
Figure 2.7: Ecoregions 16
Figure 2.8: Cultural features 17
Figure 2.9: Trapping concessions 18
Figure 2.10: Outfitting concessions 19
Figure 2.11: Tourism values 19
Figure 2.12: Oil and gas basins 21
Figure 2.13: Oil and gas exploration in Eagle Plains 22
Figure 2.14: Iron resources 22
Figure 2.15: Coal resources 23
Figure 2.16: Wernecke Breccia deposits 23
Figure 2.17: Mississippi Valley Type deposits 23
Figure 2.18: Existing roads or trails 24
Figure 2.19: Wind River Trail 25
Figure 2.20: Porcupine caribou winter range 26
Figure 2.21: Hart River, Redstone and Boreal caribou range 27
Figure 2.22: Bonnet Plume caribou herd range 27
Figure 2.23: Dall's Sheep winter habitat 27
Figure 2.24: Boreal caribou range in Yukon 28
Figure 2.25: Likely waterbird habitat 29
Figure 2.26: Dempster Highway culverts 30
Figure 2.27: Retrogressive thaw 31
Figure 3.1: Integrated Management Area zoning 37
Figure 3.2: Integrated Management Area management framework 39

List of Tables

Table 1.1: Plan goals 10
Table 3.1: Land use designation system 35
Table 3.2: Integrated Management Areas cumulative effects thresholds 41
Table 5.1: Land use designation summary 75
Table 6.1: Potential items for Future Plan Review 129
Table 6.2: Potential regional indicators for sustainable development 130

August 22, 2019

Re: Letter of Approval for the Peel Watershed Regional Land Use Plan

---

The Parties to the Peel Watershed Regional Land Use Plan are Tr'ondëk Hwëch'in, First Nation of Na-cho Nyäk Dun, Vuntut Gwitchin Government, Gwich'in Tribal Council and Government of Yukon.

In accordance with the approval process described in Section 11.6.0 of the Final Agreements of Tr'ondëk Hwëch'in, First Nation of Na-cho Nyäk Dun, and Vuntut Gwitchin Government, and Appendix C of the Gwich'in Comprehensive Land Claim Agreement, the Parties hereby present the approved "Peel Watershed Regional Land Use Plan".

The review and approval of the Peel Watershed Regional Land Use Plan included formal consultations in Old Crow, Dawson City, Mayo, Whitehorse, Aklavik, Tsiigehtchic, Fort McPherson and Inuvik and with all affected First Nations.

The Parties congratulate and sincerely thank the Peel Watershed Regional Planning Commission and staff, for their dedicated work in completing Yukon's second regional land use plan under First Nation Final Agreements. Their commitment to the process and vision for sustainable development in the Peel Watershed Planning Region is to be commended.

In approving this plan, the Parties are approving the following:

1) Landscape Management Units

The governments recognize and approve the 16 land management units.

2) Land Use Designation System

The governments approve the specific Land Use Designation system wherein Land Management Units are designated either Special Management Area, Wilderness Area, Wilderness Area – Boreal Caribou or Integrated Management Area. Designated Integrated Management Areas are further classified into one of four zones (or management intent), which range from a conservation emphasis to a development emphasis based on the values and the sensitivity of the land and natural resources.

Yukon will implement the recommendation to remove existing mineral staking prohibitions in the Integrated Management Areas. The Parties will carefully monitor activities in those areas to ensure they are consistent with the Plan's Management Direction and Policy and Research recommendations.

3) Cumulative Effect Indicators

The governments will use surface disturbance and linear density indicators to track new activity with consideration given to previous activity in the planning region. For greater certainty governments will use these indicators as guides for adaptive management, and will establish necessary protocols as part of implementation of the Plan.

4) Recommendations

Subject to the above points of clarification, the governments:

1. Endorse the Plan Goals, Management Strategies and Best Management Practices summarized in Appendix B;

2. Approve and commit to jointly implement all of the recommendations in the Plan including (but not limited to) the Policy and Research Recommendations summarized in Appendix C; and

3. Agree to jointly review and if appropriate, modify the plan at agreed-to intervals.

5) Plan Implementation

In addition to committing to jointly implement the plan recommendations, the governments commit to:

1. Establish a Peel Watershed Regional Land Use Plan Implementation Committee, by appointing two members from the Yukon government and one member each from Tr'ondëk Hwëch'in, First Nation of Na-cho Nyäk Dun, Vuntut Gwitchin Government and Gwich'in Tribal Council. This Committee will guide the implementation and monitoring of the Peel Watershed Regional Land Use Plan on all lands;

2. Establish a protocol so that any of the Parties may trigger a review of the plan to consider proposed nonconforming uses or changing circumstances; and

3. Make land and resource decisions in the Peel Watershed that are consistent with 11.7.1 and 11.7.2 of the Umbrella Final Agreement as well as the goals and General Management Direction of the Peel Watershed Regional Land Use Plan.

Tr'ondëk Hwëch'in, First Nation of Na-cho Nyäk Dun, Vuntut Gwitchin First Nation, Gwich'in Tribal Council and Government of Yukon will ensure proponents and resource decision-makers understand and adhere to this plan.

Mahsi' Cho / Thank you,

The Parties collaboratively agree to approve and implement the Peel Watershed Regional Land Use Plan.

Signed this _____ day of _____ , 2019.

Chief Simon Mervyn
First Nation of Na-cho Nyäk Dun

Chief Roberta Joseph
Tr'ondëk Hwëch'in

Chief Dana Tizya-Tramm
Vuntut Gwitchin First Nation

Grand Chief / President
Bobbie Jo Greenland-Morgan
Gwich'in Tribal Council

Premier Honorable Sandy Silver
Government of Yukon

2019 Acknowledgements

The Peel Watershed Regional Land Use Plan is the product of a fourteen-year process. The Final Recommended Plan was produced by the Peel Watershed Planning Commission (the Commission), on behalf of five government partners: First Nation of Na-Cho Nyäk Dun (NND), Trondëk Hwëch'in (TH), Vuntut Gwitchin Government (VGG), Gwich'in Tribal Council (GTC) and Government of Yukon (YG). The Commission acknowledged the work that had been done over seven years, by many participants (see Appendix F), when they presented their recommended plan in 2011.

Since that time, the partners have worked hard to find a common path forward. The governments nominated Senior Liaison Committee members to undertake the steps required to complete the plan, following the 2017 Supreme Court of Canada decision. Committee members worked very hard, consulting with Yukoners in 2018, and have since forged a common understanding of what the final plan should be. Members of this committee have included Darius Elias (VGG), Rosa Brown (VGG), Tim Gerberding (TH and NND), Stephen Charlie (GTC), Erika Tizya-Tramm (GTC), Manon Moreau (YG), Ed Van Randen (YG), Jim Bell (YG), Jerome McIntyre (YG), Krysti Horton (YG), John Bailey (YG), Steven Mills (YG), and Paul Moore (YG).

We thank the partners for their commitment, continued involvement and contributions. Special thanks to the Chief and Councils, Elders and community members who provided guidance and input over many years. A special thank you to Stantec Consulting, who facilitated our final round of consultation in 2018.

We gratefully acknowledge the people of the Yukon for their continued engagement, patience and care. You and others around the world, have contributed your knowledge and expertise, with passion and respect. We recognize and appreciate everyone who has been on this journey, and hope the result justifies your efforts.

Mahsi' Cho and thank you.

List of Acronyms

BMP	Best Management Practice
CA	Conservation Area
CCME	Canadian Council of Ministers of Environment
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
GCLCA	Gwich'in Comprehensive Land Claim Agreement
GLUPB	Gwich'in Land Use Planning Board
GTC	Gwich'in Tribal Council
IMA	Integrated Management Area
LMU	Landscape Management Unit
NND	First Nation of Na-Cho Nyäk Dun
NT1	See Glossary
NYPC	North Yukon Planning Commission
PCH	Porcupine Caribou Herd
PCMB	Porcupine Caribou Management Board
PWPC	Peel Watershed Planning Commission
RRC	Renewable Resources Council
SARA	Species at Risk Act
SMA	Special Management Area
TG	Tetłit Gwich'in
TGFN	Tetłit Gwich'in First Nation
TH	Tr'ondëk Hwëch'in
UFA	Umbrella Final Agreement
VG	Vuntut Gwitchin
VGFN	Vuntut Gwitchin First Nation
VGG	Vuntut Gwitchin Government
WA	Wilderness Area
WA-BC	Wilderness Area-Boreal Caribou
YESAA	Yukon Environmental and Socio-Economic Assessment Act
YESAB	Yukon Environmental and Socio-Economic Assessment Board
YG	Government of Yukon
YLUPC	Yukon Land Use Planning Council

Plan Highlights

This Plan provides direction about managing land and resources in the Peel Watershed Planning Region. The Plan was produced by a public planning commission through Chapter 11 of the Yukon First Nation Final Agreements. The Government of Yukon, the First Nation of Na-Cho Nyäk Dun, the Tr'ondëk Hwëch'in, the Vuntut Gwitchin First Nation, and the Gwich'in Tribal Council are the Parties to the Plan.

The cornerstone of the Plan is sustainable development. The Plan makes recommendations and provides guidance on three main topics—environmental protection, social considerations (heritage and cultural protection), and economic development. The Plan's goals flow from the Final Agreements, the General Terms of Reference, and the Commission's Statement of Intent.

The goals are:

Environment Goals
Goal 1 Maintain the **wilderness character** of much of the planning region. **Goal 2** Maintain **ecological integrity** by ensuring terrestrial and aquatic habitats remain in a suitable condition to sustain healthy native wildlife and fish populations and communities within their natural ranges. **Goal 3** Maintain the quantity, quality, and rate of flow of **water** within its natural range. **Goal 4** Ensure that any lands disturbed by human activities are reclaimed or restored to their **natural state**.
Social (Heritage and Culture) Goal
Goal 5 Recognize, conserve, and promote the **heritage and cultural resources and values, and traditional land use practices**, of affected First Nations and the Yukon.
Economic Goals
Goal 6 Facilitate **economic opportunities** and activities that result in benefits to surrounding communities, affected First Nations, and Yukon as a whole, and that contribute to achieving the goals established by this Plan. **Goal 7** Provide **land use certainty** and **minimize land use conflicts** throughout the region. **Goal 8** Maintain **future land use options** by adopting a cautious but flexible approach to land and resource decision-making.

Key Recommendations

The Plan divides the Peel region into 16 landscape management units. It assigns each unit to a land use category (see Map 2, Appendix A). Of the total area in the region:

- 83 percent is **Conservation Area**—areas where the most important goal is protecting and conserving ecological and heritage resources and maintaining wilderness character. Existing mineral claims and leases are respected and can be developed, but the issuing of new rights and surface access, is not allowed. In the Conservation Area, there are three categories of land:
  - **Special Management Area (SMA)**—areas with permanent protection that make up 55 percent of the region. Two proposed National Historic Sites (Tshuu tr'adaojìich'uu and Teetl'it njik) are within the SMA land category, in the Peel River landscape management unit. The Parties will jointly manage these areas.
  - **Wilderness Area (WA)** —areas with interim protection that make up 25 percent of the region. The interim status of these areas will be reviewed by the Parties periodically, as part of Plan implementation.
  - **Wilderness Area-Boreal Caribou (WA-BC)** —areas with interim protection that make up three percent of the region, and are designated specifically to address Yukon's obligations under the federal *Species at Risk Act* (SARA) to protect boreal caribou habitat. This category requires a legal designation and a management plan. The interim protected status of these areas will be reviewed by the Parties periodically, as part of Plan implementation.
- 17 percent is **Integrated Management Area (IMA)** —the working landscape, where a variety of land uses and new surface access can occur. In this area, there are different zones based on allowable levels of development and surface disturbance.

The Plan makes a number of specific recommendations about transportation and surface access:

- A sub-regional management plan for the Dempster Highway Corridor should be completed.
- Continued use of the Wind River Trail for industrial purposes is not compatible with the SMA designation of the Wind and Bonnet Plume watersheds.
- Any wheeled off-road vehicle use should be limited to specific locations within the region.
- All new roads are to be temporary.
- Public use of any new road should not be allowed.

The Boreal caribou herd (*Rangifer tarandus caribou*) ranges into the northeastern section of the Peel planning region. This herd is listed under the federal *Species at Risk Act*, as threatened. Since the Plan was recommended by the Commission in 2011, an obligation has arisen for Yukon to participate in the recovery of this species. As such, there is a requirement to protect 65 percent of the habitat that is critical for this herd, with measures that are proactive, mandatory and enforceable. The 2011 Plan as amended in 2019, meets this requirement for critical habitat preservation.

Using the Plan

Step 1: Determine project location or area of interest
Refer to Map 2, Appendix A. » Is the project location or area of interest in the planning region? » If in region, within which landscape management unit does it occur?
Step 2: Determine broad management intent for landscape management unit
» Refer to Map 2, Appendix A for land use categories and zones (land use designation). » Refer to Section 3 for description of land use categories and zones (land use designation).
Step 3: Determine what values might be affected
» Refer to Maps 3-6, Appendix A for locations of identified values. » Refer to Section 5 for descriptions of identified values and special considerations in each landscape management unit.
Step 4: Determine management direction for identified values or issues
» Refer to Section 4 for management direction regarding identified values or issues. » Refer to Section 5 for specific management issues and considerations within the area of interest (landscape management unit).
Step 5: Determine other management direction, if required
» Refer to Appendix B for links to best management practices. » Refer to Appendix E for other management plans and agreements.

How the Plan is Organized

This Plan is organized in six major sections:

Section 1: Provides context and guiding statements for the Plan.

Section 2: Describes the land uses and the environmental, cultural, and economic resources of the region.

Section 3: Discusses the Plan tools and concepts—the way the Plan employs different land management strategies and methods.

Section 4: Contains general management direction and recommendations, with each topic organized by the sustainable development topic—environment, society (heritage and culture), and economy. Each topic is linked back to specific Plan goals.

Section 5: Provides a detailed description of each landscape management unit.

Section 6: Discusses implementation considerations.

A series of appendices contain maps, and background and summary information.

1. Introduction

1.1. Context

The Peel Watershed Planning Region (the Peel) is an area of 67,431 square kilometers in northern Yukon (Figure 1.1). The headwaters of the Peel River are in the Ogilvie Mountains in central Yukon. From here, it flows north to empty into the Mackenzie River delta. Its watershed is drained by six major tributaries—the Snake, Wind, Bonnet Plume, Hart, Ogilvie, and Blackstone. These rivers flow through diverse landscapes from high rugged mountains to low, flat taiga forests. The region has no permanent residents, few roads, and only limited development, creating a wilderness character different from most watersheds of its size in North America.

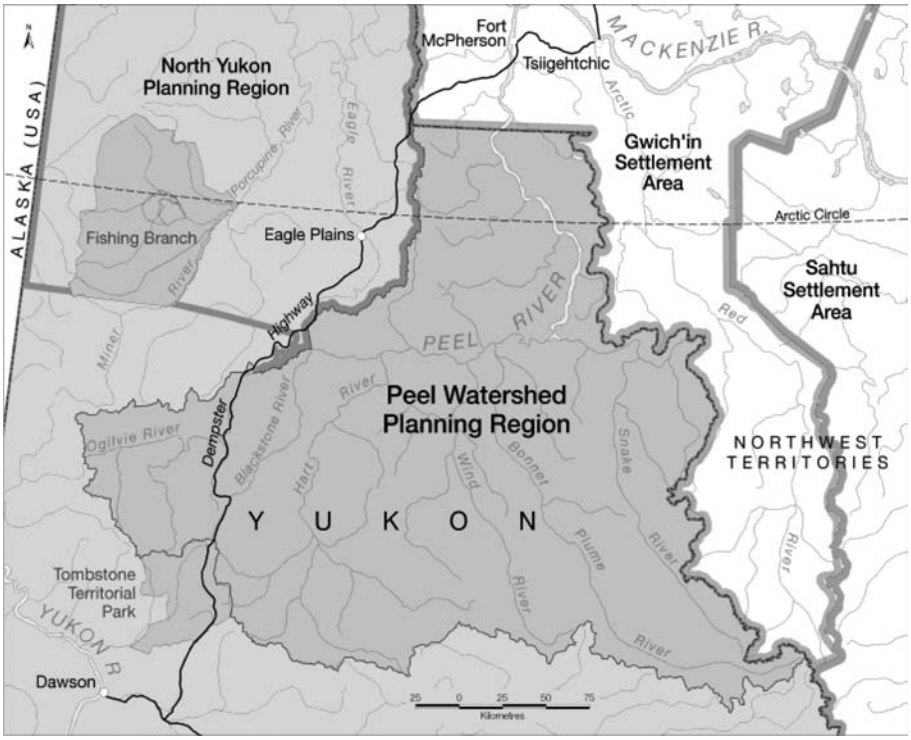


Figure 1.1: Peel Watershed Planning Region.

The Tetłit Gwich'in, the Na-Cho Nyäk Dun, the Tr'ondëk Hwëch'in, and the Vuntut Gwitchin have traditional territories in the Peel region. Its water, wildlife, fish, and plant resources have sustained them for thousands of years. Their cultures and traditional economies depend on a healthy environment and a continued connection to the land.

Today, the region attracts other people because of its large roadless watersheds, intact ecosystems, and healthy wildlife populations. Some people have interests in its other natural resources including minerals and oil and gas. Tourism, recreation, mineral and petroleum exploration, trapping, and big game outfitting all occur here. These land use activities have economic benefits, but they do not come without impacts. Today the level of activity is relatively low. However, in the future, increasing levels of land use are likely to affect each other, as well as the Peel's ecosystems and wilderness character.

The Peel Watershed Regional Land Use Plan (the Plan) is designed to maintain the region's long-term wilderness characteristics and cultural resources while providing opportunities for economic development. This Plan attempts to find a balance as unique as the region. It is guided by the core principle of sustainable development. The Plan considers the location of resources, the compatibility of different activities, and the wishes of local communities and Yukoners as a whole—in the Peel, not all land use activities are considered compatible. This Plan should not be considered as a template or precedent for other regional plans in Yukon.

1.2. Scope of the Plan

This Plan is the second of a network of regional land use plans to be produced through Chapter 11 of the Yukon First Nation land claim agreements. The regional planning process is described in Chapter 11 of the Na-Cho Nyäk Dun, Tr'ondëk Hwëch'in, and Vuntut Gwitchin Final Agreements (the Final Agreements) and Chapter 7 of Appendix C of the Gwich'in Comprehensive Land Claim Agreement.

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 land and resources are to be managed within a given area. It provides guidance for land and resource decision-making and helps people in a region achieve the kind of future they want.
- While providing guidance for decision-making, this regional land use plan is not a legal document. It does not replace existing legislation, nor 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. It provides management direction for all Yukon public lands and all First Nation Settlement Lands within the planning region.
- The Plan is not a precedent or a template for other planning regions.

1.3. History of the Plan

Chapter 11 of the Yukon First Nation Final Agreements sets out a process for affected First Nations and Yukon government to work together on regional planning. For the Peel Watershed Planning Region, the land use plan was developed jointly by five Parties: The Government of Yukon, First Nation of Na-Cho Nyäk Dun, Tr'ondëk Hwëch'in, Vuntut Gwitchin First Nation, and the Gwich'in Tribal Council.

The six-member Peel Watershed Planning Commission (the Commission) jointly prepared a *General Terms of Reference,* and members were appointed in 2005. Soon after its appointment, the Commission developed its *Statement of Intent* (PWPC 2005). Commission members learned about the Peel region with the help of scientists, resource specialists, elders, land users, and other informed people. These people described its ecosystem processes, vegetation, animals, and fish; its landforms and waterways; its minerals and oil and gas; its historical and current human uses; and its heritage resources. Equally important, Commission members learned about current and potential land use conflicts, potential limits or sensitivities of the land and waters of the Peel, and the significance of the region's

wilderness in a global context (Green et al. 2008; PWPC 2008a & b). This information, and the *Statement of Intent*, were the foundation for creating the Plan.

In fall 2008, the Commission developed the principles by which it would go about planning (PWPC 2008c) and examined various management scenarios for land use, each with different levels of development and conservation (PWPC 2009a). After public consultations with many different groups, the Commission developed the *Draft Peel Watershed Regional Land Use Plan* (PWPC 2009b). In 2009 the Commission released a Recommended Plan and after significant consultation with the public, a Final Recommended Plan was issued in 2011. A letter of transmittal and a message from the Peel Watershed Planning Commission (Appendix F) describing their process were included in that Plan.

The First Nation Parties supported the 2011 Final Recommended Plan, but the Government of Yukon did not. In January of 2014, the Government of Yukon released a Peel Watershed Regional Land Use Plan, which differed significantly from the Commission's Final Recommended Plan.

Shortly thereafter, the First Nation Parties to the Peel Plan challenged the Government of Yukon's Plan in court, asserting that the Government of Yukon had not followed the land use planning process set out in Chapter 11 of the Final Agreements.

For the next four years, the legal challenge wound its way through the courts. In December of 2017, the Supreme Court of Canada settled the issue[1]. The Court quashed the Government of Yukon Plan, and directed the Parties to return to the final consultation and approval stage of the process. Further, the Court directed the Parties to host a final round of community consultation, and consider any minor modifications to the Plan that might be required to reflect changing circumstances.

In August 2018, the Parties signed a letter of understanding that confirmed a commitment to work collaboratively to complete, approve and jointly implement a Regional Land Use Plan for the Peel Watershed that reflects the objectives of the Final Agreements and the Gwich'in Comprehensive Land Claim Agreement (GCLCA) (Appendix G). The Senior Liaison Committee was formed, including representatives of First Nation of Na-Cho Nyäk Dun, Tr'ondëk Hwëch'in, Vuntut Gwitchin Government, Gwich'in Tribal Council and Yukon government's Departments of Energy, Mines and Resources and Environment.

In September 2018, the Parties initiated the final round of consultation. Meetings were held in eight affected communities - Old Crow, Dawson City, Mayo, Whitehorse, Aklavik, Tsiigehtchic, Fort McPherson and Inuvik. A total of approximately 350 people attended. In addition, there were twelve stakeholder meetings and more than 2000 written submissions. Consultation with these affected communities and the general public concluded in November 2018. A summary report of consultation results was made available to the public and the Parties have carefully considered these results, in light of the Supreme Court direction. After a formal intergovernmental consultation early in 2019, the Parties have agreed to the following revisions to the 2011 Recommended Plan:

---

1 First Nation of Na-Cho Nyäk Dun v Yukon, 2017 SCC 58

Boreal Caribou

Canada's Boreal caribou herd is listed under the federal Species at Risk Act (SARA) as a threatened species. The Government of Canada's 2012 Recovery Strategy establishes a national requirement to protect 65 percent of their critical habitat, with measures that are proactive, mandatory and enforceable. Government of Yukon has specific legislative obligations with respect to meeting that requirement of SARA. A proposed Conservation Agreement (see Appendix E) recognizes "shared responsibility" among the Parties, and assigns specific obligations to Na-Cho Nyäk Dun and Gwich'in Tribal Council.

The Boreal caribou herd ranges into the northeastern section of the Peel planning region, with Landscape Management Units (LMUs) 14, 15 and 16 forming the core of Yukon's Boreal caribou habitat. LMU 14 was already designated as a Special Management Area (SMA) in the 2011 Final Recommended Plan; however LMU 15 (Peel Plateau East) and LMU 16 (Jackfish Creek Lakes) were designated Integrated Management Areas (IMA).

The Parties have agreed to modify the management characteristics of these LMUs, creating the new designation of "Wilderness Area-Boreal Caribou" (WA-BC). As with the other class of Wilderness Areas, the goal for the WA-BC designation is to provide interim conservation, and protection of ecological and cultural resources, and wilderness character. The WA-BC designation also includes provisions outlining the steps that Government of Yukon will take, to meet Yukon's obligations to SARA with respect to Boreal caribou.

Other Changes

Additionally, the Parties agreed to several minor changes:

- edit language to ensure that the intention of joint plan implementation is clear, including a specific reference to 10.5 of the Final Agreements in Chapter 6 of the Plan;
- edit language to ensure that changing the designation of any Wilderness Areas would only occur through a comprehensive joint 'plan review' as noted in 6.2.2, and not as a 'plan variance' or 'plan amendment' as referenced in 6.2;
- add Policy Recommendation regarding protection of Boreal caribou habitat within IMAs;
- add Policy Recommendation regarding research and use of traditional place names;
- add Research Recommendation in support of Boreal caribou conservation;
- reference and cite (new since 2011) legislation (e.g. First Nation heritage) and policies (e.g. Yukon Water Strategy);
- update the names of any historic sites that have changed;
- depict the agreed-to contiguous border of the Tr'ondëk Hwëch'in / Vuntut Gwitchin First Nation Traditional Territories, and any completed plans adjacent to the Peel Watershed Region; and
- where possible, update baseline information to reflect changes that have occurred since 2011.

1.4. What the Plan is About

The Peel watershed has long been valued by people from many walks of life. First Nations people have lived and travelled through the region for millennia, following the seasonal cycle of their traditional culture and economy. Big-game outfitters, trappers, prospectors and miners, oil and gas developers, wilderness tourists, biologists, and recreationalists have also explored the region. All have benefited from its resources. While the current level of activity in the region is relatively low, potential for increasing levels of land use to conflict with one another, and to cause long-term impacts to the environment and wilderness character of the region, is high.

The Parties to the Plan wanted a plan that considered all regional values and land uses. They wanted the plan to minimize conflicts and contribute to long-term land use certainty. They also agreed that development should be excluded from some areas. This Plan attempts to balance interests in the following ways:

- Protect the ecological integrity and wilderness character of large areas, by excluding roads and industrial activities.
- Provide options for future generations, through interim protection of other lands.
- Allow limited, but flexible, development in other areas, with a focus on managing cumulative effects and restoring lands to previous condition.

1.4.1. Planning Issues

At the beginning of the planning process, the Commission held community consultations to identify issues and interests. Agencies, interested groups and citizens identified many issues, risks, limitations, and opportunities in the Peel region. The over-riding concern was about the irreversible and unacceptable effects that increasing industrial land use activity is likely to cause to the region's ecological integrity and wilderness character. There was also concern that environmental protection measures would limit industrial land use activity. More specifically, these consultations identified eight broad planning issues of both short and long-term importance to the Peel Watershed Planning Region.

What is industrial activity?

Industrial activities include those typically associated with heavy industry. In the Peel, this would generally include the activities of the mineral, oil and gas, and transportation sectors. These are sometimes referred to as *non-renewable* land uses. Activities of the tourism, big game outfitting and trapping land use sectors are thought of as *renewable* land uses, and not considered *industrial activities*.

Maintaining wilderness

Wilderness is a cultural concept and can mean different things to different people. However, most people would agree that the wilderness character of the Peel watershed is integral to its identity. It is largely roadless, with intact ecosystems, and few signs of human activity. The wilderness of this region embodies the imagination and spirit of Yukoners,

Canadians, and people around the world. Its character is essential for traditional activities, wilderness tourism, big-game outfitting, and wilderness recreation. While wilderness can be diminished by any land use activity, it is incompatible with highly visible developments such as roads, railways, industrial facilities, and transmission lines.

Ecosystem integrity

A healthy ecosystem is necessary for the long-term conservation of caribou, whitefish, sheep, waterfowl, and other culturally and economically important species. Different species vary in the levels and kinds of impact they can tolerate.

Aquatic integrity

The planning region is defined by the watershed boundary of the upper Peel River basin. Water is therefore a central consideration of the Plan. Wetlands, lakes, rivers, and riparian environments are biologically productive areas with high heritage, cultural, tourism and ecological values. Future land use activities may affect these environments by altering the natural range of water quality and flows.

Transportation and Communications

More than any other land-use activity, transportation has the greatest potential to change the region. Developing mineral and oil and gas resources generally require all-season access roads, so the absence of such roads is seen as a barrier to development. However, aggregate quarries and roads have impacts on habitat and diminish the region's wilderness character. These effects cannot be mitigated. Increased access into previously inaccessible areas can also affect wildlife and fish populations.

The region's only all-season road is the Dempster Highway. It creates a number of opportunities and issues with respect to transportation and communications (i.e. with a fibre optic network), which require careful consideration.

Mining exploration and development

So far, in the Peel, mineral exploration has had only temporary or local impact on other land users. However, if exploration programs in the Peel region result in mineral development, the economic benefits may be offset by the cumulative impacts on other land uses. Ecosystems, wildlife, and First Nations cultural pursuits and wilderness tourism, in particular, would be negatively affected.

Oil and gas exploration and development

Areas with the most oil and gas potential generally occur in flatter lands with limited tourism and outfitting value. However, parts of these areas have significant cultural values for First Nations and importance to the Porcupine Caribou Herd and waterfowl. Some First Nations and Yukoners believe that the economic gains from oil and gas exploration and development would be negated by the environmental and social impact.

Traditional pursuits

Local First Nations are clear that hunting, fishing, gathering, and other traditional activities should continue in the region. These activities generally need functioning ecosystems, intact places of cultural importance, and wilderness. Other land uses will affect these activities if they bring infrastructure, road access, and more people.

Climate change

Climate change will affect land, water, wildlife, fish, and people's use of these resources. These changes, though uncertain, may also increase the effects of other future land uses. Climate change introduces uncertainty into the outcome of land use and resource management policies.

1.5. General Terms of Reference

The Commission's *General Terms of Reference*, its founding document, included nine "General Goals". Most of these directives are adapted from the Final Agreements. They state that the Plan:

- Promotes 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 reference 11.4.5.7);
- Recommends measures to minimize actual or potential land use conflicts throughout the planning region (UFA reference 11.4.5.4);
- Recognizes and promotes the cultural values of the affected First Nations and other affected Yukon Indian People (UFA reference 11.1.1.3);
- 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 co-ordinated manner so as to ensure sustainable development (UFA reference 11.1.1.6);
- **Promotes sustainable development**[2] (UFA reference 11.4.5.9);
- Takes into account that the management of land, water and resources, including fish, wildlife, and their habitats, is to be integrated (UFA reference 11.4.5.8);
- Recognize all economic potential of the planning region, including, but not limited to sub-surface resources;
- Provides for enhanced opportunities to have ongoing cooperative 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.

2 The Commission's emphasis for the Plan.

1.5.1. Sustainable Development

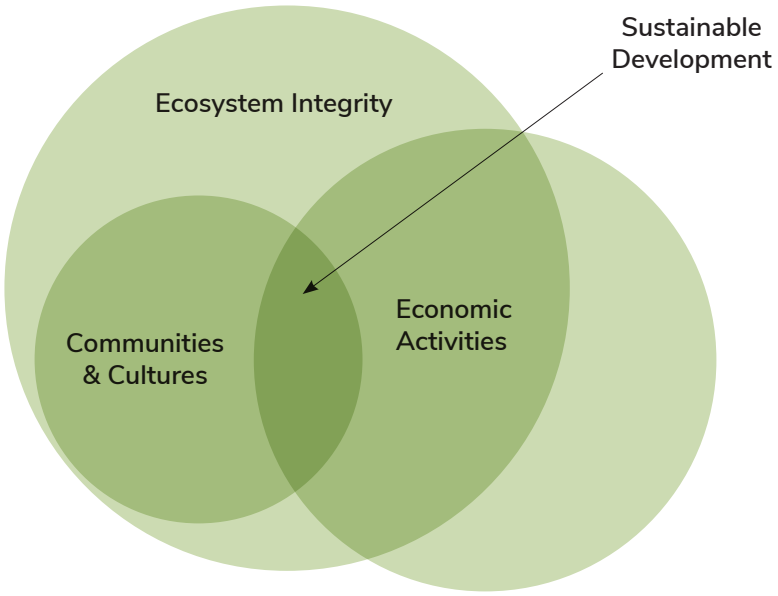


Figure 1.2: Sustainable development. The circles do not intersect equally. Society (communities and cultures) exists within the environment (ecosystem integrity) and is limited by its capacity. Some economic activities fall outside the overlapping circles of environment and society because they are not sustainable.

Most of the directives listed above are aspects of Sustainable Development. Therefore, the bolded general goal above was taken to be the core principle of this Plan. Figure 1.2 shows how sustainable development is at the core of the Plan. It also shows how sustainable development is interconnected with the environment (ecosystem integrity), the economy (economic activities), and society (communities and cultures). These areas are represented by the three overlapping circles. Policies in these three areas are to be applied to the management, protection, and use of land, water, and resources in an integrated and coordinated manner.

Achieving sustainable development requires the following:

Sustain ecosystem integrity

Sustaining lands and waters, living things and natural processes is the fundamental priority. If the integrity of ecosystems is lost, societies and economies cannot be sustained.

Sustain communities and cultures

Maintaining communities and cultures relies on achieving success with the first priority. Sustainable communities and sustainable ecosystems are therefore intertwined.

Foster sustainable economic activities

Sustainable economic activities are of two kinds. First, there are those that do not degrade the land or undermine communities and can be sustained indefinitely. Second, there are activities that deplete resources, but from which the land can recover.

1.6. Statement of Intent

The Parties to the Plan, and the Final Agreements, gave general guidance to the Commission about the desired process and goals of the Plan. The Commission drafted the *Statement of Intent* based on this guidance, the core principle of sustainable development, and its study of issues, land uses, and resource values. The *Statement of Intent* explains the vision for the region. It was published in fall 2005 and was accepted by all the Parties.

Statement of Intent

The goal of the Peel Watershed Regional Land Use Plan is to ensure wilderness[3] 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[4]. The long-term objective is to return all lands to their natural state[5].

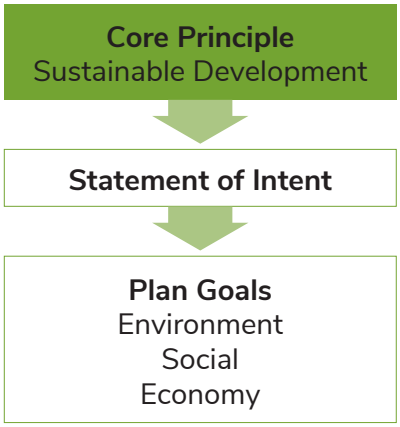


Figure 1.3: Linkage between the core principle, statement of intent, and goals.

1.7. Plan Goals

Plan *goals* support the statement of intent. They are specific statements about what the Plan is trying to achieve. They express the desired results of the Plan, and can be thought of as measuring sticks of success or failure. Management direction in later parts of the Plan is organized around these goals.

The Plan identifies eight goals, with each goal supporting one of the three components of sustainable development: environment, society, and economy (Table 1.1). Figure 1.3 shows how the Plan's core principle of Sustainable Development provides direction to the statement of intent and goals. Achieving all Plan goals will achieve sustainable development.

3 See glossary.

4 See glossary. 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).

5 Refers to terrestrial conditions and is elaborated upon in Section 4.1.1. (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.)

Table 1.1: Plan goals.

Environment Goals
Goal 1 Maintain the **wilderness character** of much of the planning region. **Goal 2** Maintain **ecological integrity** by ensuring terrestrial and aquatic habitats remain in a suitable condition to sustain healthy native wildlife and fish populations and communities within their natural ranges. **Goal 3** Maintain the quantity, quality, and rate of flow of **water** within its natural range. **Goal 4** Ensure that any lands disturbed by human activities are reclaimed or restored to their **natural state**.
Social (Heritage and Culture) Goal
Goal 5 Recognize, conserve, and promote the **heritage and cultural resources and values, and traditional land use practices**, of affected First Nations and the Yukon.
Economic Goals
Goal 6 Facilitate **economic opportunities** and activities that result in benefits to surrounding communities, affected First Nations, and Yukon as a whole, and that contribute to achieving the goals established by this Plan. **Goal 7** Provide **land use certainty** and **minimize land use conflicts** throughout the region. **Goal 8** Maintain **future land use options** by adopting a cautious but flexible approach to land and resource decision-making.

2. Description of Planning Region

Unless otherwise noted, the information in this chapter comes from Resource Assessment Report (PWPC, 2008b), with updates provided in 2019 in response to the 2018 Consultation. This report has maps showing the distribution of many of the values described below. See also Maps 1, 3–6 in Appendix A of this document.

2.1. Setting

The Peel Watershed Planning Region, shown in Map 1 in Appendix A, is about 67,431 square kilometers. Despite its name, the Peel Watershed Planning Region is not exactly the same area as the Peel watershed itself. Two important portions of the Peel watershed are outside the planning region: a portion of Tombstone Territorial Park, and a Rural Block (VG R-08A) where the Dempster Highway leaves the Ogilvie River, heading north. However, except for a few very small areas in the Richardson Mountains, the entire region is within the *Yukon* portion of the Peel watershed.

This planning region is the only one in the Yukon without any permanent settlements, though there is a seasonal population base. Dempster Highway maintenance operations, big game outfitting base-camps, trapping concessions, and temporary mineral exploration camps all have commercial or residential facilities. The Dempster Highway is the only major all-season road in the planning region.

2.2. Land Ownership, Regulation, and Management

2.2.1. Land Ownership and Governance

Five governments manage and own land in the region. These are the Government of Yukon, the Gwich'in Tribal Council of the Northwest Territories, the First Nation of Na-Cho Nyäk Dun, the Tr'ondëk Hwëch'in, and the Vuntut Gwitchin First Nation. All the Settlement Lands of the three Yukon First Nations were agreed to in their respective Final Agreements under the Umbrella Final Agreement. Tetłit Gwich'in Yukon Land (described below) was granted as part of the Gwich'in Comprehensive Land Claim Agreement. The Gwich'in Tribal Council owns ten parcels of (fee simple) land within the region, but otherwise, there is no private land ownership in the Peel Watershed Planning Region.

Land and resource management in the planning region is also shared with land claim boards and other agencies.

Public or Non-Settlement Land

The Government of Yukon manages Non-Settlement Lands (both surface and subsurface rights) totalling 97.3% of the region. It does so under the terms of the Yukon First Nations land claim agreements, the Gwich'in Comprehensive Land Claim Agreement, and the lands and resources acts of the Yukon and Canada.

All of the Non-Settlement Lands in the region are overlapped by traditional territories of various First Nations of the Peel watershed. These traditional territories also largely overlap

with one another. Under the land claim agreements, various trapping and hunting rights are given to Yukon First Nation citizens and Tetlit Gwich'in in their traditional territories (not only in their Settlement Lands). The jurisdictions of Renewable Resources Councils are limited to the non-overlapping portions of these territories.

Kinds of Settlement Land

There are two categories of Settlement Land:

Category-A: Include surface and subsurface rights.
Category-B: Include surface rights only.

In addition, in the Peel, there are two configurations of Settlement Land that are independent of their category:

Site Specific: also known as S-sites, these are small parcels that typically surround cabins or other localized important places.

Rural: also known as R-Blocks, these larger parcels typically encompass important landscapes.

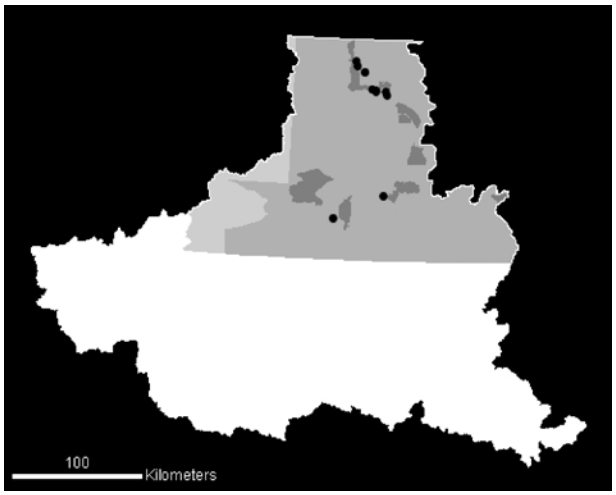


Figure 2.1: Tetłit Gwich'in site selections (black dots), blocks of Tetlit Gwich'in Yukon Land (dark gray), primary use area (mid-gray), and secondary use area (light gray).

Tetłit Gwich'in

As a result of the Yukon Transboundary Agreement within the Gwich'in Comprehensive Land Claim Agreement, the Gwich'in Tribal Council of the NWT was granted ownership (surface rights only) of 11 large blocks and 12 smaller site specific lots of fee simple land (Figure 2.1, see also Map 1 in Appendix A for more detail). As fee simple land, the Gwich'in Tribal Council has absolute ownership of the land, but has no subsurface or other property rights. These lands, known as "Tetłit Gwich'in Yukon Land", represent 2.32% of the planning region. The Gwich'in Social and Cultural Institute (now the Department of Culture and Heritage) submitted 73 traditional Gwich'in place names to the Yukon Geographical Place Names Board in 2012. These have been approved.

The Gwich'in Comprehensive Land Claim Agreement (GCLCA) also sets out primary and secondary use areas for the Tetłit Gwich'in. Various trapping and hunting rights are granted to the Tetłit Gwich'in in these areas. They also have subsistence harvesting rights in those areas of the Traditional Territory of the Na-Cho Nyäk Dun that do not overlap with the traditional territory of any other Yukon First Nation (12.3.1, Gwich'in Comprehensive Land Claim Agreement, Appendix C).

The primary and secondary use areas cover roughly that part of the region north and east of the Ogilvie, Wernecke, and Mackenzie mountains, including the Richardson Mountains, the Peel Plateau, and the Fort McPherson Plains.

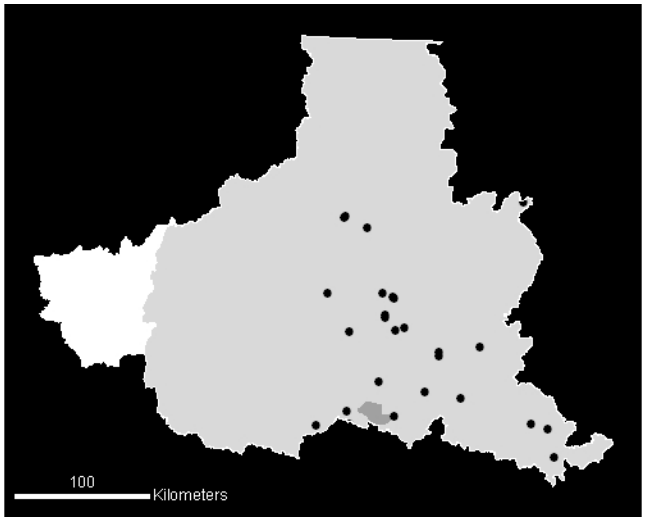


Figure 2.2: Na-Cho Nyäk Dun site specific (black dots) and rural (dark gray) Settlement Lands, and Traditional Territory (light gray).

Na-Cho Nyäk Dun

The First Nation of the Na-Cho Nyäk Dun holds 25 site specific Settlement Lands and one block of Category-A rural Settlement Land (R-Block) accounting for 0.38% of the region. The *Land and Resources Act* of the First Nation of Na-Cho Nyäk Dun applies here. The Traditional Territory of the Na-Cho Nyäk Dun includes the entire region east of the Dempster Highway (Figure 2.2). The Na-Cho Nyäk Dun and the Tr'ondëk Hwëch'in have agreed to a contiguous (i.e., not overlapping) boundary that runs through the Hart and Blackstone watersheds.

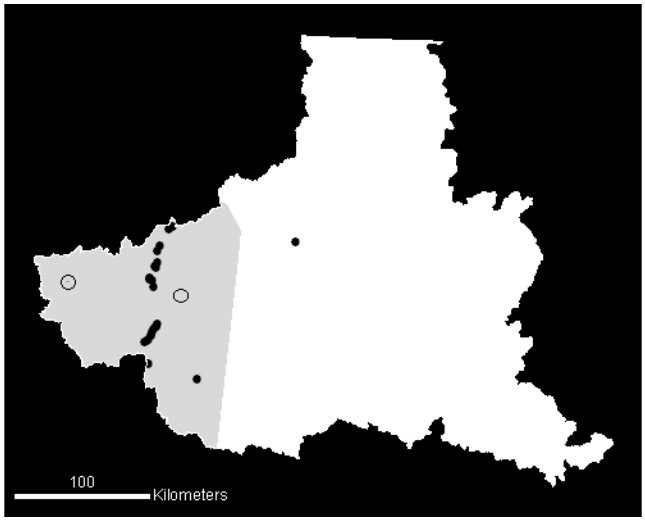


Figure 2.3: Tr'ondëk Hwëch'in site specific (black dots) and rural (dark gray and circled) Settlement Lands, and Traditional Territory (light gray).

Tr'ondëk Hwëch'in

The Tr'ondëk Hwëch'in have 21 site specific blocks and two Category-B R-Blocks (surface rights only) totalling less than 0.01% of the region. The Tr'ondëk Hwëch'in *Land and Resources* and *Fish and Wildlife* acts apply here. The Traditional Territory of the Tr'ondëk Hwëch'in includes all of the Ogilvie and Blackstone drainages, and part of the Hart watershed (Figure 2.3). The Tr'ondëk Hwëch'in and the Na-Cho Nyäk Dun have agreed to a contiguous (i.e., not overlapping) boundary that runs through the Hart River watershed.

The Tr'ondëk Hwëch'in and Vuntut Gwitchin have also agreed to a contiguous boundary, most of which lies to the northwest of the Peel Region.

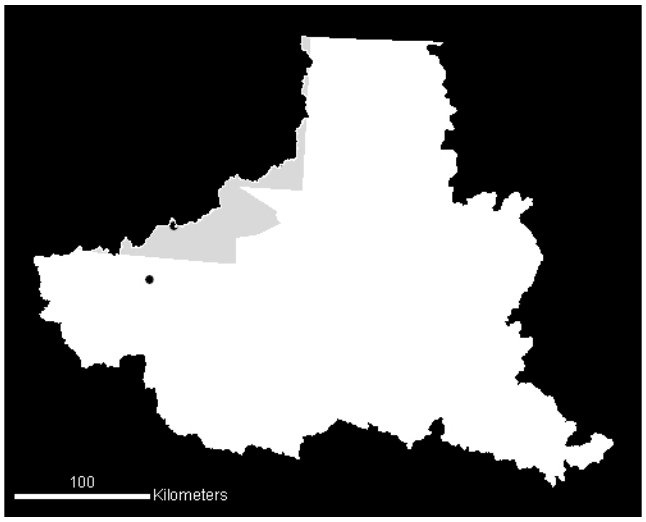


Figure 2.4: Vuntut Gwitchin site specific Settlement Lands (black dots), and Traditional Territory (light gray).

Vuntut Gwitchin

The Vuntut Gwitchin have two site specific blocks along the Dempster Highway. Their Traditional Territory includes the lower reaches of the Ogilvie and Blackstone rivers, the Peel River above the Hart, and upper Canyon Creek (Figure 2.4). The Tr'ondëk Hwëch'in and Vuntut Gwitchin have also agreed to a contiguous boundary, most of which lies to the northwest of the Peel Region.

2.2.2. Designated Areas in the Peel Watershed Planning Region

Figure 2.5 shows the current or historical designated areas in the Peel Watershed Planning Region. These areas were given some management direction prior to the Peel Watershed Regional Land Use Plan.

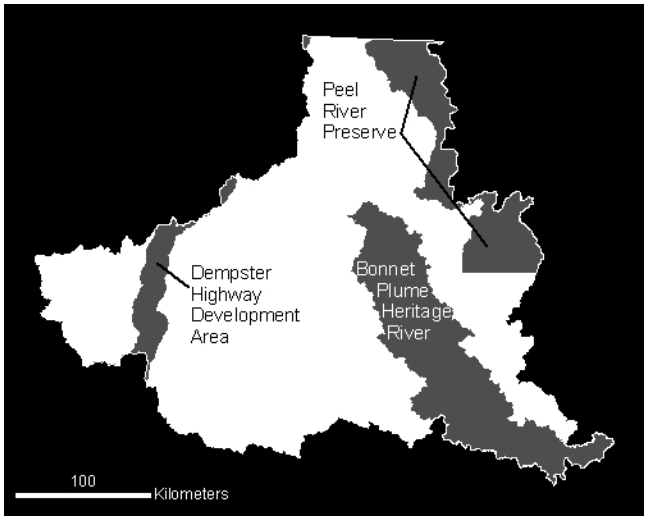


Figure 2.5: Designated Areas in the region.

Bonnet Plume Heritage River

The planning region includes the Bonnet Plume River, a Canadian Heritage River. This designation was negotiated under the Na-Cho Nyäk Dun Final Agreement. The designation recommends a "higher duty of care" for this watershed but does not have any legislative power. In 1998, the Government of Yukon, the Government of Canada, and the Mayo District Renewable Resources Council prepared a management plan for the entire watershed.

Dempster Highway Development Area

The Dempster Highway Development Area includes all the lands within eight kilometres of the Dempster Highway's centre line. It is regulated by the *Area Development Act*. New development and the use of vehicles other than snowmobiles are generally prohibited in this area (with some exceptions). The Dempster Highway is the site of a proposed Government of Yukon fibre optic network, designed to create more reliable internet service to northern communities.

Peel River Preserve (historical)

The Peel River Preserve was established in 1923 to give exclusive hunting and trapping rights to the Aboriginal people of the area. It included much of the land between the Peel River and Tsiigehtchic (Arctic Red River) above their confluences with the Mackenzie River and below the mountains. The Yukon portion of this preserve was rescinded in the 1980s, so has no place in this regional plan.

2.2.3. Surrounding Designations in the Yukon

Tombstone Territorial Park adjoins the southwest portion of the planning region. The South Richardson Mountains and Foothills Integrated Management Zones of the North Yukon Regional Land Use Plan, which adjoin the region along the Richardson Mountains, are recommended for a low level of development only (NYLUP, 2009). For areas to the northwest of the Peel planning region, other zones within the North Yukon Regional Plan allow higher levels of resource development (Class III & IV Integrated Management Areas). Figure 2.6 shows these designated areas.

The laws of general application apply for most lands to the immediate south of the region.

2.2.4. Surrounding Designations in the NWT

The Rat River and James Creek-Vittrekwa River Gwich'in Conservation Zone and the Porcupine Caribou Special Management Zone, both in the NWT, are to the north of the planning region. The Arctic Red River Headwaters Gwich'in Special Management Zone is to the southeast of the region. These zones are described in the Gwich'in Land Use Plan (GLUPB, 2003). The Tsiigehtchic (formerly Arctic Red River) is a Canadian Heritage River. Figure 2.6 shows these designated areas.

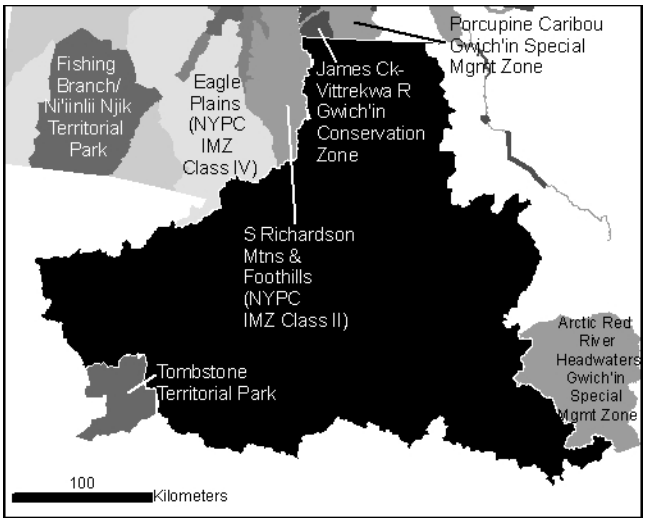


Figure 2.6: Designated Areas surrounding the region.

Outside these areas is the Gwich'in General Management Area, which allows for a range of industrial development activities (e.g., oil and gas, mining).

2.3. Environment

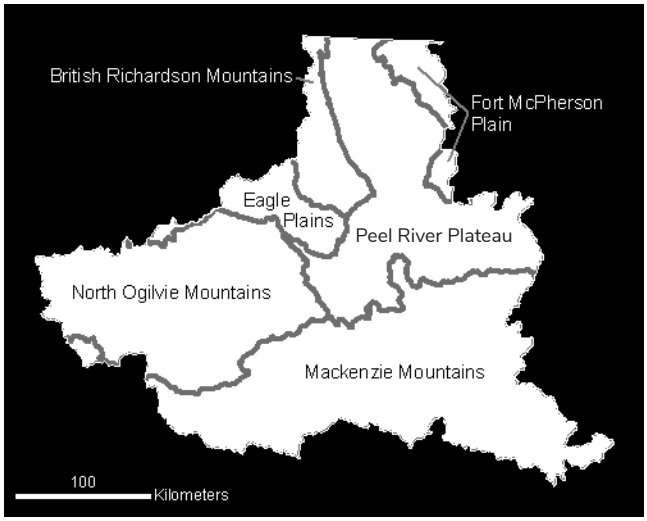


Figure 2.7: Ecoregions of the Peel watershed.

The Peel Watershed Planning Region lies at the easternmost edge of Beringia, an area extending from the 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 region has a very cold and dry climate because of its northerly latitude and the rain-shadow effect of the Ogilvie, Wernecke, and Selwyn mountains on its southern limit. Low-lying areas feature low spruce forests, shrub and tundra vegetation underlain with permafrost, and scattered wetlands. High-elevation mountain ranges contain extensive areas of rock and sparse vegetation. Large tributaries of 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.

The region contains portions of six distinct ecoregions (Figure 2.7). These are 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.

2.4. People

Parts of the traditional territories of the participating First Nations are within the planning region. Historically, the people of these First Nations lived in and traveled throughout these traditional territories, which they regarded as home. Today the planning 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, Fort McPherson and Tsiigehtchic.

2.5. Heritage Resources

The Tr'ondëk Hwëch'in, Na-Cho Nyäk Dun, and Vuntut Gwitchin of the Yukon, and the Tetł'it Gwich'in of the Northwest Territories, have traditionally occupied, traveled, or harvested in virtually every corner of the planning region. Their presence is reflected in the numerous stories and legends and 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.

Archaeologists or paleontologists have not yet systematically surveyed much 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 different locations. Archeological sites and artifacts within the watershed include gravesites, tent rings, caribou fences, caches, adze-cut stumps, abandoned settlements, and trading posts. These local features are generally protected from disturbance under the Yukon *Historic Resources Act*, the *Gwich'in Comprehensive Land Claim Agreement* Appendix C, Chapter 9 (Heritage Resources), the *Umbrella Final Agreement*, Chapter 13 (Heritage) and the Heritage Acts (2016) of the Tr'ondëk Hwëch'in, First Nation of Na-Cho Nyäk Dun, and Vuntut Gwitchin Government.

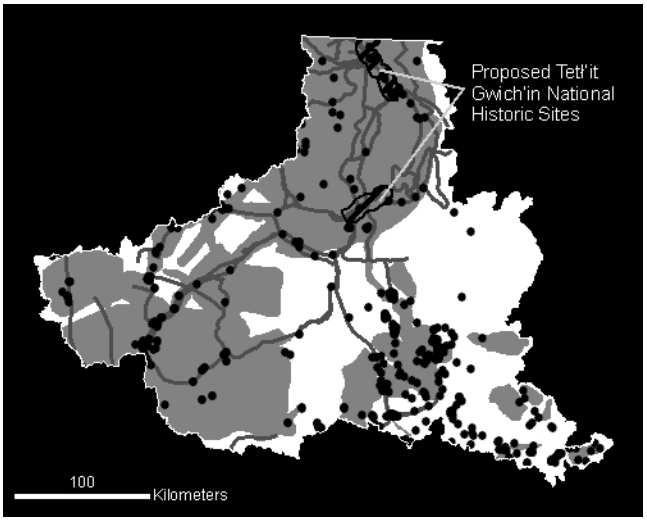


Figure 2.8: Selected landscapes, routes, and sites with cultural and subsistence importance.

Traditional use of medicinal plants, timber products, edible plants, fish, furbearers, and big game continue to have cultural, economic and sustenance importance. These resources are conserved or managed to varying degrees by the Yukon Fish and Wildlife Management Board, a number of Renewable Resources Councils, and federal and territorial legislation. People still use heritage trails and routes to travel between communities, for recreational travel and to reach hunting, trapping, and fishing areas. Spring water and sulfur sources also remain culturally important.

At a much broader scale, large natural features—such as mountains, mountain ranges, lakes, and rivers, as well as the stories and songs embedded in these places—are also an integral part of First Nations heritage and culture (Figure 2.8). The values within many of these cultural landscapes have rarely been adequately considered in earlier land use decisions. However, in 2003 the Tetł'it Gwich'in applied for National Historic Site designation of two large blocks of land along the Peel River (GSCI, 2003).

2.6. Economy

Historically, the Peel region has been key for the traditional subsistence economy of its First Nations people. Although people rely less today on the harvest of wild game, plants, and medicines, many elders have told the Commission they regard this region as a refuge that will provide for their subsistence and perhaps even survival needs in the future. Other activities that have long contributed to both the local and Yukon economy include both renewable surface uses (subsistence harvesting, trapping, guide outfitting, wilderness eco-tourism, outdoor recreation, forestry) and non-renewable subsurface uses (mineral and gas exploration).

The regional economy today is a mixed one 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, Tsiigehtchic and Old Crow. However, these communities also want to keep a workable degree of participation in the wage economy.

There are no concrete figures on total economic benefits in the Peel region (direct, indirect, and induced), including those from employment, government revenues, and business spin-off. Direct comparisons of different economic sectors are difficult without such an analysis. Several sectors have significant economic interests in the planning region. These sectors include tourism ("rubber tire tourism" on the Dempster Highway, and back-country "wilderness tourism" elsewhere), mineral exploration, oil and gas exploration, communication (e.g. fibre optic line development), trapping, and big game outfitting. No agriculture or commercial forestry takes place, although there is some limited, community-based forestry in the north end of the planning region and along the Dempster Highway. Major economic sectors are discussed briefly below.

2.6.1. Renewable Resource Use

Several economic activities in the region are based on renewable resources. They provide seasonal employment to local people.

Subsistence Harvesting

Some limited economic activity is based on subsistence harvesting. Residents from all four neighbouring First Nation communities spend varying amounts of time on the land, hunting, fishing, and berry picking. These traditional economic activities are strongly linked to the maintenance of First Nations culture and community well-being. Important subsistence harvesting areas are shown on Map 4, Appendix A.

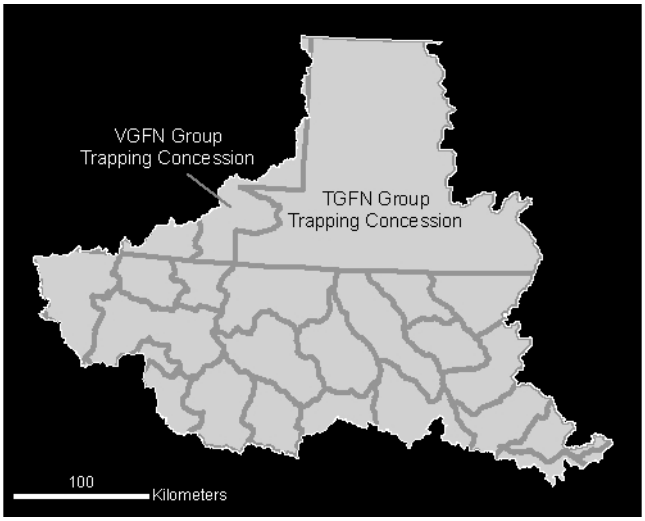


Figure 2.9: Trapping concessions in the region.

Non-Aboriginal residents of Dawson City, Mayo, Keno City, and elsewhere in the Yukon also value the Peel region for hunting and fishing. Hunting by people who are not members of a Yukon First Nation, or who do not have subsistence harvest rights under the Gwich'in Comprehensive Land Claim Agreement, is regulated under the *Wildlife Act*.

Trapping

Trapping provides self-employment opportunities for area residents and is a First Nations cultural tradition. Trapping concessions occur throughout the entire Peel Watershed Planning Region (Figure 2.9). There are

28 individual concessions permitting the exclusive rights to commercially harvest furbearing animals. Not all these concessions may be active. The Tetłit Gwich'in and Vuntut Gwitchin also each have their own larger group area concessions, which permit exclusive commercial harvesting rights to their members. Trapping is typically a winter activity.

Big Game Outfitting

Big game outfitting has been an economic generator in the Peel watershed for decades. The industry needs large intact wilderness and healthy wildlife populations to be economically viable and ecologically sustainable. The Peel watershed offers some of the highest quality big game hunting in North America. There are six outfitting concessions in the region (Figure 2.10). Sport hunting species are mainly Dall's sheep, grizzly bear, caribou, and moose. Other activities offered by guide outfitters include horseback riding, bird watching, and wildlife viewing. Most trips are undertaken by float plane, with overland transportation by horseback or on foot. Big game outfitting activities and their associated concessions are mostly in the southern half of the region. An estimate of $12-$18 million in direct revenues was generated in the period 2001-06, based upon information provided by Peel region outfitters. The outfitting season is the summer and fall.

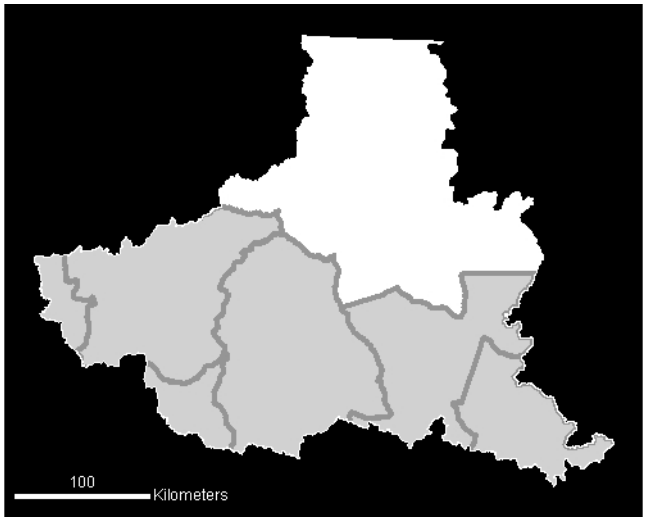


Figure 2.10: Outfitting concessions occupy the southern half of the region.

Tourism

The Peel watershed is a valuable region for Yukon tourism (Figure 2.11), largely because of its wilderness character. Most tourism in the region occurs in the summer. The Dempster Highway, considered by many to be one of the few remaining "wilderness highways" in the north, attracts increasing numbers of tourists. These visitors are drawn to the unique landscapes, wildlife viewing, photography, hiking, bird watching, and wilderness rivers reachable by road (e.g., the Blackstone and Ogilvie rivers). These more reachable areas receive more visits, so they are important to the overall tourism economy of the region. However, this density of tourists can also affect wildlife populations with sensitive habitats near the highway.

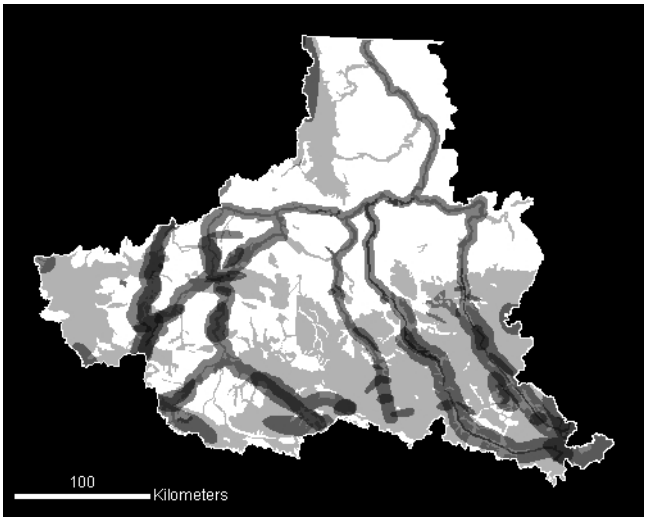


Figure 2.11: Overlapping tourism values (darker shades indicate higher value and/or number of overlaps).

The portion of the region outside the highway corridor is of territorial and international significance to the wilderness tourism sector. It supports approximately 20 operations (guides, transportation companies, and expediters) that are mostly Yukon-based. According to both government and industry sources, the Snake, Wind, Bonnet Plume and Hart river watersheds within the southern Mackenzie Range represent the largest intact, remote, mountain wilderness area in the Yukon and North America. A map of Yukon recreational features shows high tourist potential concentrated in the region (Earle, 2008). Its challenging but navigable rivers have an international reputation for world-class river travel. They are mainly reached by float planes that typically land on headwater lakes. Other popular wilderness activities are hiking, horseback riding, wildlife viewing, bird watching, fishing, photography, and nature study.

Remote river-based tourism in this region has generated about $3.67 million in direct expenditures from 2001-2006 (Earle, 2008). The region has excellent potential for managed growth of wilderness adventure and eco-tourism, as well as development of First Nations cultural tourism. According to industry and government, high quality and sustainable tourism, both now and in the future, depends on maintaining wilderness and wildlife values. Because it focuses on wilderness experience and wildlife, tourism in this region is sensitive to most land use activities. For example, roads, industrial activities, and even too many tourists may lessen its appeal. Tourism is also sensitive to the general state of the economy and the cost of travel.

Forest Resources

Most forest growth is found in the Peel River Plateau. However, the most productive sites are on alluvial soils in the major river valleys or have southerly exposures. The forests of this region are not considered valuable for timber because they are remote and have low productivity.

The southwestern part of the planning region is in the Dawson Forest Resources Management Area (as set out in the Tr'ondëk Hwëch'in Final Agreement, Chapter 17). This area is a Hinterland Forest Zone under the Dawson Forest Resources Management Plan. Hinterland Forest Zone does not contribute to long-term green commercial timber supply. Forest resources harvesting (timber and non-timber) can be used for salvage, sustenance and small scale use. This forest management plan must be consistent with the Peel Watershed Regional Land Use Plan. Further planning could be done with the Na-Cho Nyäk Dun, or the Vuntut Gwitchin as per Chapter 17 of their Final Agreements and the *Forest Resources Act*. Similarly planning could be done with the Gwich'in Tribal Council as per Appendix C, Chapter 13 for forest resources on Tetłit Gwich'in Yukon Lands.

Most forest harvesting is for First Nations' traditional use as well as back-country activities (i.e., outfitting, trapping, recreation). The main forest products are domestic fuelwood, cabin logs, and wood used for other traditional or cultural purposes. However, the industrial potential includes bridge timbers, tourism lodge construction, or the needs of the oil and gas or mining sectors. Only a small number of commercial fuelwood permits have been issued in the region, concentrated around KM 286 of the Dempster Highway. These harvest sites are adjacent to major rivers, popular camping spots, and travel corridors.

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 K'àii Tsik Njik river corridors. Forest management planning in these parts of the region may also be needed in the future.

2.6.2. Non-Renewable Resource Use

Other economic activities in the region are based on non-renewable resources. Exploration has provided important seasonal employment for local people. Compared to development, exploration usually has less intense, but more dispersed, effects on other regional values. If exploration is successful, resource development or extraction may follow if market and regulatory conditions are favourable.

Apart from aggregates (gravel), there has been no non-renewable resource extraction in the Peel watershed. The development of non-renewable resources will almost certainly require all-season surface access (e.g., roads and railways). The effects of development are higher than exploration, but are generally focused on the worksite and along access routes. All modern development proposals include a decommissioning process. Infrastructure may either remain in place (if re-opening or re-use is expected) or be dismantled. Affected lands may then recover through natural revegetation and/or active reclamation.

Oil and Gas

Oil and gas exploration activity has been low since its initial surge in the early 1960s. The region contains a large portion of Yukon's total estimated natural gas and oil in four petroleum basins (Figure 2.12). The Eagle Plains basin (Figure 2.13), which contains proven reserves, lies north of the Ogilvie River and west of the Richardson Mountains. It is the most likely to be developed first because it is near the Dempster Highway and the proposed Dempster Highway Lateral pipeline, and because of its geologic potential. In the small part of this basin inside the planning region, Chance Oil and Gas Ltd. holds two exploration permits and two significant discovery licenses. The industry believes that this basin has substantial natural gas potential and moderate oil potential. The Peel Plateau and Plain Basin, lying east of the Richardson Mountains and north of the Mackenzie Mountains, has natural gas potential. Any development would probably begin well after it happens in Eagle Plains. Recent research by the Yukon Geological Service supports the development potential of this basin.

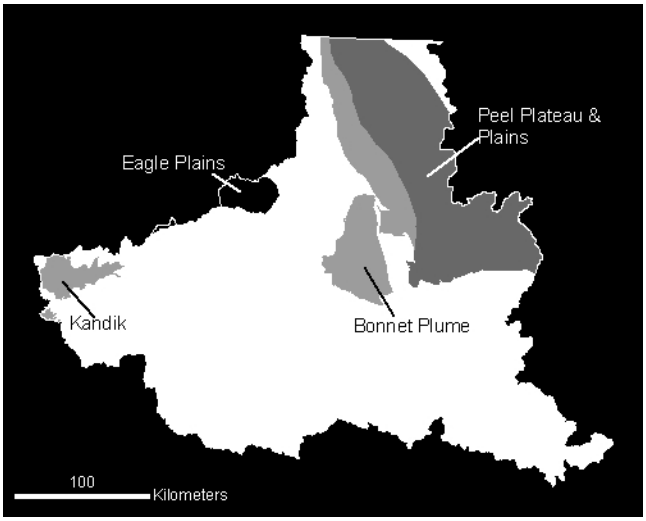


Figure 2.12: Oil and gas basins of the region, with darker tones indicating higher development potential. (Note: Such development potential considers geological potential together with infrastructure needs.)

There are two remaining basins: the Kandik and the Bonnet Plume. The Kandik is at the headwaters of the Ogilvie River, while the Bonnet Plume

Figure 2.13: Winter exploration in Eagle Plains: setting up a portable drilling rig. (Photo: Yukon government)

basin is between the lower reaches of the Wind and Bonnet Plume rivers. There was interest in acquiring exploration rights in the Kandik basin in 2016, but the disposition process was cancelled at that time. Lack of pipeline infrastructure is a major barrier to developing natural gas in this region. Any development may depend on Alaska Highway and/or Mackenzie Pipeline proposals.

Oil and gas exploration generally takes place in winter. It may coincide with caribou movements and habitat use, but not usually with back-country travelers. However, any development would involve year-round activity and all-season roads. New approaches and techniques, such as low-impact (or meandering) seismic lines and multi-well drill pads, are reducing the ecological footprint of oil and gas activities.

Mining

Though mineral development has not yet happened, interest in mineral exploration increased around the time this plan was developed. Much of the planning region remains little explored. There are approximately 219 known mineral occurrences and 13 known deposits in the Peel watershed. Two known mineral deposits are of significant economic size: the Crest iron deposit and the Bonnet Plume coal deposits (Figures 2.14 and 2.15). Both would need major transportation infrastructure (e.g., railway and/or slurry pipeline) to be developed.

Mineral development in the planning region faces many challenges. These include lack of existing infrastructure, cost of construction, remote location, rugged terrain, and lack of water at upper elevations and during the winter period. However, these challenges may be overcome if the mineral has a sufficiently high market price. The mineral sector (industry representatives and individual firms) has strong concerns about the need to maintain access to existing claims and allow continued exploration of the region through the free-entry system.

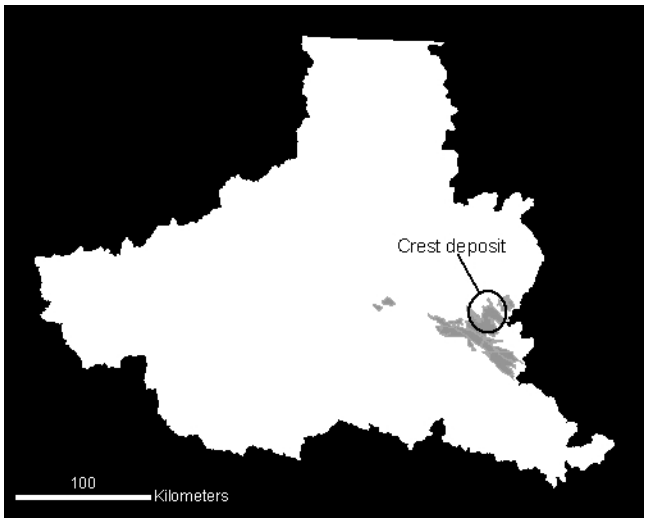


Figure 2.14: Higher iron potential and the Crest iron deposit.

Two types of mineralization other than coal and iron are also of interest. Wernecke Breccias (also known as Iron Oxide Copper Gold, or IOCG) deposits are typically targeted for their copper, gold, and uranium potential (Figure 2.16).

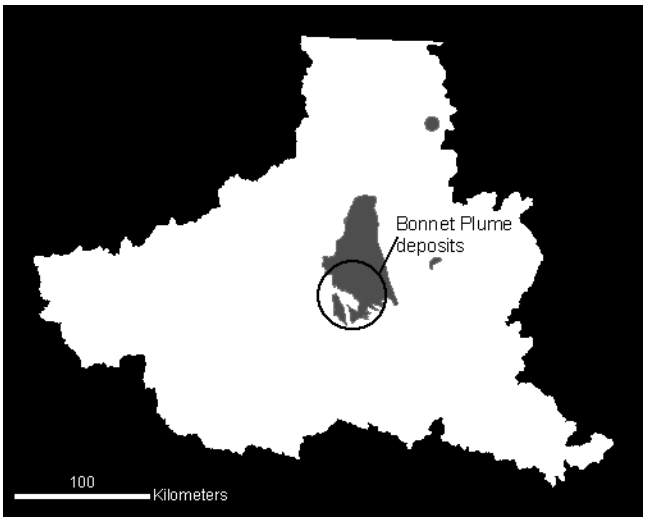


Figure 2.15: Coal potential and the Bonnet Plume deposit.

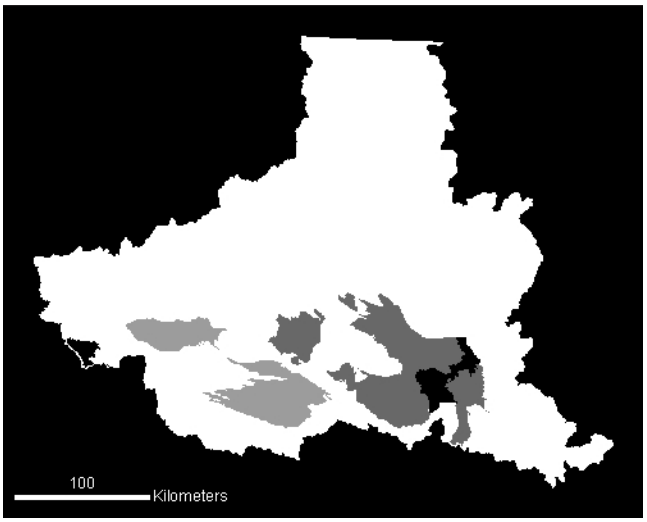


Figure 2.16: Wernecke Breccia potential in the region (darker shades indicate higher potential).

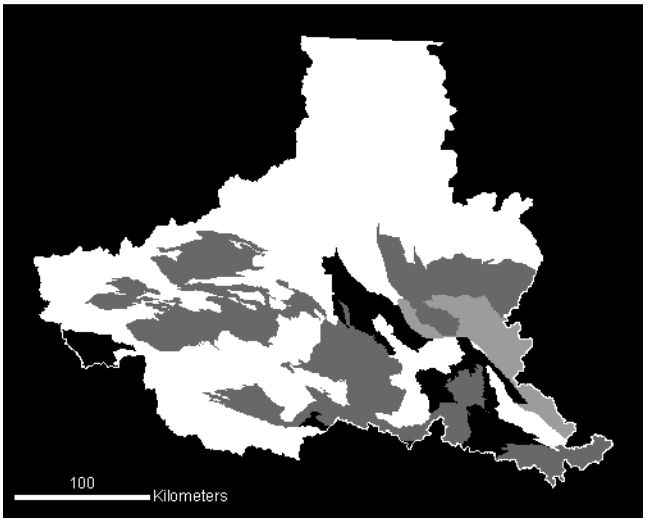


Figure 2.17: Mississippi Valley Type potential in the region (darker shades indicate higher potential).

Carbonate hosted lead-zinc deposits, including the Mississippi Valley Type (MVT) and the "Blende" type, are targeted for their lead and zinc potential (Figure 2.17). These deposits are often smaller and occur in clusters. They do not have the significant acid-rock drainage problems that Faro[6] has because they occur in carbonate rocks. There has been no interest in placer mining in the region.

A total of 8,380 active quartz claims and 525 active iron-mica claims exist in the region as of February 27, 2019. This is a five-fold increase since the Commission first noted claims in the region in spring 2005 (PWPC, 2005). Before the establishment of the Commission[7], there were 1,658 active claims in the region. There are seven active coal licenses.

Based on government analyses, the industry spent an average of $6 million per year on mineral exploration from 2000-08[8].

Exploration generally happens in the summer months. Its activities and air traffic can affect summer animal behavior as well as traditional wilderness activities and back-country tourism.

6 Faro mine, at one time Canada's largest open-pit lead-zinc mine, is located in central Yukon. Since the mine closed in 1998, it has had significant problems with control and treatment of acid-rock drainage.

7 Based on the public quartz claims data base (as of July 11, 2011) using October 15, 2004 as the PWPC start date.

8 Figures provided by the Yukon Department of Energy, Mines and Resources by way of the Yukon Chamber of Mines.

Development, if it occurs, would involve year-round activity. Surface transportation of equipment and fuel can also occur in the winter.

Aggregate

Aggregate (gravel) is an important resource for the maintenance of the Dempster Highway. Future industrial activity and related road development may need large amounts of gravel. Unlike other non-renewable resources, aggregate use generally happens because of other industrial development in the area.

Geologists believe there are relatively few gravel deposits in Beringian portions of the planning region compared to other areas of western Canada because of the lack of glaciation. An early analysis of much of the region's aggregate potential is complete (Kennedy, 2009). The central and lower Peel region seems to have enough aggregate-bearing formations, though detailed field-based mapping is needed before further development. Roads passing through areas with inadequate gravel resources can also use crushed rock, though it costs more.

2.7. Transportation and Communications

Transportation is a necessary part of all human activities in the region, so it is very important for the area's economy. It can also have major consequences for other values, which is why it has received plenty of attention from the Commission.

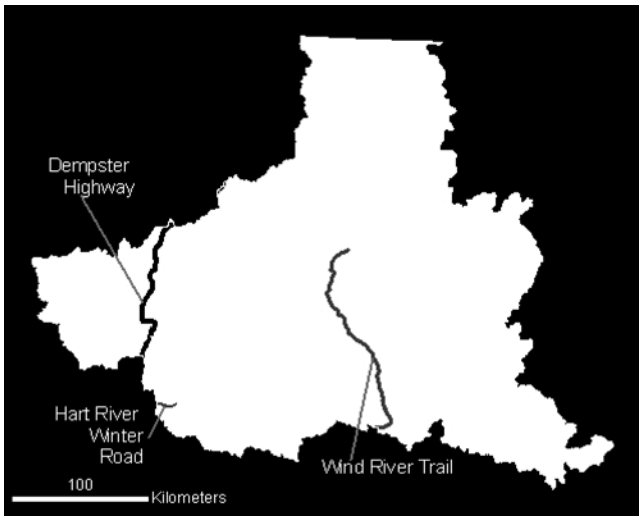


Figure 2.18: Existing and historic major roads or trails.

Rivers, trails, winter roads, highways, and airplanes are the main means of travel in this region. Major rivers provide summer and winter travel routes for local residents and back-country tourists. On the Peel River, barges were used to haul equipment and supplies to support petroleum exploration at least as far as the Trail River. No barging has happened in recent years because of lack of demand or insufficient water flow. Local residents use trails and routes for subsistence harvest, travel between communities, and other cultural activities. Long-distance overland travel traditionally took place in winter with dog teams. Travel skills in this region are kept alive by a winter overland journey on snowmobile between Fort McPherson and Mayo. Big game outfitters usually fly to their base-camps and then travel on foot or by horseback along trail networks.

Other historical transportation routes include the Wind River Trail (Figures 2.18 and 2.19) and the Hart River Winter Road (Figure 2.18). These routes provided entry to early petroleum exploration projects in Eagle Plains and mineral exploration properties in the

Figure 2.19 Wind River Trail from the air, March 2007. (Photo: M. Waterreus, Yukon Environment)

Mackenzie Mountains. Another winter road went to the historic J-21 gas well in the Peel Plateau. Advanced exploration projects often use winter roads.

Many other exploration trails and seismic lines are scattered around the region but are especially concentrated in the northeast (Peel Plateau). Most of this trail network was used in the winter while soils were frozen, allowing the trails to re-vegetate more quickly. Because exploration occurs only in one season, surrounding wildlife is often less directly disturbed than with all-season roads. Nonetheless, the clearing of woody vegetation (e.g., trees and large shrubs), often associated with damaged topsoil, is visible for decades.

The Dempster Highway (Figures 2.18 and 2.19) connects southern Yukon and Canada to the Mackenzie Delta communities and Tuktoyaktuk of the Northwest Territories (NWT). It also passes through the western portion of the planning region. The highway corridor is the potential route for future pipeline, telecommunications, or other linear infrastructure. Related uses such as gravel pits or highway maintenance stations are situated along the highway right-of-way. There are no other all-season roads in the region.

Before oil and gas development happens, new all-season roads will be needed. Roads are also typically needed for mining. Such roads can harm wilderness tourism and big game outfitting in significant ways, both directly and indirectly. These new routes can also change the local ecology because of their effects on fish, permafrost/terrain stability, and wildlife movements, as well as increased hunting.

There has been little access planning for the region, mainly because route development is driven by resource development, which is difficult to predict. In 2003, the Yukon government produced a “Roads to Resources” map that showed the hypothetical routing of eleven roads through the region, based largely on topography and resource potential. Railway feasibility studies (Alcan Railink, 2007 and Alcan Railink and Prolog Canada, 2014) considered a rail link between the Crest iron deposit and Carmacks. Feasibility studies of the Crest deposit itself looked at the use of a slurry pipeline and a rail link to transport the ore.

Air travel in the region includes frequent chartered flights to various airstrips. It also includes float-plane charters to lakes or the larger river landing sites. Mineral and oil and gas exploration often makes use of helicopters. Fuel caches for both helicopters and fixed-wing aircraft are set up next to airstrips and water landing sites. Regular scheduled air service, transporting goods and people, links the communities of Old Crow, Mayo, Dawson, Inuvik, and Whitehorse. However, unlike surface transportation, air travel does not need infrastructure between point-of-departure and point-of-arrival, so its surface disturbance

is limited to airstrips and fuel caches. Nevertheless, its noise and visual disturbance can be harmful to wildlife populations, and can affect the wilderness experience that back-country tourists and big game hunters want.

Increasing interest in the resources of the region means that entry has grown and will probably continue.

In order to create more reliable internet service to 34 northern communities, Government of Yukon has proposed 800 km of new fiber network construction from Dawson City to Inuvik. The line would be constructed primarily within the Dempster Highway right of way, over the next few years. The proposal recognizes the challenges of protecting highway infrastructure, and minimizing impacts on permafrost and ground conditions. The line would run primarily within the Dempster Highway Corridor, through a portion of the Peel Watershed Regional Planning area.

2.8. Significant Ecological Values

The region contains a number of features and values that have territorial, national, and global ecological significance. The information presented in this section comes from Conservation Priorities Assessment Report (PWPC, 2008a), as well as Resource Assessment Report *(PWPC, 2008b)*.

2.8.1. Fish, Wildlife, and Plants

The range of wildlife and plants in the Peel watershed is remarkable for a taiga region at these latitudes. This diversity comes partly from a lack of glaciation over some areas, and partly from the wide range of elevations and resulting habitat types. The western part of the region has the most endemic plant species (i.e., plant species found nowhere else) in Canada.

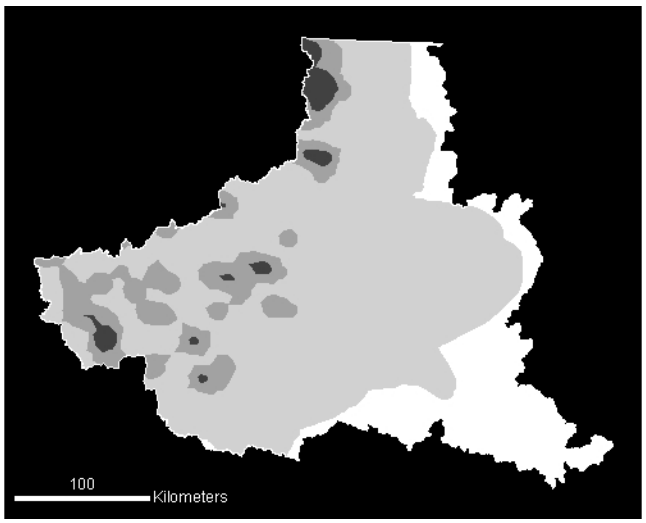


Figure 2.20: Porcupine Caribou winter range (light gray) with moderate (mid-gray) and concentrated (dark gray) use areas.

The region also has a number of animal species listed as national or international conservation concerns. These include Boreal caribou, wolverine, grizzly bear, Short-eared Owl, 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 region also has an unusual clustering of three ecotypes of caribou: Barren-ground (the Porcupine Caribou Herd – Figure 2.20), Boreal (the "Boreal caribou herd" – Figure 2.21), and Northern Mountain (the Bonnet

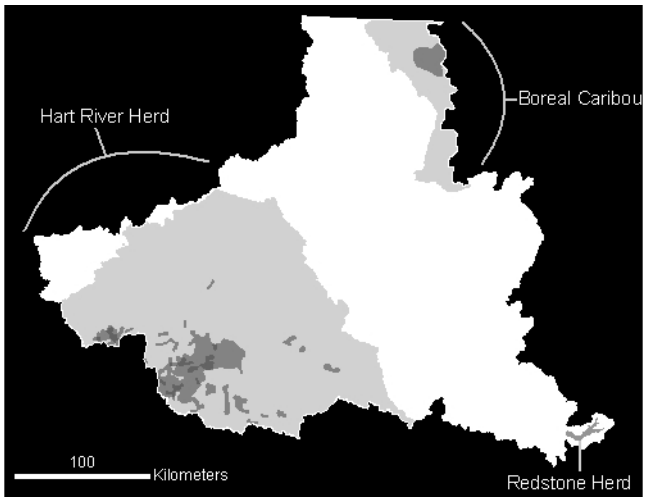


Figure 2.21: General ranges and key areas of the Hart River, Redstone, and Boreal caribou.

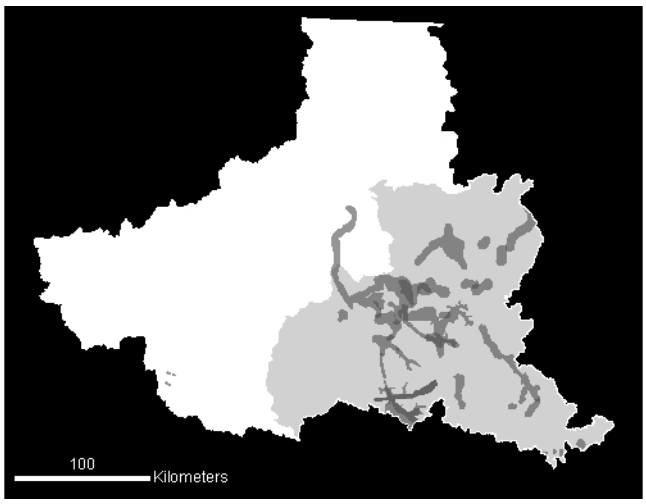


Figure 2.22: General range and key areas of the Bonnet Plume Caribou Herd.

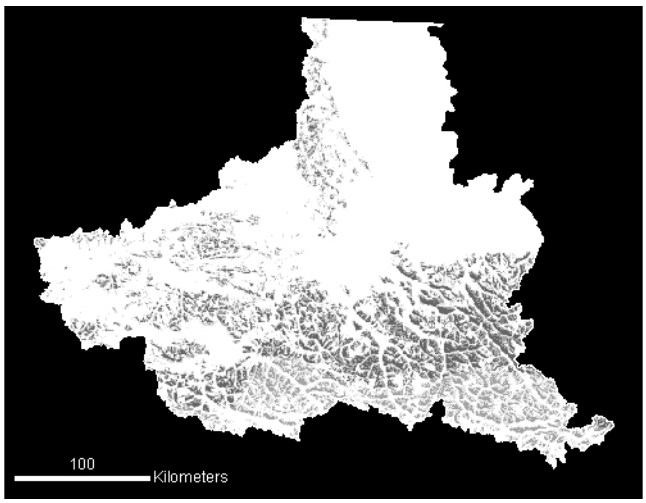


Figure 2.23: Winter habitat suitability for Dall's sheep (dark=high, white=nil).

Plume, Hart River, and Redstone caribou herds – Figures 2.21 and 2.22). The Peel River and its tributaries also support a unique collection of fish species. The region's unique glacial history, along with the impassable Aberdeen Canyon, has produced 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 winter range of the herd in this planning region extends mainly down the Richardson Mountains into the Hart, Blackstone, and Ogilvie drainages. Over the years, the herd has wintered throughout the planning region except in the headwaters of the Wind, Bonnet Plume, and Snake rivers and east of the Peel River below the Snake. Tetłit Gwich'in traditional knowledge tells of calving by some of the herd on Edigii Hill between the Peel River and the Richardson Mountains. The importance of this herd is underscored by the establishment of the Porcupine Caribou Management Board.

Several sea-run fish species (whitefish, herrings/ciscos, inconnu, and Dolly Varden char) are immensely important as subsistence food to communities in the Mackenzie Delta, both historically and at present. Despite the importance of these species, little is known about numbers or key spawning habitat. While spawning habitat is crucial to their survival, overwintering habitat is the most limiting for non-sea-run fish (e.g., grayling, Arctic char).

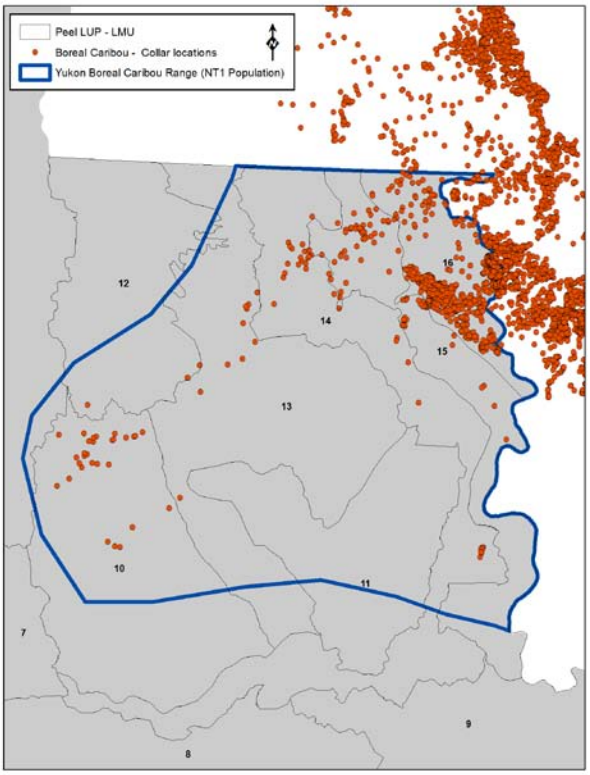


Figure 2.24: Boreal caribou range in Yukon, as determined by Environment Canada's analysis of existing Boreal caribou collar location data.

Dall's sheep (Figure 2.23) is the most important game species for the guide outfitting industry in the Peel. Other species with major cultural or economic importance are marten, moose, waterfowl, grizzly, and caribou (the Hart River, Bonnet Plume, Redstone, and Boreal herds). Except for the Porcupine Caribou Herd, these populations have not been successfully surveyed in recent years. The Porcupine Caribou Herd is estimated (2018) at 218,000 animals, an increase of 20,000 from the last successful survey of 2010.

As Boreal caribou are listed as threatened, protection of critical habitat is required under the federal SARA – meaning Boreal caribou range must be managed with mandatory and enforceable measures to maintain disturbance levels below 35% (recent fires plus human disturbance). These measures must be in place for the population that Yukon shares with the Northwest Territories ("NT1"). Approximately 2% (8,983 km^2) of NT1's range is found within Yukon; specifically the northeast portion of the Peel watershed region (see Figure 2.24).

Boreal caribou critical habitat is identified as:

- the area within the boundary of each range that provides an overall ecological condition that will allow for an ongoing recruitment and retirement cycle of habitat, which maintains a perpetual state of a minimum of 65% of the area as undisturbed habitat; and
- the biophysical attributes required by Boreal caribou to carry out life processes.

The precise location of the 65% undisturbed habitat will vary within the range over time as Boreal caribou range is dynamic – as it is disturbed/recovers. This means that static protected areas may not meet critical habitat protection needs over the long term, particularly if large fires occur in the protected areas. Additional measures may be required to meet habitat needs.

2.8.2. Wetlands

Wetland ecosystems contribute enormously to the total biodiversity of the region. Their productivity and unique growing conditions are unusual in this generally mountainous area. Wetlands are ideal habitats for culturally important waterfowl, furbearers, and moose. They also serve as hydrological reservoirs in a region with relatively few lakes.
The Peel River drainage breaks the long spine of the northern cordillera, creating a migratory pathway for 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, providing valuable staging and stop-over sites for waterfowl (Figure 2.25). Some of these wetlands, including Turner Lakes, Jackfish Creek, Tabour Lakes, and Chappie Lakes, are territorially important.

Many wetlands on the Peel Plateau are "perched" near rivers carved in the plateau. The terrain between these wetlands and neighbouring escarpments (cliff-like banks) is underlain with permafrost. These perched wetlands may thus be sensitive to the connected changes in precipitation, hydrology, and permafrost brought about by climate change or surface disturbance.

2.8.3. Water

The planning region is defined by its watershed. That fact highlights the critical role of water— ecologically, socially, culturally, and economically—in the land use plan. The waters sustain all plant and animal life, across many ecosystems, which provide an important source of food for the First Nations. Waterways and waterbodies offer a gateway to renewable and non-renewable resources, and are needed by a number of industrial activities. They are also critical to the health of the downstream communities of Fort McPherson and Aklavik.

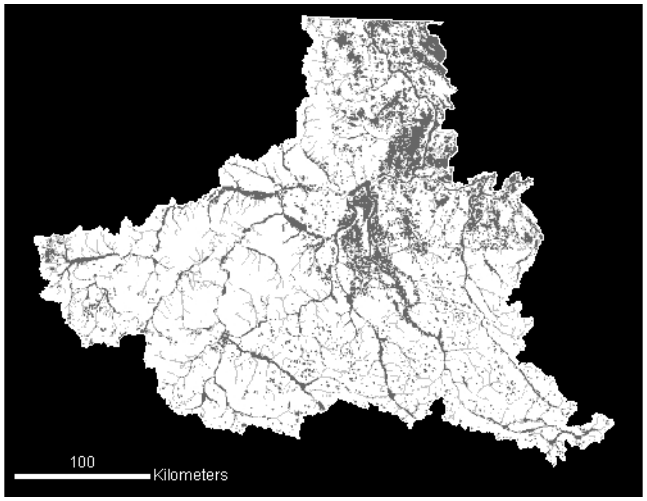


Figure 2.25: Wetland and riparian areas likely corresponding to waterbird habitat in the region.

The headwaters of the six tributaries flow northward through the planning region, converging with the Peel River. The river then flows east 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 main stem—has a major impact on much of the fish and wildlife of the planning region, as well as on the people of the Mackenzie Delta. The Yukon - Northwest Territories Transboundary Water Management Agreement (2002) sets out a series of water management and monitoring principles for the Peel.

The water flow in the Peel Basin is controlled by bedrock and permafrost. Water flow peaks sharply in the early summer because there are few large lakes or much thawed ground to absorb spring snow melt. By contrast, winter groundwater contributions are small, so larger streams have lower late winter flows compared to southern streams, and smaller streams do not flow at all. Water quality varies with water flow. Water in large streams is typically clear in winter and high in dissolved minerals, and very high in sediment in summer. Wetlands help to store and filter water, but their help is generally limited to the flatter northeast portion of the region.

Our knowledge of water quantity and quality comes from various sources, some dating back decades. Monitoring of human effects on water will be difficult in this region because both water and water systems are changing with climate change. Four water flow monitoring stations are currently maintained.

The variability of water flow in the Peel could pose challenges to industrial users. Low winter flows could limit industrial-level use to the summer months, or might involve water storage and recycling. High summer sediment loads could also be challenging. The lack of information on key fish habitats, particularly overwintering grounds, might also limit industrial use of water. Government policy prohibits bulk water transfer, including diversions, between basins, so large water-related industries such as hydroelectric development are not on the horizon. However, both mining and oil and gas typically need water sources for exploration and development.

Figure 2.26: Culverts at the Davies Creek crossing of the Dempster Highway. (Photo: A. von Finster, DFO)

Industrial activities, in turn, may affect water. Exploration and development often need large stores of fuel and other chemicals, and can produce major volumes of waste. Storage and disposal of these substances can lead to soil and water contamination. Industrial exploration also sometimes leads to the development of winter, or ice, roads. These roads often need large volumes of water in a season when water can be scarce. The possibility of vehicles breaking through frozen stream crossings leads to more contamination concerns. Industrial development typically requires all-season roads, which bring more potential water-related issues such as hung culverts, soil erosion, and siltation (Figure 2.26). However, with the right techniques and planning, the effects of industrial activities on water can be reduced.

2.8.4. Other Ecological Goods and Services

Wetlands and forests contain important carbon stores and act as a sink for atmospheric carbon. These plant communities are also part of the global oxygen cycle, generating oxygen through photosynthesis.

2.9. Climate Change

Existing historic climate trends, as well as climate models, show extensive climate change in the planning region during this century. Longer-term global forecasts for 2080-2100[9] show summer temperatures increasing by a significant amount (4–6 °C), while winter temperatures may increase by as much as 9–12 °C. Year-round precipitation is predicted to increase by 0–20%. Model projections are always uncertain, but researchers are confident that this region will warm at a rate of two to three times the global average. Researchers are also predicting more variation in climate and more extremes, which are likely to have as much (or more) effect on the regional ecology as the overall climate trends themselves. Together, the climate trends and climate variability are expected to have a major influence on the Peel landscape.

Figure 2.27: A "retrogressive thaw" in the Peel Watershed. An initial disturbance to the permafrost results in a slump, which in turn exposes more permafrost to thawing temperatures. The slump then expands away from the initial disturbance. Note the resulting disturbance to the creek. (Photo: D. Davidge, Environment Canada)

Exactly how a changing climate will affect the Peel, however, is difficult to predict. Warmer winters with more variation through the freeze-thaw cycle could result in more snow crusts forming during thaws. Such crusts make foraging more difficult for a number of herbivores, while the changing plant communities will probably mean foraging in different locations. Warmer temperatures and variations in surface water flow will likely produce localized or extensive melting of the permafrost. Slope failures resulting from this localized melting are already occurring (Figure 2.27), and have probably occurred in the past, often in connection with forest fires[10]. Accelerated melting, possibly exaggerated by more frequent forest fires, would cause widespread slope instability. Roads, pipelines, and other infrastructure will have to be designed to avoid or withstand unstable slopes. Melting permafrost would in turn change the hydrology of the region, with effects on fish and wetland ecology and on human water users. A changing ecology and unpredictable weather may make cultural and tourist activities less attractive to future generations.

9 Based on the results of the CGCM1 model running the IS92a scenario with a base period of 1975-1995 (http://atlas.nrcan.gc.ca/site/english/maps/climatechange/scenarios).

10 http://gsc.nrcan.gc.ca/permafrost/suppdoc_e.php

3. Plan Concepts

The Plan uses four main tools to guide land management decisions in the Peel region:

1. Landscape Management Units (LMU);
2. Land Use Designation System;
3. General Management Direction; and
4. Cumulative Effects Indicators

Each of these four tools complements the others. Together, along with existing legislation, regulations, and assessment processes, they form part of an integrated land management framework. The four tools are described below.

3.1. Landscape Management Units

Under the Plan, the Peel Watershed Planning Region is divided into LMUs. They are distinct areas of land that have similar ecological properties (landforms and vegetation). They also have similar planning issues and management intent[11].

The borders of LMUs are usually defined by rivers, roads, or other identifiable features, including First Nation land selections. Where possible, LMU boundaries have been made to match with adjacent regional land use plans.

There are sixteen LMUs in the Peel Watershed Planning Region (Appendix A, Map 1). The management intent of each LMU is expressed through the **land use designation system**, described in Section 3.2, below. In Section 5, the resource values and special management considerations for each LMU are described in detail. In Section 6, implementation options for each LMU are discussed.

3.2. Land Use Designation System

Based on identified values and sensitivity to disturbance, different LMUs in the Peel region require different land management. Some areas are more sensitive than others and require careful land management. Others may be less sensitive or have important economic features. The management intent of each LMU is conveyed through a land use designation system.

The land use designation system uses different categories to guide the management of land use activities. In this Plan, there are two broad land use categories:

1. Conservation Area

» Managed for conservation or protection of ecological and cultural resources

» Long-term wilderness character is to be maintained

11 Management intent refers to how a landscape management unit or area is intended to be managed. The management intent provides the thinking behind the directions for managing an area.

- No new industrial land use or surface access is allowed
- Existing mineral claims or leases may be respected
- Pre-existing non-industrial land uses are respected (for example, a land tenure for big game outfitting base camps, or facilities for wilderness tourism).

2. Integrated Management Area

- Allows for new oil and gas, mining, and other industrial land uses, including surface access such as roads
- These uses are subject to Plan recommendations and regulatory processes.

Table 3.1, right, describes the land use designation system used for the Peel watershed. Each of the two broad categories contains more detailed designations. The Conservation Area designation is subdivided into either Special Management Area (SMA), Wilderness Area (WA) or Wilderness Area-Boreal Caribou (WA-BC). The Integrated Management Area (IMA) designation is subdivided into four different zones. Overlay zones for important corridors are also identified.

Where possible, land use designations are consistent with adjacent areas in adjoining regional land use plans. Appendix A, Map 1 shows the land use designations for each LMU.

Table 3.1: Land use designation system for the Peel Watershed Planning Region.

Land Use Designation System			
Category	**Sub-category**	**Management Intent**	**Description**
Conservation Area Areas managed for conservation or protection of ecological and cultural resources, and long-term maintenance of wilderness characteristics. In the CA land category, new industrial land-use dispositions, as well as any new surface access, are not allowed.	Special Management Area	Full protection	» Permanently withdrawn from any new industrial land use and surface access. » Intended to become legally designated as protected area, with subsequent management plans.
	Wilderness Area	Conservation	» Interim withdrawal from any new industrial land use and surface access. » Withdrawal status reviewed as part of formal, longer-term public Plan review conducted jointly by the Parties.
	Wilderness Area-Boreal Caribou	Conservation of Boreal Caribou and adherence to SARA	» Interim withdrawal from any new industrial land use and surface access. » Withdrawal status reviewed as part of formal, longer-term public Plan review conducted jointly by the Parties. » Requires a legal designation and a management plan
Integrated Management Area The working landscape—areas where new oil and gas, mining, and other industrial land uses are allowed, including surface access, subject to Plan recommendations and regulatory processes.	Zone I	Lowest development	» Very high ecological and heritage/cultural values within a sensitive biophysical setting. » Maintaining ecological integrity and protecting heritage and cultural resources is the priority. » Land uses are acceptable if they do not create significant functional disturbance[12]. » All-season industrial infrastructure discouraged.
	Zone II	Low development	» High ecological and heritage/cultural values within a moderately sensitive biophysical setting. » Maintaining ecological integrity, protecting heritage and cultural resources, and minimizing land use impact is the priority.
	Zone III	Moderate development	» Moderate ecological and heritage/cultural values within a moderately sensitive biophysical setting. » Conservative levels of land use are consistent with Zone III objectives.
	Zone IV	Highest development	» Lower ecological and heritage/cultural values within a moderately sensitive biophysical setting. » Higher levels of land use are consistent with Zone IV objectives.
Overlay Zones			
Overlay Zones (overlaps above categories) Features where adjacent land requires special consideration and additional management direction.	Dempster Highway Corridor		» Land adjacent to the Dempster Highway requires special management. » See Section 4.3.1.1.
	Major River Corridors		» Land adjacent to the Major River Corridors requires special management. » See Section 4.1 and 4.2

12 See Section 3.4, below, for definition of functional disturbance.

3.2.1. Conservation Area

The Conservation Area is managed for conservation or protection of ecological and cultural resources, and the long-term maintenance of wilderness characteristics. In the CA land category, new industrial land-use dispositions, as well as any new surface access, are not allowed. The Conservation Area contains the three sub-categories described below.

What happens with existing mineral claims and oil and gas permits in the Conservation Area?

There are several types of industrial land dispositions in the Conservation Area, all on public land. The Yukon government administers these lands and is therefore responsible for their future status. When Tombstone Territorial Park was created, the government removed many pre-existing quartz claims using several creative agreements, while others remained.

In the Peel region, regardless of how the status of industrial claims in the Conservation Area is addressed, new surface access (e.g., roads and railways) is not allowed.

Special Management Area

SMAs are intended to become legally designated protected areas, with subsequent management plans. These lands are to be permanently withdrawn from any new industrial land use and surface access. Under the Final Agreements, the governments who are Parties to the Plan shall be responsible for developing more detailed management plans for SMAs at a future date. The legal designation used to create these protected areas is up to the Parties, as long as the Plan's management direction is respected. For the purposes of Section 10.5 of the Umbrella Final Agreement, Management of Future SMAs, this means that the Government of Yukon 'otherwise agrees' such that the Parties shall:

1. have joint management authority for all of the SMAs in the Peel Watershed;
2. jointly prepare, or have prepared a management plan for each SMA;
3. jointly make best efforts to complete the management plans within five years of the establishment of the SMAs; and
4. jointly review each management plan at least once every 10 years.

Wilderness Area

As in the SMA, the goal for WAs is conservation and protection of ecological and cultural resources and wilderness character. However, WAs will be under *interim*, not permanent, protection. This level of protection will be jointly reviewed by the Parties periodically, as part of a formal, longer-term Plan review process. The Plan review is required as part of Plan implementation (see Section 6).

The WA category promotes the principle of adaptive management, while providing land use certainty in the near term. The status of WAs will be jointly reviewed, as future circumstances change, providing flexibility and maintaining future options for these areas.

Wilderness Area-Boreal Caribou

As with the other class of WAs, the goal for the WA-BC designation is to provide interim protection of ecological and cultural resources and wilderness character. This designation also differs in that it meets the test of SARA, by requiring a legal designation and a management plan.

The options for legal designation for LMUs designated as WA-BC are: creation of a Wilderness Management Area under the *Environment Act*; a Territorial Park under the *Parks and Land Certainty Act* - Section 11.1.e; or a Land Management Zone under the *Territorial Lands (Yukon) Act*.

3.2.2. Integrated Management Area

The IMA is the working landscape—areas where new land uses and surface access can take place. The Plan devotes more attention to land management in these areas because more types of land use are allowed here. The result may be more potential land use conflicts and impacts.

Figure 3.1 shows how the zones in IMAs are organized according to sensitivity to human-caused change and the potential risk to ecological and cultural resources. The zones themselves are described in Table 3.1. The guidelines for cumulative effects thresholds in these zones are described in Section 3.4.

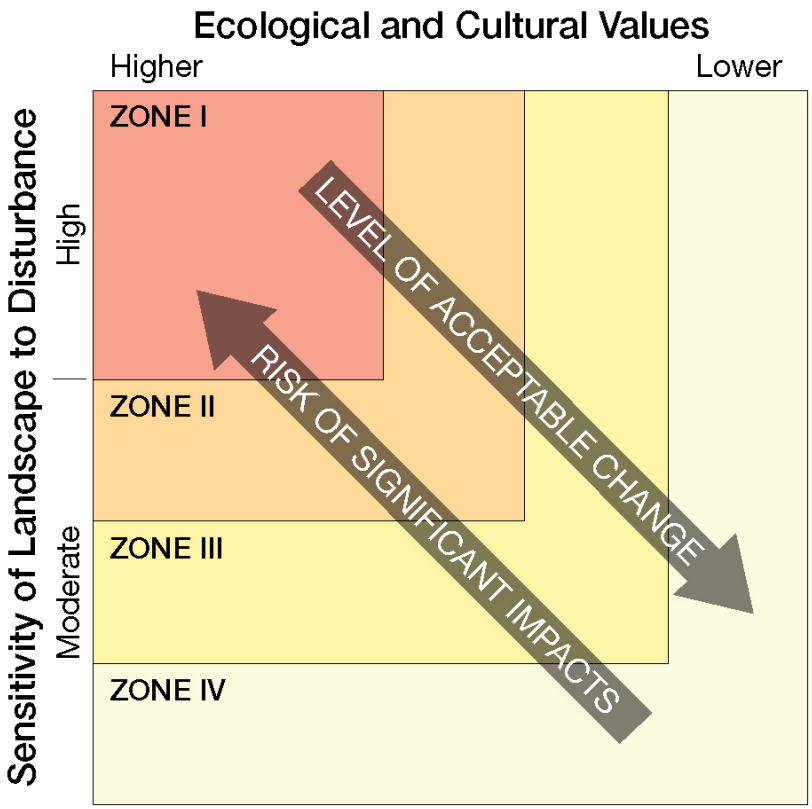


Figure 3.1: Zoning considerations for IMA.

3.2.3. Overlay Zones

In the Peel region, some features require special consideration and additional management direction. **Overlay zones** apply to these features, regardless of the land use category within which they occur. Overlay zones are currently identified for two important features—the Dempster Highway Corridor and Major River Corridors. In the future, additional overlay zones may be developed.

Dempster Highway Corridor

Providing access to the western portion of the planning region, the **Dempster Highway Corridor** is both a transportation/industrial corridor and a tourism resource. It is also the site of a Government of Yukon proposed fibre network, designed to create more reliable internet service to northern communities. It offers the only all-season road access to the region. The highest levels of land use in the Region occur along the corridor, a pattern that will likely continue.

The Plan recommends that sub-regional planning (Final Agreements 11.2.1.9 and 11.8.0) should be completed for the Dempster Highway Corridor. The sub-regional plan must be completed collaboratively between the governments of Yukon, Na-Cho Nyäk Dun, Tr'ondëk Hwëch'in, Gwich'in Tribal Council and Vuntut Gwitchin, based on a terms of reference. The Plan shows the Dempster Highway Corridor as a two-km-wide corridor, for purposes of illustration only. The actual area (i.e. corridor width) for the sub-regional plan will be further defined by the Parties. See Section 4.3.1.1 for more management direction about the Dempster Highway Corridor.

Major River Corridors

In the Peel region, there are several large rivers that require special management. These **Major River Corridors** have high biological and cultural importance, and are often preferred routes for surface access. The large rivers of the Conservation Area are the Peel, Hart, Wind, Bonnet Plume and Snake. In the IMA, where new roads are allowed, the major rivers are the Ogilvie and Blackstone.

To limit potential effects on these rivers, new permanent infrastructure should not be allowed along them. This means that any river crossings should only happen in the winter on an adequate ice bridge. Major River Corridors are currently defined as centre line of the river channel with a one-km buffer on each side, for a total corridor width of two kilometers. Maintaining the ecological and visual integrity of Major River Corridors is a key strategy for attaining both environmental and social Plan goals.

3.3. General Management Direction

The third tool that the Plan uses to guide land use decisions is **general management direction**. General management direction includes strategies, best management practices, and recommendations. It can be integrated into existing processes such as YESAB project reviews and the land application review process.

With a few exceptions, general management direction only applies to the IMA.

Results-based Management Framework

General management direction for the Plan is organized around a **results-based management framework**. It is a structured way to decide whether Plan goals are being met. It is also a way to link general, higher-level goals to more detailed operational decisions. The results-based management framework is shown in Figure 3.2.

The steps to a *results-based management framework*:

1. Ask: "What results are wanted?"
2. Find methods and tools to achieve those results.
3. Monitor the process to see if the desired results are achieved.

Monitoring is a key part of a results-based management framework. For each LMU in the IMA, the Plan recommends tracking and reporting the condition of indicators. The Plan does not provide indicators for all sustainable development themes and does not deal with all strategies or monitoring requirements. The Plan currently focuses on **cumulative effects indicators** (see Section 3.4). Table 6.2 suggests additional indicators for possible future use.

Component	Definition	Example
Goal	Broad statement of desirable long-term condition	Maintain ecological integrity
Strategy	Recommended approaches and actions to achieve GOAL – can be adjusted as indicators change	Reduce size, intensity and duration of human-caused surface disturbance
	Best Management Practices and Recommendations	
Indicator	Measurable signal used to assess if GOALS are bring met – must be regularly monitored and assessed	Amount of human-caused surface disturbance
Indicator Level	Concise statement about desired status of INDICATOR	Less than a specified amount of human-caused surface disturbance

Strategic Level

Provides basis for operational decision making

Figure 3.2: Results-based management framework for use in the IMA.

Best Management Practices

Best management practices are ways of working that can reduce the time, intensity, or duration of land use activities[13]. Many best management practices developed for Yukon relate directly to achieving the goals of the IMA in this Plan. Appendix B provides references to applicable Yukon best management practices.

3.4. Cumulative Effects Indicators

The Plan provides two indicators for tracking the cumulative effects of land use in the IMA. The indicators are:

1. **Direct Surface Disturbance:** the area of land physically disturbed by human activities. Such features as structures, roads, gravel quarries, seismic lines, and access trails all create physical *footprints* on the land. These footprints have a direct impact on habitat.

2. **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). The development of linear features may lead to increasing levels of access. Increased access may lead to greater harvesting 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."

What are cumulative effects?

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. Managing cumulative effects is best accomplished by integrating and coordinating actions such as project assessment, mitigation, government policy, legislation and planning. Managing the cumulative effects of land use can be an important outcome of applying a results-based management framework. An evaluation of cumulative effects is partially achieved through the measurement of indicators (e.g. linear density).

3.4.1. Cumulative Effects Indicator Levels

The indicator levels recommended in the Plan provide guidance on the acceptable limits of human-caused disturbance in the IMAs. An increase in the level of the cumulative effects indicators represents increased risk to valued ecological and cultural resources.

The recommended indicator levels are not intended to be an absolute cap on activities. In the IMAs, the Plan uses these levels to balance potential risks to ecological and cultural resources, with the benefits of economic development.

---

13 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.

As shown in Table 3.2, these levels are linked to each IMA zone (Zones I-IV). If an indicator level in a zone is reached or exceeded, the result may be undesirable effects on ecological and cultural resources.

There are two indicator levels:

1. **Cautionary level**
   - » means that indicators (measures of disturbance) are close to reaching undesirable levels.
   - » provides an early warning signal.
   - » allows time for pro-active management to avert or limit potential impacts.

2. **Critical level**
   - » represents the point at which the indicators have reached or surpassed acceptable levels.

Table 3.2: Proposed levels of cumulative effects indicators for each IMA zone*. Cumulative effects indicator levels are calculated within each LMU of the IMA.

IMA Zone	Management Intent	Cumulative Effects Indicators	Cautionary Level **	Critical Level
Zone I ***	Lowest development	Surface disturbance	0.075%	0.1%
		Linear density	0.075 km/km^2	0.1 km/km^2
Zone II	Low development	Surface disturbance	0.15%	0.2%
		Linear density	0.15 km/km^2	0.2 km/km^2
Zone III	Moderate development	Surface disturbance	0.375%	0.5%
		Linear density	0.375 km/km^2	0.5 km/km^2
Zone IV	Highest development	Surface disturbance	0.75%	1.0%
		Linear density	0.75 km/km^2	1.0 km/km^2

* These levels have been adopted from the adjacent North Yukon Regional Land Use Plan. The landscapes, potential land-uses, and ecological values of the North Yukon Region are comparable to those of the IMAs of the Peel Watershed Planning Region. During the North Yukon regional planning process, computer modelling was used to help understand what levels of disturbance could occur, without undue impact on valued regional components, like the Porcupine Caribou Herd (Francis and Hamm 2009).

** The cautionary level is established as 75% of the critical (i.e. upper) level.

*** Although cautionary and critical levels are identified for Zone I, the Plan discourages development of new all-season industrial infrastructure, aggregate extraction, and human settlements/structures.

3.4.2. Monitoring of Cumulative Effects Indicators

Functional disturbances are physical disturbances that disrupt the soil or water systems, or that require cutting trees.

Cumulative effects indicators must be monitored to see if indicator levels are being kept within an acceptable limit (see Section 3.4.1, above). Land uses that create **functional disturbances** contribute to the level of cumulative effects indicators.

Some types of land use activities and surface disturbances do not contribute to cumulative effects indicator levels. Activities considered exempt from the creation of functional disturbances are:

- new linear features, such as trails or seismic lines, less than 1.5 m wide;
- land use activities that occur on frozen water bodies;
- winter work in non-forested areas, or that does not result in the clearing of trees; and,
- winter work that uses existing disturbances and linear features.

Cumulative effects indicator levels are calculated within each LMU of the IMA. As human-caused surface disturbances recover through natural re-vegetation or active reclamation, they are subtracted from the total amount of disturbed area within an LMU. A human-caused surface disturbance is considered to be recovered under the following conditions:

- when it no longer enables travel or access by wildlife and people. (In forested or tall shrub areas, a feature can be considered recovered when it contains woody vegetation (i.e. trees and shrubs) that is approximately 1.5 m in height.);
- when increased run-off and sediment loading is no longer significant; and,
- when its contours roughly match that of the original contours.

4. General Management Direction

This section provides general management direction for the Peel Watershed Planning Region. General management direction identifies specific recommendations, strategies and best management practices that assist land managers to meet Plan goals. Much of this section provides direction for areas in which industrial activities are allowed.

Two types of recommendations are made—policy and research. Policy recommendations provide direction on land use issues and their management. Research recommendations suggest topics to be investigated in more detail or information gaps to be filled. Policy and research recommendations are summarized in Appendix C.

These recommendations, strategies, and best management practices are designed to achieve the Plan's core principle of sustainable development. This section is organized around the three major components of sustainable development:

- Environment;
- Social values (culture and heritage); and
- Economy.

For a discussion of how specific management direction is applied to each landscape management unit (LMU), see 'Special Management Considerations' for each LMU in Section 5 of this Plan. An overview of the ecological, cultural and economic values and resources referenced in this section is provided in Maps 1-6, Appendix A. Detailed maps and descriptions of resource values are contained in the Peel Watershed Planning Region Resource Assessment Report (PWPC 2008 a, b).

The management direction proposed here can be integrated into existing processes, such as the land application review process. So long as they are consistent with the Plan, (First Nation, territorial and federal) policies, strategies and management plans that exist or are developed during the life of the Plan, should be considered and where appropriate, integrated into implementation of Plan. The Yukon Tourism Development Strategy, Yukon Water Strategy and the Boreal Caribou Recovery Strategy are examples of this. Other management plans in effect or in preparation for the region, or areas adjacent to the planning region, should be consulted for additional direction and guidance, as required (see Appendix E).

Strategies and Best Management Practices

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

4.1. Environment

Sustaining regional wildlife and fish populations requires the maintenance of habitat integrity and the protection of significant habitats. Maintaining large roadless wilderness areas within the planning region will ensure that healthy wildlife and fish populations remain viable into the future. Many of the ecologically important areas that support wildlife and fish populations are shown in Map 3, Appendix A.

Strategies to maintain habitat integrity for wildlife and fish populations, and the wilderness character and water quality of the region, are described below. Each of the strategies and recommendations is designed to assist the Plan in achieving the four goals related to Environment:

Environment Goals
Goal 1 Maintain the **wilderness character** of much of the planning region. **Goal 2** Maintain **ecological integrity** by ensuring terrestrial and aquatic habitats remain in a suitable condition to sustain healthy native wildlife and fish populations and communities within their natural ranges. **Goal 3** Maintain the quantity, quality, and rate of flow of **water** within its natural range. **Goal 4** Ensure that any lands disturbed by human activities are reclaimed or restored to their **natural state**.

4.1.1. Cumulative Effects Management

Cumulative effects are changes to the environment and/or society caused by a series of land use activities over time (i.e. past, present, and expected future). Negative effects are called cumulative impacts. While one activity may have only a small effect, the combination of a number of activities may have a large impact.

The best way to manage the cumulative effects of land use is to integrate and coordinate actions and decisions. Assessment, mitigation, government policy, legislation and planning all play a role. In the absence of regional planning, project assessment is not able to manage the potential regional effects of multiple land uses.

Key issues related to cumulative effects management:

- Assessing and mitigating land use activities on a project-by-project basis are not effective strategies for managing the potential cumulative effects of land use activity.
- Cumulative effects management must consider both direct and indirect effects to valued resources, resource users and communities.
- The effects of multiple land use activities must be monitored in order to evaluate potential cumulative impacts.
- A benchmark must be determined to define acceptable levels of cumulative impacts.
- Assessing the cumulative effects of land use activities on fish and wildlife populations is challenging.

In the Integrated Management Area (IMA), this Plan focuses on the management of cumulative environmental effects by establishing defined benchmarks for surface disturbance impacts. Recommended cumulative effects indicator levels, and the monitoring of those indicators, is a central focus for integrated land management in the IMA. The IMA land use designation system (see Section 3) is built around the concepts of managing cumulative levels of surface disturbance.

At this time, socio-economic indicators and effects are not directly addressed by this Plan but recommendations for consideration during implementation and in future Plan reviews are provided in Table 6.2.

Surface Disturbance

Human-caused surface disturbance – the physical human *footprint* on the land – is the most visible legacy of land use activities. Increasing levels of surface disturbance and habitat change mean greater risks to native wildlife and fish populations and to ecosystem integrity. In this Plan, the amount of surface disturbance in the region is currently measured in two ways:

- total area of human-caused footprint (direct surface disturbance)
- total length of roads, trails and other linear features, per unit area (linear density)

See Section 3.4 for more detailed information on surface disturbance indicators, and their relationship to cumulative effects monitoring.

Historical oil, gas, and mineral exploration created approximately 7,000 kilometres of seismic lines and trails, resulting in thousands of hectares of surface disturbance in the Peel region. Almost all historical linear features are seismic lines, tote roads, and winter trails that are in various stages of recovery.

Some disturbances are relatively permanent and will remain visible for decades, while other features have recovered to the point where they no longer function as surface disturbances. Very few of these linear features are actively used by people.

Key issues related to surface disturbance:

- Current knowledge of recovery of surface disturbance in this region is poor.
- Surface disturbances have direct and indirect effects on wildlife and fish.
- The wilderness character of the landscape for human use and enjoyment can be affected for long periods of time.
- Managing levels of surface disturbance is a central focus of the cumulative effects management strategy for the IMA. Current levels of surface disturbance must be compared to recommended indicator levels, in order to monitor and track the cumulative effects of land use.

Recovery of Human-Caused Surface Disturbances

A human-caused surface disturbance may be considered recovered, or returned to its natural state, under the following conditions:

1. When the feature no longer enables travel or access by wildlife and people.
   - in forested or shrubby areas, a feature is covered by woody vegetation (trees and shrubs) at least 1.5 metres in height.
   - in areas mostly covered with low-growing vegetation (less than 1.5 metres), a feature can be considered recovered when (a) it is covered with native species roughly the same height and composition as the surrounding dominant vegetation.
2. When increased run-off and sediment loading returns to background levels.
3. When its contours roughly match the original contours.
   - it may be necessary to re-contour certain disturbances, such as bridge abutments or elevated road beds, before the site can be considered fully restored to natural conditions.
4. When all debris and human-brought materials have been removed from the site.

Recommendations

Managing the level of surface disturbance is central to the management of cumulative impacts resulting from land use activity. In order to maintain surface disturbance at acceptable levels, the following policy recommendation is proposed:

Policy Recommendation #1	In the IMA, the amount of surface disturbance in an LMU should be maintained below the cumulative effects indicator levels recommended in the Plan.

In order to facilitate necessary monitoring and tracking of surface disturbance recovery and effects, the following research recommendations are proposed:

Research Recommendation #1	To provide a benchmark for the monitoring of cumulative effects indicator levels, the status of existing surface disturbances should be documented.
Research Recommendation #2	The effectiveness of the Plan's definition of "surface disturbance recovery" in dealing with water run-off and sediment loading should be evaluated, especially in non-forested/shrubby areas.

Management Strategies

Please refer to sections 4.1.2 and 4.1.3, below, for strategies to reduce surface disturbance and cumulative land use impacts on wildlife, fish and their habitats. Some strategies that reduce impacts to heritage and cultural resources also relate to managing surface disturbance, and people's use of those features (see sections 4.2 and 4.3.1, respectively). Best management practice references are listed in Appendix B.

4.1.2. Disturbance to Wildlife and Terrestrial Habitats

The Peel region contains a number of important wildlife species that are sustained by a diversity of intact habitats. Healthy populations of grizzly bear, moose, sheep, woodland caribou, Peregrine Falcon and other iconic northern species reside in the Peel. Part of the winter range of the Porcupine Caribou Herd is also in the region. Wildlife is regulated under the Yukon *Wildlife Act*, or, depending on status, the federal SARA. Locations of important terrestrial habitats and areas of wildlife use are displayed in Map 3, Appendix A.

First Nation peoples have relied on the wildlife of the region for thousands of years. Both Aboriginal and non-Aboriginal people continue to rely on these species today. The integrity and availability of adequate high-quality habitats, and the protection of sensitive habits, is essential for the long-term viability of wildlife populations in the Peel region.

Key issues related to wildlife and their habitats:

- Industrial land use activities, and the increased access made possible through associated roads and trails, may result in wildlife avoiding or reducing their use of key habitats, such as nesting sites, mineral licks, prime foraging habitat, or movement routes.
- Increased access may result in increased harvesting pressures or higher rates of mortality, due to vehicle collisions or predation.

Recommendations

Specific policy and research recommendations regarding the management of Boreal caribou and its habitat are required at this time. As Boreal caribou are listed as threatened under the federal SARA, protection of its critical habitat is required, meaning Boreal caribou range must be managed with mandatory and enforceable measures to maintain disturbance levels below 35% (i.e. recent fires plus human disturbance). The precise location of the 65% protected undisturbed habitat will vary within the range over time, as Boreal caribou range is dynamic – as it is disturbed/recovers. This means, static protected areas may not meet critical habitat protection needs over the long term, particularly if large fires occur in the protected areas. Additional measures may be required to meet habitat needs that the following research and policy recommendations may help address, outside of the Special Management Areas (SMA).

Policy Recommendation #2	In the IMA the protection of Boreal caribou habitat should be given special consideration in the assessment of potential development.
Research Recommendation #3	Empirical information to support caribou conservation through range planning initiatives, is required under the 2012 Recovery Strategy for Boreal caribou in Canada. Currently this is largely limited to the GPS radio-collar data that were collected in the mid-2000s, by Government of NWT. Yukon-focused research on the abundance, distribution, habitat use, and movement of Boreal caribou should be supported, to enable range planning activities and inform management decisions in the LMUs that overlap the current Yukon NT1 range.

In order to highlight the importance of adequate environmental assessment and impact mitigation, and to provide necessary information for monitoring, the following policy recommendation is proposed:

Policy Recommendation #3	Ensure adequate wildlife and habitat baseline data collection is completed prior to any development activities occurring in the Peel Watershed Planning Region.

Management Strategies

The following general management strategies should be used to assist in mitigating the potential effects of land use activities on wildlife and terrestrial habitats – many refer to surface access and transportation features (see Section 4.3.1 for more information):

Management Strategies – Wildlife And Terrestrial Habitats

1. Reduce size, intensity and duration of human-caused physical surface disturbances (e.g., utilize low impact seismic, winter roads and principle of full reclamation).
2. Coordinate, manage and minimize new road and trail access.
    - » To the extent possible, avoid routing new roads and trails through concentrated seasonal use areas and significant habitats (see Map 3, Appendix A for locations).
    - » Avoid using or crossing seasonal migration corridors with new access routes.
3. Avoid or reduce activities in significant wildlife habitats during important biological periods (e.g., utilize timing windows).
    - » Avoid sensitive sheep habitats and key areas, with emphasis on winter range avoidance (see Map 3, Appendix A for locations).
    - » Porcupine Caribou are typically in the region during winter period (December – March)
    - » Avoid concentrated woodland caribou use areas (see Map 3, Appendix A for locations)
4. Reduce other human land use-related disturbances such as noise, odours and light.

The strategies listed here summarize a suite of detailed best management practices designed to reduce impacts and potential risks to wildlife and their habitats. Best practices for specific wildlife species (woodland and barren ground caribou, moose, sheep, bears, waterfowl and others) are described in a number of Yukon documents. Please refer to Appendix B for a list of resources.

4.1.3. Disturbance to Fish, Aquatic Habitats and Hydrology

Maintaining the quantity and quality of water in the Peel region is an important goal of the Plan. The waters of the Peel region provide drinking water for the downstream residents of Fort McPherson and Aklavik when on the land, and support a number of fish species. Wetlands and riparian environments provide important habitats for both fish and waterfowl.

Many fish and waterbird species have cultural and subsistence importance to local First Nations. However, fish and fish habitats in the region remain poorly understood, particularly in the tributaries of the Peel River. Waterbirds (e.g., ducks, geese, swans, loons, grebes, gulls, terns, and shorebirds) rely on wetlands and riparian environments, with the highest levels of seasonal use occurring in the wetland complexes of the Peel Plateau and Bonnet Plume Basin. Fish and fish habitats are regulated under the federal *Fisheries Act*, while the federal *Migratory Birds Convention Act* applies to waterbirds. Locations of some important fish and waterbird habitats are shown in Map 3, Appendix A. The governments of Yukon and First Nations are collaboratively developing a wetland policy for Yukon.

The Yukon - Northwest Territories Transboundary Water Management Agreement (2002) sets out a series of water management and monitoring principles for the Peel watershed.

Water flow has been measured for decades at a small number of gauging stations in the watershed. Water quality and chemistry have also been measured at more locations, but only infrequently. Water quality and flows in the Peel watershed are naturally very dynamic. Winter flows are typically very low but of high quality, while in the summer flows reach their highest level but are of lower water quality due to higher sediment loads. Water quality also varies naturally with the underlying rock formations. Currently, water quality and flow in the planning region are likely unaltered by human activity.

Key issues related to fish, aquatic habitats and hydrology:

- Fish and waterfowl are sensitive to aquatic habitat disturbances and changes in water quality and quantity. Both natural and human-caused changes to land and vegetation around water features affects water quality and quantity.
- Fish over-wintering and spawning areas are of critical importance to the maintenance of healthy fish populations. These areas are particularly sensitive to habitat disturbances and changes in water quality and quantity but in the Peel region, their locations are poorly understood.
- Alterations to wetlands, resulting from the construction of all-season roads, well pads, and similar industrial features can cause long-term disruption of wetland function and habitat use.
- If impacted by all-season roads or other infrastructure, restoring disturbed wetlands and riparian habitats to their natural state is very difficult.
- Rivers, lakes and wetlands are important for both ecological function and land use activity. The potential for impacts and land use conflicts in these areas is high, particularly along the Major River Corridors and at important fly-in lakes.
- Given the naturally low water flow volumes during winter months, without major storage structures, water availability may be inadequate to support large-scale industrial activities during this period.
- Historical water quality and flow data are sparse and may not be adequate to determine meaningful cumulative effects indicators.

Recommendations

Specific policy recommendations regarding the management of fish and aquatic habitats are not required at this time. The extent of the Conservation Area and Major River Corridors, in combination with identified management strategies, other recommendations and best management practices are currently considered adequate to protect fish and aquatic habitats in the region. The greatest risk of aquatic impacts is currently in the IMA, particularly near the Dempster Highway.

In order to highlight the importance of adequate environmental assessment and impact mitigation, and to provide necessary information for monitoring, the following policy recommendation is proposed:

Policy Recommendation #4	Ensure adequate fish, waterbird, aquatic habitat and water quality baseline data collection is completed prior to any development activities occurring in the Peel Watershed Planning Region.

In order to improve management decisions, and to better understand fish and aquatic habitats, the following research recommendations are proposed:

Research Recommendation #4	Confirm overwintering and spawning locations of important fish species, with an initial priority on the IMA, prior to any new major developments occurring.
Research Recommendation #5	Support and, if possible, expand current water quality and flow monitoring programs to the Major River Corridors of the IMA. This will provide benchmarks for the monitoring of potential cumulative effects indicators. Monitoring should include benthic invertebrate communities and water chemistry.
Research Recommendation #6	A survey of wetlands in the Peel region, with initial emphasis on the IMA, should be completed prior to any new major developments occurring. These surveys should include relevant indicators of wetland health.

Management Strategies

The following general management strategies should be used to assist in reducing the potential effects of land use activity on fish, aquatic habitats and water quality – many refer to surface access and transportation features (see Section 4.3.1 for more information):

Management Strategies – Hydrology And Aquatic Habitats

1. Minimize surface and vegetation disturbance in riparian areas.
2. Avoid or minimize industrial land use activities in wetlands and riparian areas.
   - » Activities in the vicinity of wetlands and wetland complexes should be carried out during the winter period.
   - » Locations of all-season infrastructure should be a minimum distance of 100m from wetlands and lakes[14].
3. Prohibit significant levels of winter in-stream water withdrawals in sensitive over-wintering fish habitat[15].
4. Avoid large-scale industrial and/or infrastructure projects within Major River Corridors.
5. Avoid in-stream aggregate (gravel) extraction.
6. Prohibit direct disturbance to sensitive over-wintering and spawning habitats.
7. Minimize stream crossings; if stream crossings are required ensure proper bridge and crossing structures are used, and are designed for ease of removal (i.e. temporary structures).
8. Avoid direct or indirect blocking of identified fish migration routes.

14 Source: Petrula (1994).

15 Department of Fisheries and Oceans, or other relevant management authority, to determine acceptable level of water withdrawals.

The strategies listed here summarize a suite of detailed best management practices designed to minimize impacts and potential risks to hydrology, fish and aquatic habitats. These detailed management practices are described in a number of Yukon documents. Please refer to Appendix B for a list of resources.

4.1.4. Contaminated Sites

Several contaminated sites have been identified in the region. Based on existing information, three sites (two connected with the old Hart River mine, and one with the Crest iron deposit) require remediation, and eleven require updated assessments. One or more sites have been remediated. Most sites consist of empty fuel drums and assorted debris, left from historical oil and gas or mineral exploration.

The identified sites do not currently appear to be a major threat to the region's ecological integrity or the health of wildlife and fish populations. However, contaminated sites are a concern for local land users and surrounding communities. They also affect the perception of wilderness desired by tourism and big game outfitting.

Recommendations

The following policy recommendation regarding contaminated sites management is proposed:

Policy Recommendation #5	Contaminated sites should be remediated, with the priority being those sites with the highest potential to negatively affect water quality and/or tourism and big game outfitting.

Management Strategies

The most important strategy to reduce potential impacts of contaminated sites is prevention. New developments require careful planning, mitigation and operating practices, and remediation and monitoring.

4.2. Social Values (Heritage and Culture)

The Peel region is a land rich in history, legend and stories, and is host to many identified palaeontological resources, historical sites and artifacts. Protecting, conserving and promoting the heritage and cultural resources and values of the Peel region is an important goal of this Plan[16].

Heritage resources include sites and objects that are 45 years old or older and relate to human history, including archaeological and historic sites and artifacts. This definition also includes palaeontological resources—fossil and other remains of extinct or prehistoric plants and animals. Cultural resources include places and locations associated with events, stories, and legends.

16 At this time, the Plan does not focus on all social considerations—only heritage and cultural issues are addressed.

In the Peel region, the continuation of First Nation culture and traditional economy depends on a healthy environment, and people's ongoing connection with the land. Maintaining the integrity of and access to, important community use areas is therefore required. Community use areas include locations for subsistence harvesting, cultural pursuits, and travel.

Some significant heritage resources, community use areas, and culturally important areas for First Nations are shown in Map 4, Appendix A. These areas were identified and mapped based on information provided by local and traditional knowledge, the Department of Cultural Heritage, Gwich'in Tribal Council (formerly, the Gwich'in Social and Cultural Institute), and the Yukon Department of Tourism and Culture, Cultural Services Branch.

Heritage and culture is closely linked with other parts of the Plan – subsistence harvesting (Section 4.3.7), trapping (Section 4.3.8), and the environmental topics discussed in Section 4.1, all play roles in supporting social considerations. Strategies to protect and minimize impacts to heritage and cultural resources are described below. Each of the strategies and recommendations are designed to assist the Plan achieve its social goal:

Social (Heritage and Culture) Goal

Goal 5
Recognize, conserve, and promote the heritage and cultural resources and values, and traditional land use practices, of affected First Nations and the Yukon.

Management Strategies

The following general management strategies should be used to reduce the potential impact of land use activity on heritage and cultural resources and values, and on community use areas – most strategies rely on avoidance and timing of activities. All require some knowledge of the location of identified resources, sites and use areas.

Management Strategies – Social (Heritage and Culture)

1. Avoid or minimize land use impacts in the vicinity of identified heritage and historic resources.
2. Avoid or minimize land use conflicts by avoiding or reducing the level of land use activities in important subsistence harvesting and current community use areas.
3. Avoid or reduce activities in significant heritage and current community use areas during important seasonal use periods (e.g., utilize timing windows).
4. Where impacts to identified heritage and cultural sites and resources may occur, implement the following appropriate mitigation practices.
    - » Establish work camps associated with resource exploration and development activity near areas of resource production, and away from identified heritage routes, historic sites, and current community use areas.
    - » Implement immediate stop work orders if evidence of heritage or cultural values is detected, to assess significance.

The strategies listed here summarize a suite of detailed best management practices, designed to minimize impacts and protect heritage and cultural resources and values. These detailed management practices are described in a number of reference documents. Please refer to Appendix B for a list of resources.

4.2.1. Heritage and Historic Resources

Important First Nation heritage resources include camps and cabins, historical fish traps, travel routes, hunting/fishing/trapping areas, berry patches and caribou fences. Many camps and cabins are S-sites (see Map 1, Appendix A). S-sites are site-specific Yukon First Nation Settlement Lands of heritage, cultural or traditional economic significance to the First Nation.

Heritage and historic resources are regulated by the Yukon *Historic Resources Act*, and by the Tr'ondëk Hwëch'in, Na-Cho Nyäk Dun, and Vuntut Gwitchin *Heritage Acts*, and by the Gwich'in Comprehensive Land Claim Agreement, Appendix C, Chapter 9 (Heritage Resources).

The Umbrella Final Agreement definition of heritage resources includes

- moveable heritage resources,
- heritage sites, and
- documentary heritage resources (i.e. public or non-public records that are of heritage significance, such as books and maps).

Yukon government's Historic Resources Act definition of historic resources includes:

- historic sites,
- historic objects, and
- any work or assembly of works of nature or of human endeavor that is of value for its archaeological, palaeontological, prehistoric, historic, scientific, or aesthetic features.

Yukon's definition of historic objects includes:

- objects that are more than 45 years old and have been abandoned,
- archaeological objects,
- palaeontological objects, and
- objects designated under subsection (2) of the *Historic Resources Act* as an historic object.

The location of identified heritage and cultural resources is shown in Map 4, Appendix A. Not all resources or their locations are known, requiring a cautious approach to land use and resource development.

Key issues related to heritage and historic resources:

- While many resources have been identified and their locations are known, new resources and sites are discovered regularly.
- Some heritage resources, such as brush structures and caribou fences, may be difficult to recognize, and are easily disturbed.
- Some areas, with high concentrations of identified heritage and historic resources, may require special protection measures.
- Mining and oil and gas interests in the Peel region overlap with some identified heritage and historic resources, creating the potential for impacts and the loss of these resources.

Recommendations

In order to protect and conserve heritage and historic resources in the Peel region, the following policy recommendations are proposed:

Policy Recommendation #6	Ensure adequate heritage and historic resource surveys and data collection are completed, prior to any development activities occurring in the Peel Watershed Planning Region.
Policy Recommendation #7	Heritage and historic resource education materials should be developed for tourism operators and clients, big game outfitters and clients, and other workers to help understand and identify potential heritage resources, sites and artifacts in the Peel Watershed Planning Region.
Policy Recommendation #8	Two National Historic Sites within LMU #14 (Peel River) should be established in support of what is now the Gwich'in Tribal Council Culture and Heritage Department' proposal for Tshuu tr'adaojìich'uu and Teetl'it njik National Historic Sites (GSCI, 2003). This designation is consistent with the SMA designation of the LMU. These two areas are shown in Map 4, Appendix A, as 'Proposed National Historic Sites'.
Policy Recommendation #9	Research and use traditional place names wherever possible.

The management strategies listed at the beginning of this section (4.2) are relevant to the management of heritage and historic resources.

4.2.2. Community Use Areas

Community use areas support such activities as hunting, fishing, trapping, wood cutting, berry picking, and general travel. Local First Nations and other Yukon residents spend a considerable amount of time on the land participating in various seasonal activities. The use and enjoyment of community areas depends on the continued health of the land, water, ecosystems, and wildlife and fish resources. The long-term availability and health of community use areas contributes to the maintenance of First Nations culture and the traditional economy.

Community use areas are shown in Map 4, Appendix A, as 'General Land Use'. Various areas are used seasonally, throughout the region. Summer activities focus on the Major River Corridors, with the Peel mainstem receiving the highest level of use. In winter, snowmobile travel occurs between Mayo and Fort McPherson, and other areas in the region. The timing of these activities, particularly harvesting, varies in response to the availability of resources and travel conditions. Proponents and land users are encouraged to contact First Nation land and resource management offices for further information regarding community use areas.

Key issues related to community use areas:

- The location and level of use of all community use areas are not well documented.
- Use of areas may change over time, given availability of resources and travel conditions.

Conflicts between subsistence harvesting and industrial land uses are likely to occur wherever they overlap.

Recommendations

Specific policy recommendations regarding the management of community use areas are not required at this time. The extent of the Conservation Area and Major River Corridors, in combination with identified management strategies, other recommendations and best management practices, are currently considered adequate to maintain community use areas in the region.

The management strategies listed at the beginning of this section (4.2) are relevant to the management of community use areas.

4.3. Economy

The Peel region contains a number of potential economic interests. This Plan considers a range of renewable and non-renewable land uses and sectors, including traditional economy. Recommendations and guidance are provided in the following areas: transportation (access), mineral resources, oil and gas resources, aggregate resources, tourism and recreation, forest resources, subsistence harvesting, trapping, and big game outfitting.

The following maps in Appendix A should be consulted for locations of economic potential and interests:

- Map 4 – First Nations subsistence harvesting and general land use.
- Map 5 – Renewable resources (tourism and recreation, trapping and big game outfitting).
- Map 6 – Non-renewable resources (transportation, minerals and oil and gas).

This section includes a number of recommendations but does not include detailed management strategies. The recommendations, strategies and best management practices from Section 4.1 (Environment) and Section 4.2 (Social Values) are used to reduce the potential impacts of land use on environmental and heritage and cultural values. In this Plan, transportation (access) receives heightened attention.

This Plan strives to achieve the following economic goals:

Economic Goals
Goal 6 Facilitate economic opportunities and activities that result in benefits to surrounding communities, affected First Nations, and Yukon as a whole, and that contribute to achieving the goals established by this Plan. **Goal 7** Provide land use certainty and minimize land use conflicts throughout the region. **Goal 8** Maintain future land use options by adopting a cautious but flexible approach to land and resource decision-making.

4.3.1. Transportation (Access)

The pattern of land use and economic development is closely linked to transportation networks and infrastructure, especially in remote northern jurisdictions. Roads and people's use of them create many of the impacts of industrial land use, particularly to wildlife, fish, and other renewable resources. For these reasons, transportation and access are discussed as a separate topic.

Road, air, and water are important modes of transportation in the region, but options are limited. Apart from the all-season Dempster Highway, surface access relies on the construction of ice roads or winter roads. First Nations people, tourists, and recreation users travel on the major rivers, especially the Peel, Wind, Bonnet Plume, and Snake. There are a limited number of rough airstrips and a small number of well-used lakes that can be reached by float plane.

All-season Access

The term all-season access in this Plan refers to gravel or paved roads and the associated roadbed as defined under the Yukon *Highways* Act. Though generally not required for resource exploration, all-season roads (or other all-season transportation infrastructure) are required for conventional approaches to developing most mineral and hydrocarbon resources.

In the IMA, where new roads are allowed to be constructed, when a proponent is considering access options, the following hierarchy should apply:

1. Air access first;
2. Winter roads and trails second, and finally, if absolutely required;
3. All-season roads (and railways) last. If all-season access is required, then the principle of full reclamation shall apply.

Under this Plan, any new all-season road (where and when they occur in the IMA) is to be temporary. Once the development activity that required the road has concluded, and reclamation plans are complete, all associated access development should be reclaimed. This Plan does not endorse any new roads being maintained in perpetuity.

Key issues related to transportation and access:

- Roads and other linear features reduce the wilderness character of an area.
- Roads and other linear features result in direct loss and fragmentation of wildlife habitat, and cause indirect impacts on wildlife. Potential indirect effects include avoidance or reduced use, increased harvest pressures, and/or increased levels of predation.
- In mountainous areas, road development takes place in valley bottoms, next to Major River Corridors. These areas have high ecological and cultural values.
- All-season roads and routes tend to persist for very long periods of time, making full decommissioning and reclamation difficult.
- Managing people's use of roads (access management) in remote areas such as the Peel region is difficult.
- Airstrips and float planes create new access points. This expands human activities and impacts into areas that used to be out of reach.
- Improperly constructed stream crossings cause impacts to fish through increased sedimentation or by creating blockages to fish passage.

4.3.1.1. Existing Access

Dempster Highway

The Dempster Highway is an important corridor for many activities, including transportation, tourism, subsistence harvesting, and communications. The highway is critical for future economic development in northern Yukon and Northwest Territories. Uninterrupted operation and maintenance of the Dempster Highway is therefore a priority.

There are land uses and interests that overlap along the Dempster Highway. It is promoted as a scenic tourist route and as an industrial/transportation corridor for both the Yukon and Northwest Territories.

Key issues related to the Dempster Highway:

- The highway is a multiple-use corridor. It must be maintained to support land use activity, now and in the future, without undermining the heritage, social and ecological resource values around the highway.
- A future pipeline and its infrastructure would probably parallel the highway.
- There is potential for tourist infrastructure, such as lodges, along the Dempster Highway.
- There is potential for the development of a fibre-optic line in the highway right-of-way.
- The only “rubber-tire” or front-country tourism in the Peel region is along the Dempster Highway. Viewscapes and hiking opportunities from the highway are valuable.
- There are many archaeological sites and culturally important areas in the Dempster Highway corridor.
- Wildlife managers and boards are concerned that the high level of hunting along the Dempster Highway is affecting the Porcupine Caribou Herd, and possibly the Hart River herd.
- Gravel mining to support Dempster Highway maintenance and future development causes direct disturbance to wildlife and fish habitat.
- Wildlife viewing and highway maintenance activities may be affecting use of key wildlife habitats (e.g., mineral licks, nesting sites).

Recommendations

Because of the overlapping land uses and issues concentrated along the Dempster Highway Corridor, this area of the Peel region requires more detailed analysis and planning, so sub-regional planning is needed. This Plan temporarily defines the corridor as being two kilometres wide. The following policy recommendation is provided:

Policy Recommendation #10	
	» A sub-regional plan for the Dempster Highway Corridor should be jointly developed by the Government of Yukon, affected First Nations and the Gwich'in Tribal Council. The sub-regional plan should consider the following: » The corridor planning area should be defined jointly by the Yukon government, affected First Nations and the Gwich'in Tribal Council. » Where the Dempster Highway passes through Conservation Area land use designations (LMU #2 and #4), the corridor should be managed with a higher level of conservation focus. This may include limits on aggregate extraction and new above-ground infrastructure. » Harvesting activities and concerns. » Commercial wildlife viewing and concerns. » The scenic integrity of the entire highway corridor should be maintained at all times. » Unregulated backcountry access, particularly for off-road vehicles (ORV), should not be allowed. » As with all human-caused disturbances, high standards of restoration should apply to all new surface disturbances within the corridor (e.g., gravel pits and telecommunications infrastructure).

Wind River Trail

The Wind River Trail (shown on Map 1, Appendix A) links Elsa and Keno City to the Wind River valley and beyond. The trail was built in 1959 and has been used from time to time over the years, as a winter road for supplying exploration camps and drill sites. Interest in this use continues. Today, local snowmobilers also use the Wind River Trail for hunting and recreation.

Key issues related to the Wind River Trail:

- The Wind River Trail runs along the valley bottom of a river that is highly valued for wilderness tourism. The area is also important to First Nations.
- Proposals to use the Wind River Trail for winter hauling of exploration supplies created great public controversy.
- There has been interest in upgrading the Wind River Trail to an all-season road. The trail runs through wet terrain and makes several river crossings. Upgrading to an all-season road would be technically challenging, without significant re-routing and/or engineering.
- Through a previous agreement, the Yukon government and Na-Cho Nyäk Dun recognize the Wind River Trail, and its 60 metre right-of-way, as an existing route, as defined under the Yukon *Highways Act* (Na-Cho Nyäk Dun Final Agreement, 1992). This existing road status means that new use of the trail, for industrial land use, does not require a full environmental assessment.

Recommendations

It is a challenge to designate LMU #8 (the Wind and Bonnet Plume watersheds) as an SMA if industrial use of the Wind River Trail as a winter haul road continues. The following recommendations apply to the Wind River Trail:

Policy Recommendation #11	Within the Peel Watershed Planning Region, the Wind River Trail should no longer be recognized as an existing route under the Yukon *Highways* Act. The existing agreement between the Government of Yukon and Na-Cho Nyäk Dun, and the Yukon Highways Act, should be amended to reflect this change in status.
Policy Recommendation #12	Within the Peel Watershed Planning Region, the Wind River Trail should no longer be used as an access route to support industrial land use activity. Use of the Wind River Trail for this purpose compromises the recommended SMA land use designation for LMU #8 (the Wind and Bonnet Plume watersheds).

Off-road Vehicle Access

An ORV is any motorized *vehicle* that can be driven off paved or gravel surfaces. People use several types of ORVs in the region, including snowmobiles, all-terrain vehicles (wheeled ATVs—quads or Argos-like vehicles), and motor bikes. ORV use is a controversial issue in Yukon and elsewhere.

ORV use in the Peel is becoming more common, leading to surface and noise disturbance. ORV drivers use the Wind River Trail, Hart River Trail, and some other trails and routes. Snowmobiles are used most winters as part of a First Nation cultural trip between Fort McPherson and Mayo. First Nation members often use ORVs for hunting and cultural activities. Sport hunters, prospectors, and some big game outfitters also use ORVs.

Key issues related to ORV access:

- ORV activity can have impacts on wildlife, resulting from sensory (noise and sight) or habitat disturbance. ORVs can also facilitate increased harvest pressures by allowing hunters to access areas that are otherwise, difficult to reach.
- If operated in sensitive terrain, ORVs can cause significant damage to soil and vegetation.
- ORV activity can have impacts on other land users due to noise and aesthetics (e.g., soil damage and disturbed vegetation).
- Managing ORV use is difficult because they are mobile.
- Snowmobiles do not damage habitat as much as wheeled ORVs, but may impact wildlife more, through sensory disturbance.
- Government of Yukon is in the process of developing an ORV regulation under the *Territorial Lands (Yukon) Act*, for application across Yukon.

Recommendations

These recommendations about ORV use in the Peel region provide guidance to help achieve the environmental and social goals of the Plan. They apply to the use of ORVs in the entire Peel Watershed Planning Region:

Policy Recommendation #13	To prevent impacts on wildlife, soil damage and land user conflicts, the use of wheeled ORVs (e.g. quads, motorbikes and Argo-like vehicles) for any purpose, should be restricted to the Hart River Trail, existing trails in areas immediately adjacent to the Dempster Highway, licensed camps, and existing facilities.
Policy Recommendation #14	In areas of allowed use (see Policy Recommendation # 12), ORV use should not occur in sensitive habitats. In this Plan, sensitive habitats are defined as wetlands and alpine areas, in the spring, summer and fall.

4.3.1.2. New Surface Access

New surface access features include winter roads and trails, all-season roads and railways. New surface access brings both economic opportunities and environmental risks to a wilderness region. Resource development and extraction generally needs all-season roads and other surface access features. Land uses such as subsistence harvesting may benefit from roads, or be impacted by them. Some tourism activities need roads or trails, while new routes affect backcountry and wilderness tourism.

In areas like the Peel, with mountainous terrain and permafrost, all-season road construction is very expensive. Because of high costs, any new all-season road would probably be built for a major development project such as a large mine site. However, once an all-season road is created, it increases the possibility of other new roads linking smaller projects.

Key issues related to new surface access:

- Construction and use of new roads and surface transportation features would reduce the wilderness character of the Peel region.
- The construction and use of new roads and related features (e.g. trails) results in direct loss and fragmentation of wildlife habitat. Indirect impacts on wildlife may also occur, including habitat avoidance, increased harvest pressures, and/or increased levels of predation.
- Road construction and maintenance may need large amounts of water and gravel, leading to increased surface disturbance and cumulative impacts.
- Improperly constructed stream crossings cause impacts to fish, through increased sedimentation or by creating blockages to fish passage. Stream crossings can also increase harvest pressure on fish populations, by facilitating access to previously inaccessible areas.
- Mitigating the effects of roads in mountainous terrain is challenging, as roads, high quality wildlife habitats, and cultural values all tend to overlap in valley bottoms.
- All-season roads and access routes tend to persist for a very long time, making full decommissioning and reclamation difficult.

Recommendations

The potential construction of new roads and other surface transportation infrastructure represents some of the most significant challenges, to achieving the Plans' environmental goals and statement of intent.

The strategies in Section 4.1.3 (wildlife and terrestrial habitats) and Section 4.1.4 (fish, aquatic habitats and hydrology), and the best management practices in Appendix B, are all designed to reduce the impacts of new roads and surface transportation features on wilderness character, wildlife and fish populations and habitats, and water quality. As a general strategy, where new surface access is required, winter roads or trails, ice roads and other temporary routes should be utilized preferentially over all-season roads. New or emerging access technologies, such as hovercraft, should be monitored and evaluated for consistency with the goals of this Plan.

However, some impacts of new surface access cannot be mitigated, and are incompatible with Conservation Area management objectives. The following policy recommendations apply to new surface access in the Peel Watershed Planning Region:

Policy Recommendation #15	In the Conservation Area, outside of existing dispositions, new surface access should not be allowed. The construction of new roads and surface transportation features are incompatible with Conservation Area management objectives.
Policy Recommendation #16	In the IMA, where new surface access is allowed, all proponents of new surface access routes should provide adequate bonding to ensure that full-reclamation is achieved.
Policy Recommendation #17	The use of all new surface transportation features should be carefully managed and controlled. Public access on all new roads and surface transportation features should not be allowed. This action will decrease the potential for over-harvesting and un-regulated ORV use.

In order to avoid unnecessary road (or rail) building, the following research recommendation is provided:

Research Recommendation #7	The suitability of large airlift technology now being developed and tested in the marketplace to enable remote access for industrial activities (e.g., Boeing's SkyHook™ Technology) should be examined in advance of any new road construction.

4.3.1.3. Air Access

Outside the Dempster Highway Corridor, aircraft (fixed-wing airplanes and helicopters) are the primary modes of transportation. Aircraft provide access to exploration sites and camps, and to wilderness tourism and recreation destinations. Fixed-wing aircraft need either rough airstrips for landing and take-off or, if fitted with floats, suitable waterbodies. The Peel region contains many landing strips that vary in use and condition, but few waterbodies that float planes can use.

Key issues related to air access:

- Concentrations of activity around common aircraft landing spots (e.g., suitable lakes and airstrips) can lead to habitat impacts, changes in habitat use or wilderness character.
- Frequent overhead air traffic can lead to changes in habitat use by wildlife. Frequent air traffic also decreases the perception of wilderness for backcountry tourists and recreational users.
- Fuel caches can contaminate soil or water and can spoil the aesthetics for wilderness tourism use.
- Clearing of airstrips creates surface disturbance that results in habitat impacts and the alteration of wilderness character.

Recommendations

This Plan recognizes the importance of air transportation for most land uses in the Peel region. However, new airstrips, like surface access features, also create surface disturbance. High levels of aircraft use can also create conflicts with other land users. The following policy recommendations apply to air access in the Peel Watershed Planning Region:

Policy Recommendation #18	In the Conservation Area, outside of existing dispositions, new airstrips should not be allowed. Existing airstrips and landing locations may continue to be used, however.
Policy Recommendation #19	An air access management plan may be required for LMU #8 (Wind and Bonnet Plume watershed) and LMU #9 (Snake River) and should be addressed during SMA planning. An air access management plan may be required to avoid the "bunching up" of parties at well-used airstrips and landing locations, which affects both groups of tourists/ recreationalists and resource exploration programs.

In order to facilitate development of an air access management plan for LMU #8 (and potentially other areas), and to better understand tourism user levels and patterns in the Peel region, the following research recommendation is provided:

Research Recommendation #8	The number of parties and people arriving at common landing locations should be recorded as part of commercial tourism and outdoor recreation use tracking (see Tourism recommendations in Section 4.3.4), and to inform future versions of this Plan.

4.3.1.4. Water Access

River travel is the primary mode of transportation in summer for wilderness tourists and recreation users and for the Tetłit Gwich'in. Barges have sometimes been used to transport supplies from Fort McPherson to exploration camps upstream on the lower Peel River. The Major River Corridors, especially the Peel, Wind, Bonnet Plume, and Snake, receive the most use by motorized and non-motorized watercraft. Wilderness tourists and recreation users value unaltered viewscapes and wilderness solitude along the Major River Corridors.

Key issues related to water access:

- Motor boats and jet-boats can cause aquatic habitat disturbance, and sensory disturbance for wilderness river tourists and recreation users, travelling by canoe or other non-motorized craft.
- Fuel spills can contaminate water.

Recommendations

At this time, specific policy recommendations regarding water access are not required. The level of motorized watercraft travel in the Peel region is not currently a major management issue. To better inform future management planning activities, the following research recommendation regarding water access is provided:

Research Recommendation #9	On a periodic basis and where necessary, assess the ecological and social impacts of motorized watercraft use on lakes and rivers, in order to inform future Plan revisions and management of SMAs.

4.3.2. Mineral Resources

The Ogilvie, Wernecke, and Selwyn mountains of the southern Peel Watershed Planning Region, have interested the mineral and coal industries for a long time. The Wind and Bonnet Plume watersheds are believed to have some of the highest mineral potential. A large number of mineral claims were staked in this area in the recent past. Map 6, Appendix A shows areas with mineral potential and locations of existing claims.

The conflict between exploring and developing the Peel's mineral resources, and maintaining and conserving the region's wilderness character and ecological values, was the defining issue of the planning process. Mineral companies and industry representatives felt that existing regulatory processes and best management practices could mitigate all potential impacts. They believe there is no need for land withdrawals, and that all lands in the Peel region should be available for mineral exploration and development.

In contrast, others view mine development, and the transportation needs that come with it, as incompatible with maintaining wilderness values. They believe that mineral exploration and development should not take place in some areas of the Peel. The Plan has had to view these positions in the context of its core principle, statement of intent, and goals.

Uranium mining is an emerging issue in the Peel region. Based on health concerns documented in other jurisdictions, Yukon First Nations and the Yukon public have voiced substantial opposition to uranium exploration in the Peel, and generally in Yukon.

Key issues related to mineral exploration and development:

- Mine site operations can lead to local and downstream water impacts and localized wildlife and habitat disturbance.
- Mineral exploration can take place with either winter road or air access. However, mineral development usually needs the building of all-season roads, transmission lines, rail lines, and other structures.
- Mines and milling facilities usually need large amounts of power. New transmission lines and hydro power dams may have to be built, or large amounts of coal or diesel fuel burned.
- Building and operating large-scale mines would bring many new workers to the region.

Recommendations

Mineral exploration and development are considered compatible with the IMA objectives of the Peel region. These activities are subject to existing regulatory processes and the Plan guidelines for cumulative effects. However, mineral exploration and development are generally not considered to be compatible with Conservation Area objectives.

Two policy recommendations apply to mineral exploration and development activity. The first reinforces the management intent of the Conservation Area land use designation (see Section 3.2); the second recommends policy development in advance of any potential uranium exploration or mining activity:

Policy Recommendation #20	The Conservation Area of the Peel Watershed Planning Region should be withdrawn from the issuance of new mineral claims, and should continue to be withdrawn until the Parties have given due consideration to any change in status, following a formal public Plan review.
Policy Recommendation #21	Government policy and operating guidelines regulating uranium activity should be created in advance of any uranium exploration and development activities occurring in the Peel Watershed Planning Region.

The combination of the Plan land use designation and cumulative effects management guidelines, wildlife and fish impact mitigation strategies (Sections 4.1.2 and 4.1.3, respectively), and best management practices, is currently considered adequate to mitigate potential negative effects of mineral exploration and development activity in the IMA. Policy recommendation # 7 regarding heritage and historic site education should also be considered. Please refer to Appendix B for a list of references related to best management practices for mineral exploration and development.

4.3.3. Oil and Gas Resources

While oil and gas activity in the Peel region is currently low, some basins hold moderate oil and significant natural gas potential. Oil and gas basins and existing permit areas and significant discovery licenses are shown in Map 6, Appendix A.

The Eagle Plain and Peel Plateau basins have been explored the most. The Eagle Plain basin, in LMU #7, is considered to hold the highest potential and can be reached from the Dempster Highway. The development of coal bed methane is an emerging issue, with the Bonnet Plume coal deposits considered to hold the highest potential.

Past exploration and drilling identified potential resources but did not lead to oil and gas production. In the near-term, the level of oil and gas activity in the Peel region is anticipated to be low (Fekete 2006). The lack of a pipeline is a major factor limiting natural gas development in the Peel region.

Key issues related to oil and gas exploration and development:

- Oil and gas exploration and development, along with the necessary transportation, gravel extraction, and water withdrawals, can cause cumulative and adverse change over large landscapes. Proliferation of linear features is the primary disturbance.
- Oil and gas exploration can take place with either winter road or air access. However, development usually requires the building of all-season roads, pipelines, and other structures.
- Building and operating large-scale oil and gas facilities would bring many new workers to the region.

Recommendations

Given the limited overlap of the Eagle Plain and portions of the Peel Plateau basins with tourism values, big-game outfitting activities and significant wildlife and fish habitats, oil and gas exploration and development activity is considered compatible with the IMA objectives of the Peel region. Such exploration and development is subject to existing regulatory processes and the cumulative effects guidelines of this Plan.

Two policy recommendations apply to oil and gas exploration and development activity. The first reinforces the management intent of the Conservation Area land use designation (see Section 3.2); the second recommends policy development in advance of any potential coal bed methane activity:

Policy Recommendation #22	The Conservation Area of the Peel Watershed Planning Region should be withdrawn from the issuance of new oil and gas exploration permits and leases.
Policy Recommendation #23	Government policy and operating guidelines regulating coal bed methane development should be created, in advance of any coal bed methane exploration and development activities occurring in the Peel Watershed Planning Region.

The combination of the Plan land use designation and cumulative effects management guidelines, wildlife and fish impact mitigation strategies (see Sections 4.1.3 and 4.1.4, respectively), and best management practices, is currently considered adequate to mitigate potential negative effects of oil and gas activity in the IMA. Policy recommendation # 7 regarding heritage and historic site education should also be considered. Please refer to Appendix B for a list of references related to best management practices for oil and gas activity.

4.3.4. Tourism and Recreation

The tourism industry in the Peel depends on the region's rugged, unpopulated wilderness character. Tourism includes both 'rubber tire' traffic along the Dempster Highway, and wilderness travel, mainly paddling trips down the Wind, Bonnet Plume, Snake, and Hart rivers. People use all the Major River Corridors to some degree. The Bonnet Plume watershed is a Canadian Heritage River and has a management plan.

Most unguided recreation takes place close to, or begins from, the Dempster Highway. Tombstone Territorial Park, a well-established tourist destination close to the Peel, may provide a central point for front-country tourism. Map 5, Appendix A shows important tourism and recreation areas.

Wilderness tourism may be the most sensitive sector to changes in land use and surface disturbances. Impacts to the visual integrity of the Major River Corridors, and their surrounding viewscapes, affects the quality of wilderness traveler experiences. Similarly, high levels of overhead aircraft traffic detract from the wilderness experience.

If not properly managed (e.g. there are too many people allowed at a time) wilderness tourism can also cause impacts to wildlife, fish and their habitats, and create conflicts with other tourism groups or land users. Except for paddling trips on the Blackstone and Ogilvie rivers, most wilderness tourism in the Peel depends on air travel to well-established landing sites.

Key issues related to tourism and recreation:

- Most wilderness tourism activity occurs in the Hart, Wind, Bonnet Plume and Snake River watersheds. These high value wilderness tourism areas directly overlap with areas of high mineral potential and exploration activity. Continued use of these areas for wilderness tourism requires large, intact roadless areas—a condition that may become compromised by mineral resource development.
- High levels of overhead air traffic or improperly located mineral exploration camps diminish the wilderness experience of backcountry travelers.
- People are concerned that high backcountry tourism and recreation use will start to diminish the very wilderness values that support this sector.
- There are limited data regarding the number of self-guided recreationalists and the economic contribution of tourism by Yukon residents and non-residents in the Peel watershed.

Recommendations

Properly managed wilderness and Dempster Highway-based tourism is an important, sustainable economic activity for the region. Tourism can provide economic benefits to surrounding communities and residents; it can also provide opportunities to showcase cultural activities and values. Maintaining the Wind and Bonnet Plume watersheds (LMU #8), Snake River (LMU #9) and adjacent areas as intact, roadless, wilderness landscapes, is key to achieving the economic potential of this sector.

Two policy recommendations apply to tourism and recreation activity. The first identifies planning topics to be addressed as part of the SMA plan for LMU #8 and #9; the second recommends concerns to be addressed as part of the Dempster Highway Corridor Management Plan:

Policy Recommendation #24	A wilderness tourism management plan should be developed for LMU #8 (Wind and Bonnet Plume watersheds) and LMU #9 (Snake River). Such a plan should be completed as part of the SMA planning process for these areas. The wilderness tourism plan should address the following: » Wilderness tourism carrying capacity (number of allowable tourism activity days in different areas, party size, and spacing) » Air access management (see also Policy Recommendation #18 in Section 4.3.1.3) » Commercial wilderness tourism land tenure policy development
Policy Recommendation #25	Management guidelines for commercial wildlife viewing along the Dempster Highway should be developed, as part of the Dempster Highway Corridor management plan (see also Recommendation #9 in Section 4.3.1.1).

Some wildlife and fish impact mitigation strategies (see sections 4.1.2 and 4.1.3 respectively) are applicable to reducing the adverse effects of tourism on wildlife, fish and their habitats. Other Plan recommendations, especially regarding ORV use (see Section 4.3.1.1), are also applicable. Policy recommendation # 7 regarding heritage and historic site education should also be considered. A number of best management practices regarding no-trace camping, wildlife viewing, and wilderness travel have been developed for Yukon. Please refer to Appendix B for a list of resources.

4.3.5. Aggregate Resources

Aggregate (gravel, sand and crushed rock) is an important resource for maintaining the Dempster Highway. New industrial activity and related road development would likely require large amounts of aggregate materials. Industrial development in the IMA, such as all-season road building or oil and gas facilities, would drive this demand. Some parts of the Peel region have limited aggregate resources. Crushed rock may be used in these areas, but it is more expensive.

Key issues related to aggregate resources:

- In permafrost landscapes like northern Yukon, development requires large volumes of aggregate. Obtaining necessary volumes of aggregate may disturb large areas of land, in some cases nearly as large as the footprint of the development itself.
- The unglaciated portion of the Peel region, primarily in the Ogilvie Mountains, has limited aggregate resources. In this area, the most accessible aggregate materials occur in stream and river channels, the extraction of which may lead to aquatic and fisheries impacts.
- Surface disturbances created by aggregate quarrying persist for a very long time.

Recommendations

This Plan recognizes that aggregate is an important resource in the IMA, especially in the Dempster Highway area. Any new development activity should carefully plan for the location and transportation of aggregate materials, and ensure efficient use of this resource.

At this time, specific policy recommendations regarding aggregate resources are not required. In order to better manage aggregate resources in the vicinity of the Dempster Highway, the following research recommendation is provided:

Research Recommendation #10	In the IMA, in the vicinity of the Dempster Highway, aggregate assessments should be conducted in advance of any significant development activity. Such aggregate assessments should be completed as part of the Dempster Highway Corridor management plan (see also Recommendation #9 in Section 4.3.1.1).

The combination of the Plan land use designation and cumulative effects management guidelines, wildlife and fish impact mitigation strategies (see Sections 4.1.2 and 4.1.3, respectively), and best management practices, is currently considered adequate to mitigate the potential negative effects of aggregate mining in the IMA. Please refer to Appendix B for a list of references related to best management practices for aggregate mining and surface disturbance reclamation.

4.3.6. Forest Resources

Forest resources include both trees and other forest plants. Local communities and land users use the forest for fuel wood, building materials, berry picking, and medicine. Most forest harvesting takes place near First Nation cabins or along the Peel River. The potential for forestry in the region is very limited or none. The number of trees used for subsistence is very low.

The Plan does not deal with forest management because it was not identified as an important issue. No management or research recommendations are needed at this time.

4.3.7. Subsistence Harvesting

Participation in traditional economic activities required for First Nations culture and community well-being. Subsistence harvesting and traditional economic activities are also an important means of offsetting the high cost of food in northern communities. The land claim agreements for the affected First Nations provide for continued harvesting opportunities in the Peel region.

Subsistence harvesting is closely linked with Section 4.2, heritage and culture. Map 4, Appendix A shows the location of identified subsistence harvesting and traditional land use areas in the Peel region.

Key issues related to subsistence harvesting and traditional economic activities:

- Providing opportunities and landscapes to participate in traditional economic activities is vital to maintaining First Nations culture, community well-being, and ties to the land.
- Opportunities for subsistence harvesting may benefit from the building of new roads and trails. However, increased harvesting pressure may result in the over-harvest of wildlife and fish resources.
- Wildlife harvesting along the Dempster Highway, with the aid of ORVs, has prompted concerns from wildlife management boards and community members.
- There is limited information on the natural history and population trends of some subsistence species (e.g. location of spawning habitats for broad whitefish, population size and trend of Hart River and Bonnet Plume woodland caribou herds), and harvest rates and locations. With this limited information, sustainable wildlife management is challenging.

Recommendations

This Plan provides for, and promotes, continued subsistence harvesting, which supports important social and economic traditions. While the Plan supports harvesting, it must also consider potential impacts. The following policy recommendation applies to subsistence harvesting in the Peel Watershed Planning Region:

Policy Recommendation #26	Subsistence harvesting activities should be accommodated in the Conservation Area of the Peel Watershed Planning Region, subject to the following recommendation: » The use of ORV for any purpose should be limited to certain locations and specific trails (see Policy Recommendation #12 in Section 4.3.1.1).

4.3.8. Trapping

Trapping provides self-employment opportunities for local residents and is a First Nations' cultural tradition. Lynx, marten and wolverine are important fur species. Trapping concessions occur throughout the entire Peel Watershed Planning Region (see Map 5, Appendix A). Trappers have exclusive rights to harvest, but do not have rights to furbearer habitat. Trapping is primarily a winter activity. Similar to subsistence harvesting, trappers rely on healthy wildlife populations and, indirectly, on functional ecosystems.

Key issues related to trapping:

- New trails and roads can help trappers access their traplines more efficiently. However, some types of development related to the new routes may also disrupt trapping, potentially resulting in loss of opportunity and potentially, compensation for the trapper.
- Land use patterns of trappers, including but not limited to the locations of cabins and trails, is poorly documented, making it difficult to consider trapping values during project-level assessment and planning.

Recommendations

Few trapping-related issues were expressed to the Commission. Given the current level of land use activity, combined with the extent of proposed Conservation Areas and Major River Corridors, specific policy recommendations are not required at this time.

To better facilitate project-level assessment and planning, the following research recommendation is provided:

Research Recommendation #11	Land use patterns of trappers, including but not limited to the location of cabins and trails, should be documented, in order to facilitate improved project assessment and future resource planning.

4.3.9. Big Game Outfitting

The Peel watershed offers some of the highest quality big game hunting in North America. Big game outfitting takes place in the southern half of the region, where outfitting concessions are located. Map 5, Appendix A shows the location of outfitting concessions in the Peel region. Wilderness tourism, mineral exploration, and subsistence harvesting also occur in this area.

Sport hunting species are mainly Dall's sheep, grizzly bear, caribou, and moose. Most trips are undertaken by float plane, with overland transportation by horseback or on foot. Big game outfitting occurs in the summer and fall seasons. In the Peel region, high quality big game outfitting experiences rely on the maintenance of large, roadless wilderness areas.

Key issues related to big game outfitting:

- The wilderness experience required by big game outfitters is affected by:
  - Development of new roads, other surface access features, and associated infrastructure.
  - Improperly located resource exploration camps.
  - Excessive use of motorized ORVs, jet boats and aircraft.
  - Excessive numbers of wilderness tourists and recreational users—tourism and recreation carrying capacity also affects big game outfitting.
  - Increases in subsistence and sport hunting.
- Land use patterns of outfitters in all Peel concessions, including but not limited to the locations of camps and trails, is poorly documented, making it difficult to consider big game outfitting values during project-level assessment and planning.

Recommendations

Maintaining the Peel region as one of the highest quality big game hunting destinations in North America will require maintenance of the wilderness character of much of the region. The following policy recommendation supports this continuation of big game outfitting activities in the region:

Policy Recommendation #27	Big game guiding and outfitting should be accommodated in the Conservation Area of the Peel Watershed Planning Region, subject to the following recommendation: » The use of ORVs for any purpose should be limited to certain locations and specific trails (see Policy Recommendation #12 in Section 4.3.1.1).

To better facilitate project-level assessment and planning, the following research recommendation is provided:

Research Recommendation #12	Land use patterns of big game outfitters, including but not limited to the location of camps and trails, should be documented, in order to facilitate improved project assessment and future resource planning.

A number of best practices relating to no-trace camping and backcountry travel have been developed and are applicable to big game outfitting. Please see Appendix B for a list of resources. Policy recommendation # 7 regarding heritage and historic site education should also be considered.

5. Landscape Management Units

This section describes the values, management issues, and special considerations for each of the sixteen landscape management units (LMUs) in the Peel Watershed Planning Region. The section also gives the designation for each LMU, the reason for the designation, a map, and representative photo(s)[17]. Table 5.1 shows the total area for each land use category. Appendix D gives a summary of each LMU.

The general management direction described in Section 4 applies to the entire planning region. However, many of the recommendations and strategies in Section 4 are most applicable to activities allowed in LMUs designated as Integrated Management Areas (IMA).

Maps 3-6, Appendix A give an overview of ecological, cultural, and economic values and resources in each LMU. More detailed maps and descriptions are in the Peel Watershed Resource Assessment Report and Conservation Priorities Assessment Report (PWPC, 2008a & b).

Table 5.1: Land use designation summary.

Land Use Category	Area (km^2)	Area (% region) Land use are percentages are approximate, throughout the Plan.
Conservation Area		
Special Management Area	36,905	55
Wilderness Area	16,884	25
Wilderness Area-Boreal Caribou	2,069	3
Total	55,858	83
Integrated Management Area		
Zone I	0	0
Zone II	0	0
Zone III	7,267	11
Zone IV	4,306	6
Total	11,573	17

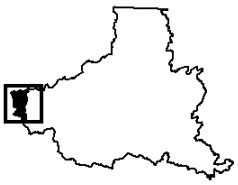
Land use designation colour legend.

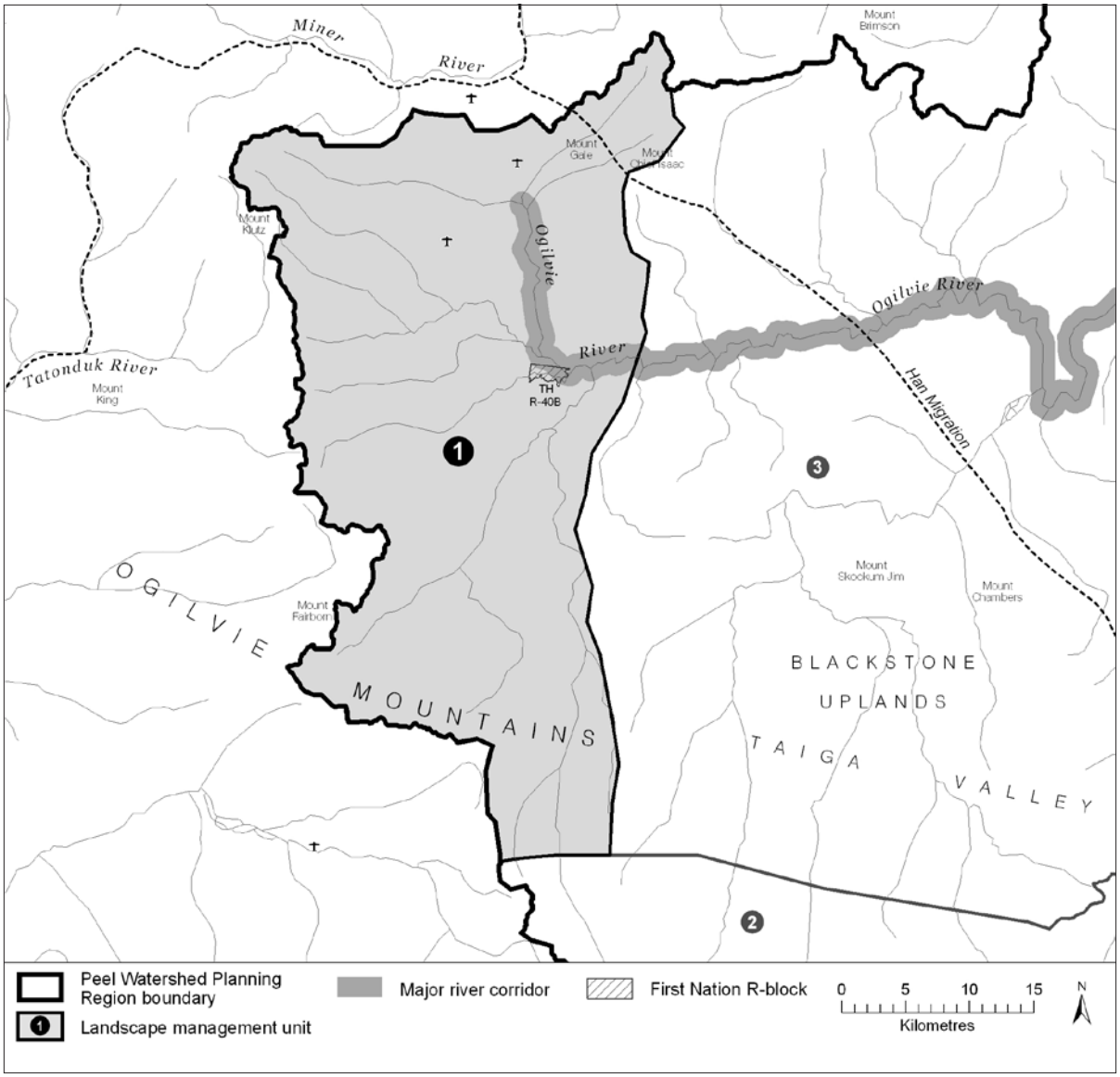
Conservation Area

Integrated Management Area

17 Photo credits are as follows: YG – J. Meikle and M. Waterreus, Yukon Environment; CWS – J. Hawkings, Canadian Wildlife Service; and DFO – A. von Finster, Fisheries and Oceans Canada.

LMU 1: Ogilvie River Headwaters	
Land Use Designation	Wilderness Area
Land Status	Non-Settlement Land, TH Settlement Land (R-40B)
Traditional Territories	Tr'ondëk Hwëch'in
Area	1,274 km^2 (2% of Region)





LMU 1: Ogilvie River Headwaters

Objectives

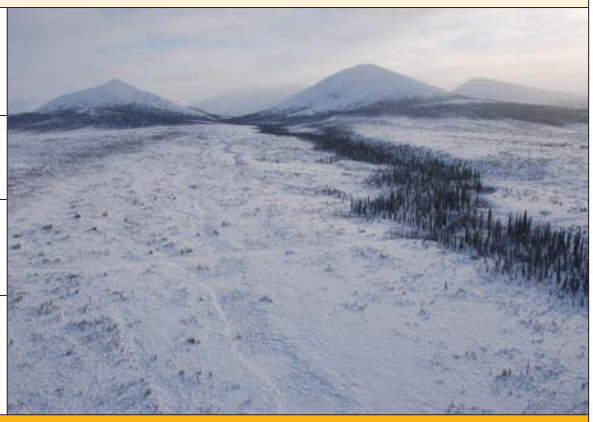
- Wilderness character is maintained.
- Culturally important sites intact.
- Winter habitat of the Porcupine caribou herd without recent disturbances.
- Water quality and flow from the Ogilvie headwaters not affected by human activities.
- Community cultural activities practiced without significant disturbance.

Rationale for Designation

- Culturally important travel route with historic and prehistoric settlements.
- TH consider this area important for long-term sustenance.
- Includes the headwaters of the Ogilvie watershed, and is considered important for water quality.
- Extensive concentrated and general use areas for the Porcupine herd.
- Includes a portion of the Blackstone Uplands, which were considered a candidate for protection by the Peel River Watershed Advisory Committee.
- Generally low non-renewable resource development potential, because of lower mineral and oil and gas potentials, and distance from an existing road.

Biophysical Setting

Setting	Extensive tundra-like plains with mountains rising to the west and significant riparian zones
Ecoregions	North Ogilvie Mountains
Bioclimate Zones	Taiga Wooded, Taiga Shrub and Alpine
Image	Large flat and shrubby expanses ringed by rounded mountains characterize LMU 1. (YG photo)



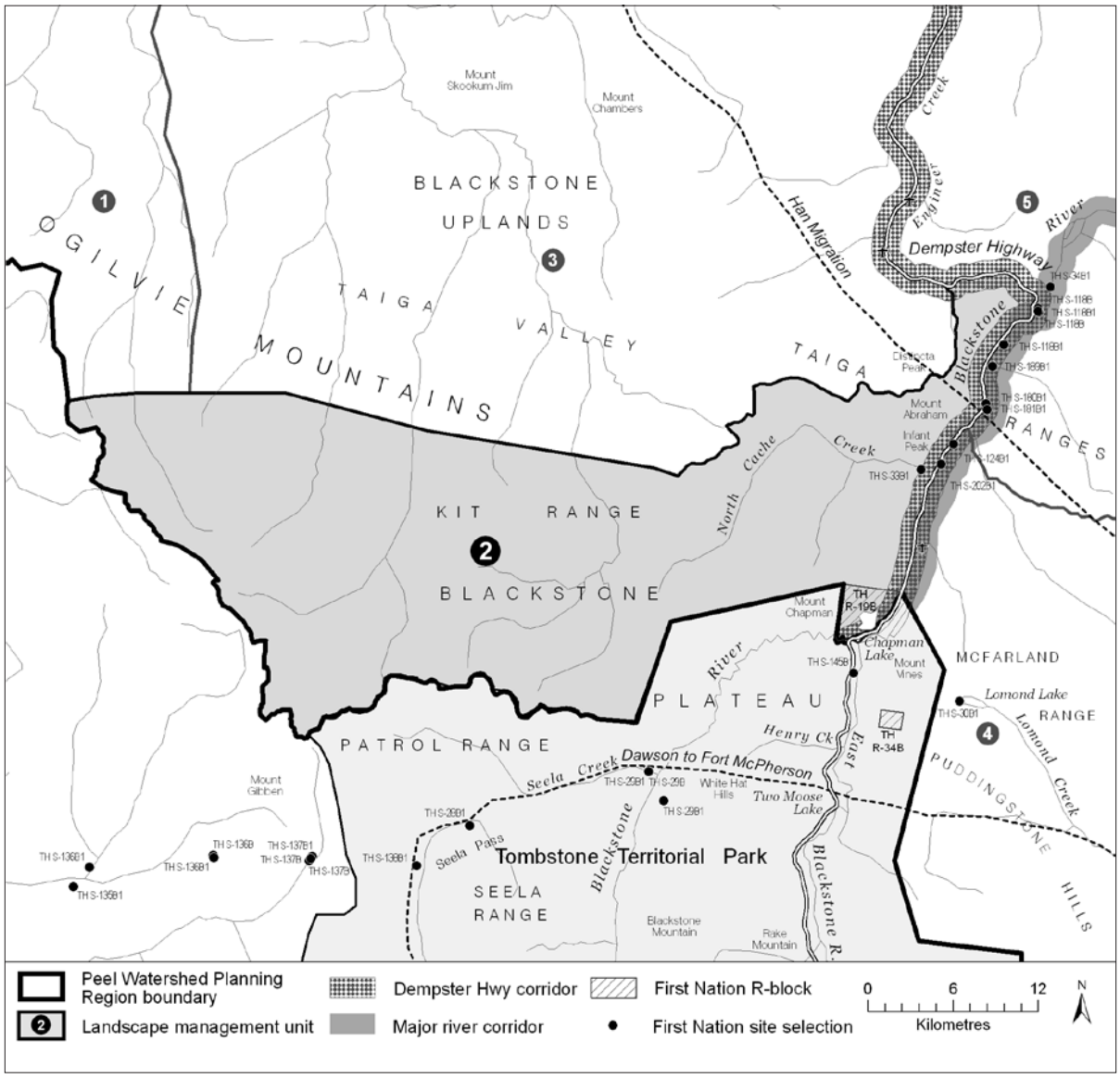
Ecological Resources

Significant Wildlife and Fish Habitats

Caribou	High and moderate value winter habitat of the Porcupine herd on flat plains. Extensive concentrated and general use areas for the Porcupine herd.
Moose	Narrow bands of high habitat suitability along smaller tributaries and broad swathes of high habitat suitability and use along Ogilvie headwaters; generally low late winter habitat suitability elsewhere.
Marten	Variable winter habitat quality.
Sheep	Some sheep habitat only near Mt Klotz.
Fish	Fish likely present in rivers and lower gradient streams; winter overflow and surface groundwater indicate good overwintering potential.
Grizzly Bear	Mostly moderate habitat suitability in low to mid elev.; high grizzly bear habitat suitability – riparian areas are key in the mountains.
Peregrine Falcon	Potential foraging habitat along the upper Ogilvie River.
Birds (General)	High value waterbird habitat in riparian areas; low to moderate breeding bird species richness; moderate number species of conservation concern.

Vegetation	High endemism/rarity. Alpine plants, low-mid elevation dry herb/shrub/coniferous forests, riparian communities.
Wetlands, Lakes and Riparian Areas	Few small wetlands with scattered small wetlands/oxbows and lakes along the upper Ogilvie corridor.
Permafrost	Extensive high water content permafrost expected for flatter pediments/plateaus.
Special Features	Several mineral licks; possible wildlife passes.
Heritage, Social and Cultural Resources	
Heritage Resources	Cabins (TH). Culturally important places for TGFN, TH, VGFN. N-S TH travel route.
Palaeontological Resources	The Bouvette Formation, Road River Group: Ogilvie Formation and Michelle Formation sedimentary rocks in this area have high potential to yield further discoveries.
Economic Development	
Transportation and Access	Some old unclassified trails (many are seismic lines); A conceptual access route has been identified in this unit connecting to Miner River and Fifteenmile River; a few airstrips of unknown status.
Traditional Economy	TH traditional harvesting and wildlife areas.
Recreation and Tourism	High value hiking in headwaters of Ogilvie River, but poor access.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	Blackstone Outfitting Ltd. and Reynolds Outfitting Ltd; some high value hunting
Oil and Gas Resources	Part of Kandik basin is within this unit. This basin has low development potential.
Mineral Resources	No quartz claims; generally low mineral potential.
Special Management Considerations	
None	

LMU 2: Kit Range / North Cache Creek	
Land Use Designation	Special Management Area
Land Status	Non-Settlement Land, TH Settlement Land (R-19B; S-33B, S-124B, S-180B, S-181B, S-202B)
Traditional Territories	Tr'ondëk Hwëch'in
Area	973 km^2 (1% of Region)



LMU 2: Kit Range / North Cache Creek

Objectives

- Wilderness character is maintained.
- Community cultural activities practiced without significant disturbance.
- Unfettered movement and habitat use of Porcupine and Hart River caribou herds, Dall's sheep and other large mammals.
- Wilderness tourism activities linked to the existing Tombstone Territorial Park that are consistent with the objectives above.

Rationale for Designation

- North Cache Creek and area supports important cultural activities of the TH.
- Overlapping key wintering areas for two caribou herds: Porcupine caribou herd, and the Hart River herd.
  - Overlapping caribou key areas only occur in two places in the Region.
  - The Hart River herd is of the Northern Mountain ecotype, which is listed as "Special Concern" under SARA.
- Sheep habitat valued by outfitters and the TH.
- National hotspot for plant endemism.
- Adjacency to Tombstone Territorial Park and the Dempster Highway Corridor improves suitability for recreation, hunting/outfitting, and tourism.
- Access to high mineral potential in the western end of LMU 2 through remaining unit cannot be reconciled with values listed above.

Biophysical Setting

Setting	Extensive tundra-like plains with mountains rising to the south and significant riparian zones.
Ecoregions	Mackenzie Mountains and North Ogilvie Mountains
Bioclimate Zones	Taiga Wooded, Taiga Shrub and Alpine
Image	Gentle mountains interspersed with valleys with open forests characterize LMU 2. (YG photo)

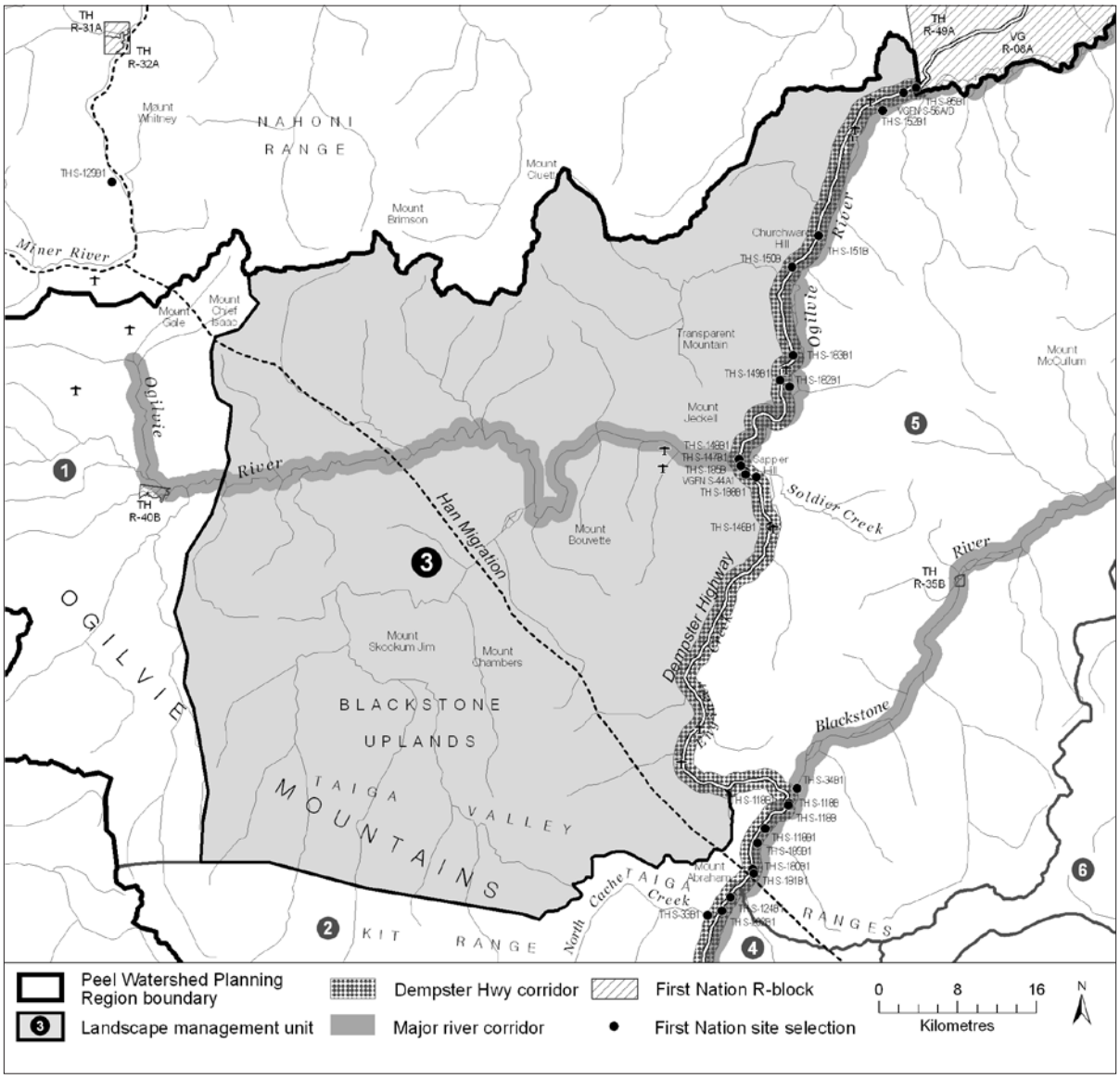
Ecological Resources

Significant Wildlife and Fish Habitats

Caribou	Unusual convergence of key/concentrated winter use areas for both the Porcupine and Hart river herds west of North Cache Creek.
Moose	High habitat suitability and use in valley bottoms and in narrow bands along smaller tributaries; low-nil late winter habitat suitability in higher country.
Marten	Generally poor quality winter habitat; significant pockets of moderate habitat occur.
Sheep	Some highly suitable winter habitat with documented (TK, big game outfitters, scientific) habitat use.
Fish	Fish likely present in rivers and lower gradient streams, including North Cache Creek; winter overflow and surface groundwater indicate good overwintering potential.

Grizzly Bear	Mostly moderate habitat suitability in low to mid elev.; high habitat suitability in riparian areas.
Peregrine Falcon	No known or predicted habitat.
Birds (General)	High value waterbird habitat in riparian areas; low to moderate breeding bird species richness; high number species of conservation concern in mountain valleys.
Vegetation	A national hotspot for plant endemism. Alpine plants, shrubs, and riparian coniferous forests.
Wetlands, Lakes and Riparian Areas	Few small riparian wetlands.
Permafrost	Extensive high water content permafrost expected for flatter pediments/plateaus on northern edge of unit.
Special Features	
Heritage, Social and Cultural Resources	
Heritage Resources	Culturally important places around North Cache Creek and Chapman Lake. Several historic camps and the current TH culture camp.
Palaeontological Resources	Sedimentary rocks in this area have high potential to yield Paleozoic fossils.
Economic Development	
Transportation and Access	The Dempster Highway lies at the eastern boundary. Conceptual access route has been identified at the far western end of this unit between the Fifteen Mile River and the Miner River. The conceptual Dempster Highway lateral pipeline bisects unit away from highway.
Traditional Economy	TH “First Hunt” is often within this LMU. TH hunting and fishing.
Recreation and Tourism	High value hiking and recreation potential. Proximity to Dempster Highway gives options for “front-country” tourism.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	Blackstone Outfitting Ltd. and Reynolds Outfitting Ltd; some high value hunting.
Oil and Gas Resources	No potential.
Mineral Resources	Approximately 345 quartz claims; high copper/gold/uranium and zinc-lead potential at western end of unit.
Special Management Considerations	
1. The proposed right-of-way for the Dempster Highway lateral pipeline passes through this unit. 2. The Hart River caribou herd and Porcupine caribou herd core wintering areas overlap in this unit. 3. Subsequent Dempster Highway sub-regional land use plan may apply to eastern part of unit – Dempster Corridor to be managed consistent with SMA objectives.	

LMU 3: Central Ogilvie	
Land Use Designation	Integrated Management Area, Zone III
Land Status	Non-Settlement Land, VG Settlement Land (S-56A/D, S-44A)
Traditional Territories	Tr'ondëk Hwëch'in, Vuntut Gwitchin
Area	3,676 km^2 (5% of Region)



LMU 3: Central Ogilvie

Objectives

- Ecological integrity is maintained.
- Sustainable economic development that supports the local economies.
- Land use activity does not significantly impact movement and habitats of caribou.

Rationale for Designation

- Adjacency to the Dempster Highway may allow development to occur more readily with less access-related impacts.
- Limited wilderness tourism activity reduces potential conflict between industrial and tourism sectors.
- Landscape characteristics makes cumulative effects monitoring more effective in limiting impacts on habitat.
- Moderate mineral potential with good access.
- Portion of the Kandik oil and gas basin.
- The high value of this unit for the Porcupine caribou herd, Dall's sheep, and the people that hunt them calls for a limited scale of industrial development, thus meriting a Zone III designation.

Biophysical Setting

Setting	An area of tundra-like plains and mountains lying between the Blackstone Watershed to the east and Upper Ogilvie Watershed to the west.
Ecoregions	North Ogilvie Mountains and corner of Eagle Plains
Bioclimate Zones	Taiga Wooded, Taiga Shrub and Alpine
Image	The rounded Ogilvie Mountains and broad sparsely forested valleys characterize LMU 3. (YG photo)

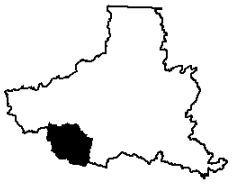
Ecological Resources

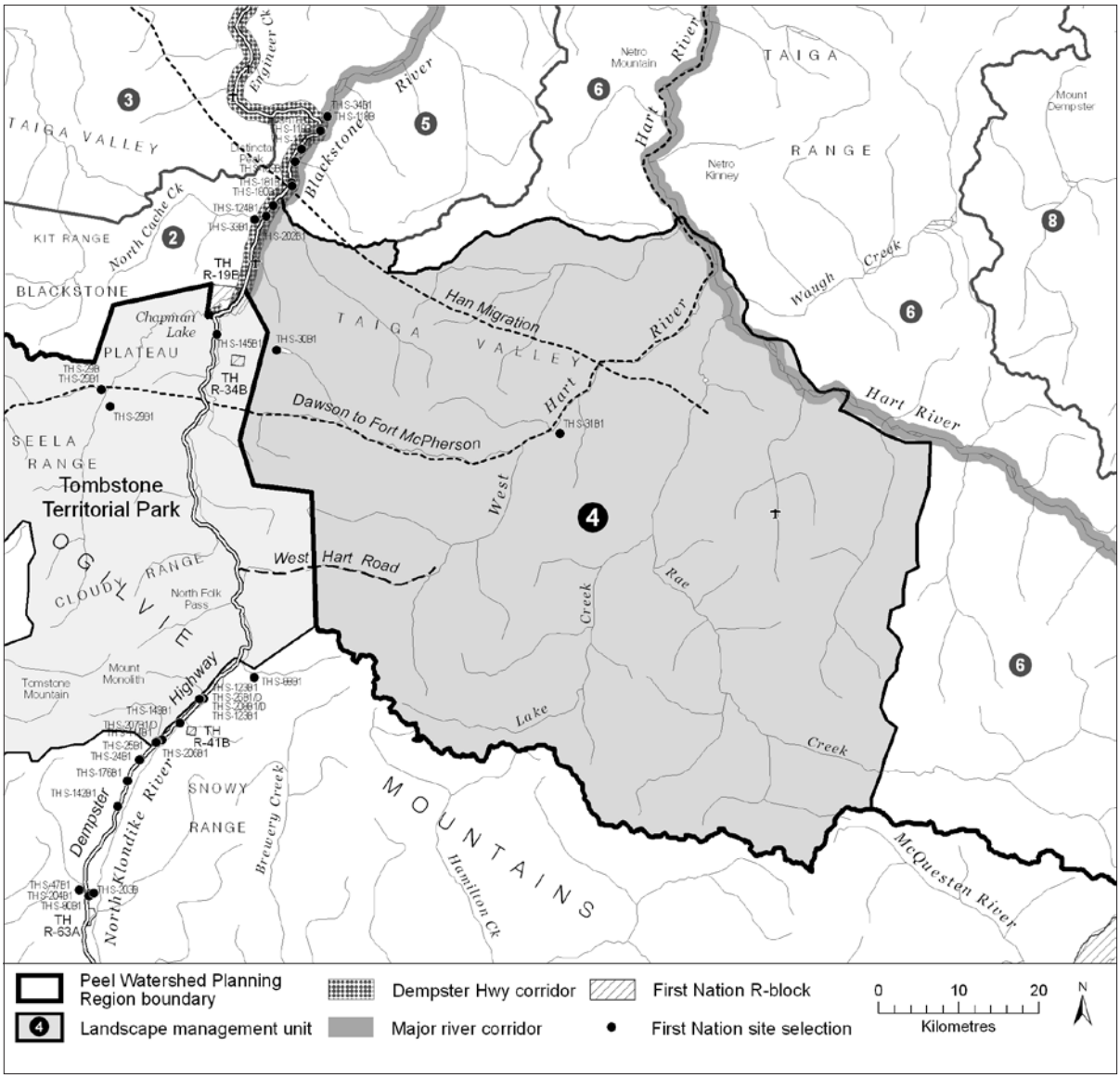
Significant Wildlife and Fish Habitats

Caribou	High value winter habitat of the Porcupine and Hart River herds. Extensive concentrated and general use areas for the Porcupine herd.
Moose	Narrow bands of high habitat suitability along valley bottoms and smaller tributaries; generally low late winter habitat suitability elsewhere.
Marten	Variable winter habitat quality, with significant pockets of moderate-high value habitat.
Sheep	Areas of highly suitable winter habitat with documented (TK, big game outfitters, scientific) habitat use.
Fish	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 indicate good overwintering potential.
Grizzly Bear	Mostly moderate habitat suitability in low to mid elev.; high in riparian areas and subalpine zones. TK of a good denning area.
Peregrine Falcon	High potential for peregrine falcon foraging and nesting near Ogilvie River.

Birds (General)	High value waterbird habitat in riparian areas; low to moderate breeding bird species richness; high number species of conservation concern.
Vegetation	Edge of a national hotspot for plant endemism. Alpine plants, low-mid elevation dry herb, shrub, and coniferous forests, mid-subalpine shrub, riparian communities.
Wetlands, Lakes and Riparian Areas	Broad swath of oxbows and riparian habitat along Ogilvie River.
Permafrost	Extensive high water content permafrost expected for flatter pediments/plateaus.
Special Features	Some mineral licks. Several possible wildlife passes.
Heritage, Social and Cultural Resources	
Heritage Resources	Cabins (TH). Culturally important places for TGFN, TH, VGFN. N-S TH heritage routes.
Palaeontological Resources	The Bouvette Formation; Road River Group: Ogilvie Formation and Michelle Formation sedimentary rocks in this area have known fossil localities and have high potential to yield further discoveries.
Economic Development	
Transportation and Access	The Dempster Highway lies at the eastern boundary. Some old unclassified trails; a few airstrips of unknown status.
Traditional Economy	TH traditional harvesting and wildlife area and big game/fur-bearing locations.
Recreation and Tourism	Near the Dempster Highway there may be some unusual front-country tourism opportunities. Little tourism potential beyond the Dempster Highway Corridor.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	Reynolds Outfitting Ltd. and Blackstone Outfitting Ltd.; some high value hunting.
Oil and Gas Resources	Part of Kandik basin is within this unit. This basin is considered to have low development potential.
Mineral Resources	Approximately 40 quartz claims; some moderate zinc-lead potential; moderate general mineral potential.
Special Management Considerations	
1. The proposed right-of-way for the Dempster Highway lateral pipeline runs along eastern boundary. 2. Major River Corridor management directions apply along the Ogilvie River. 3. Subsequent Dempster Highway sub-regional land use plan may apply to eastern part of unit – Dempster Corridor to be managed consistent with IMA Zone III objectives.	

LMU 4: West Hart River	
Land Use Designation	Wilderness Area
Land Status	Non-Settlement Land, TH Settlement Land (S-30B, S-31B)
Traditional Territories	Tr'ondëk Hwëch'in, Na-Cho Nyäk Dun
Area	4,871 km² (7% of Region)





LMU 4: West Hart River

Objectives

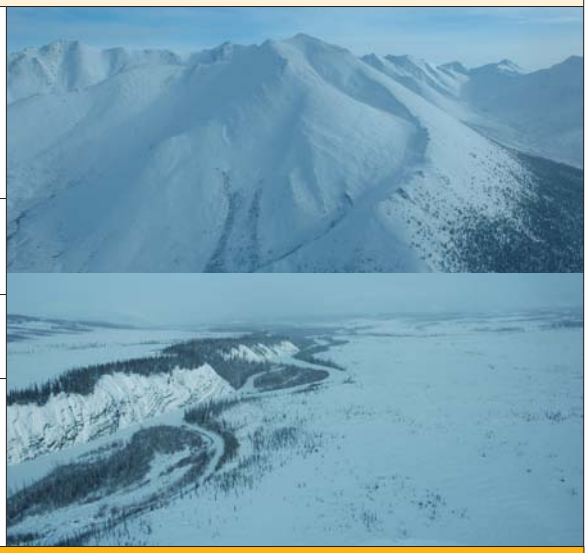
- Wilderness character is maintained.
- Cultural activities of relevant First Nations are practiced without significant disturbance from other land-use activities.
- Unfettered movement and habitat use of Porcupine and Hart River caribou herds, Dall's sheep and other large mammals.
- Wilderness tourism activities linked to the existing Tombstone Territorial Park that are consistent with the objectives above and don't require significant infrastructure.

Rationale for Designation

- Overlapping key wintering areas for two caribou herds: Porcupine caribou herd, and the Hart River herd.
  - Overlapping caribou key areas only occur in two places in the Region.
  - The Hart River herd is of the Northern Mountain ecotype, which is listed as "Special Concern" under SARA.
- Sheep habitat valued by outfitters and the TH.
- National hotspot for plant endemism.
- Adjacency to Tombstone Territorial Park and the Dempster Highway Corridor improves suitability for recreation, hunting/outfitting, and tourism.
- Generally high ecological values, no coal, oil and gas potential, and generally low potential for carbonate hosted zinc-lead and Wernecke Breccias.

Biophysical Setting

Setting	An area of tundra-like plains at the confluence of the West Hart River, Rae Creek, and the Hart River surrounded by mountains that lie to the east of Tombstone Territorial Park.
Ecoregions	Mackenzie Mountains and North Ogilvie Mountains
Bioclimate Zones	Taiga Wooded, Taiga Shrub and Alpine
Images	Rugged mountains (top) separated by broad valleys or flatter, rolling terrain (bottom) with open forests characterize LMU 4. (YG photos)



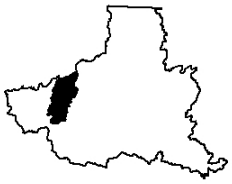
Ecological Resources

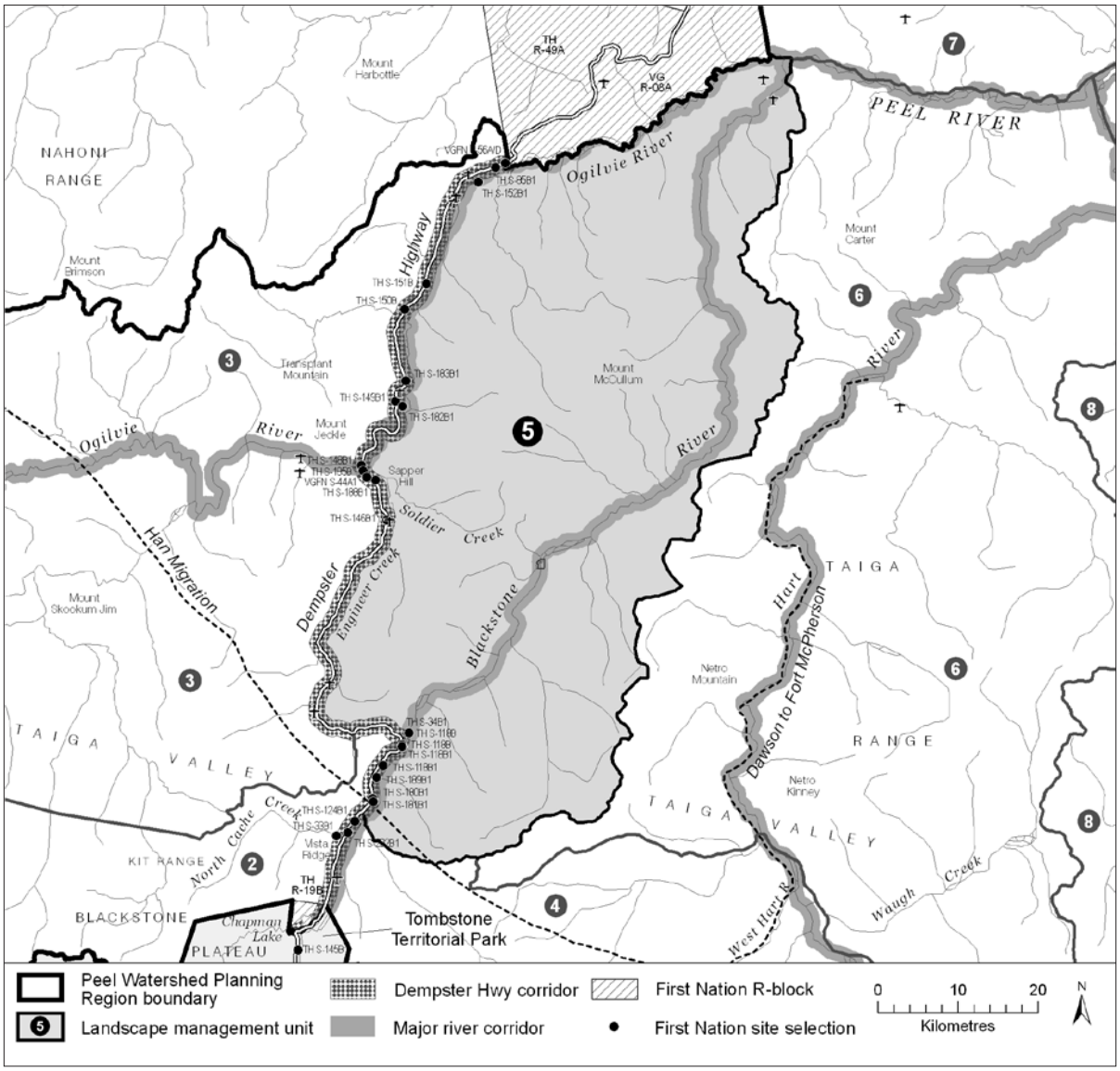
Significant Wildlife and Fish Habitats

Caribou	Unusual convergence of key/concentrated use areas for both the Porcupine and Hart river herds throughout.
Moose	High habitat suitability and use in valley bottoms and in narrow bands along smaller tributaries; low-nil late winter habitat suitability in higher country.
Marten	Generally poor quality winter habitat; significant pockets of moderate habitat occur.
Sheep	Some highly suitable winter habitat with documented (TK, big game outfitters, scientific) habitat use.
Fish	Fish likely present in rivers and lower gradient streams; winter overflow and surface groundwater indicate good overwintering potential.

Grizzly Bear	Mostly moderate habitat suitability in low to mid elev.; high habitat suitability in riparian areas.
Peregrine Falcon	No known or predicted habitat.
Birds (General)	High value waterbird habitat in riparian areas; low to moderate breeding bird species richness; high number species of conservation concern in mountain valleys.
Vegetation	A national hotspot for plant endemism. Alpine plants, shrubs, and riparian coniferous forests.
Wetlands, Lakes and Riparian Areas	Broad swaths of riparian habitats along major rivers and creeks.
Permafrost	Extensive high water content permafrost expected for flatter pediments/plateaus and valley bottoms.
Special Features	Some mineral licks. Several possible wildlife passes.
Heritage, Social and Cultural Resources	
Heritage Resources	Culturally important places, camps and cabins around Lomond Lake, along the West Hart River and scattered elsewhere (TH and NND).
Palaeontological Resources	Sedimentary rocks in this area have high potential to yield Paleozoic fossils.
Economic Development	
Transportation and Access	The Dempster Highway lies at the northwestern boundary, and the old Hart River road/ trail extends into the unit from the west. Conceptual access route has been identified that bisects the unit from west to east. A few airstrips of unknown status.
Traditional Economy	Hunting, fishing and trapping, with most activity to the west.
Recreation and Tourism	High value hiking and recreation potential. Paddling opportunities. Proximity to Dempster Highway gives options for “front-country” tourism.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	Pete Jenssen Outfitting, Blackstone Outfitting Ltd. and Reynolds Outfitting Ltd; some high value hunting (sheep, caribou).
Oil and Gas Resources	No potential.
Mineral Resources	Approximately 495 quartz claims; one Cu-Zn deposit; high general mineral potential, though generally low potential for carbonate hosted zinc-lead and Wernecke Breccias.
Special Management Considerations	
1. Extensive regionally rare overlap of winter core areas of two caribou herds. 2. Subsequent Dempster Highway land use plan may apply to northwestern part of unit. 3. The administrative boundary between NND and TH traditional territories bisects the unit N-S. 4. The Hart River Trail accesses the unit from the west. Use of this trail by off-road vehicles is allowed, subject to 4.3.1.1 of the Plan and other management plans.	

LMU 5: Blackstone River	
Land Use Designation	Integrated Management Area, Zone III
Land Status	Non-Settlement Land, TH Settlement Land (R-35B)
Traditional Territories	Tr'ondëk Hwëch'in, Na-Cho Nyäk Dun, Vuntut Gwitchin, Tetłit Gwich'in Secondary Use Area
Area	3,590 km^2 (5% of Region)





LMU 5: Blackstone River

Objectives

- Ecological integrity is maintained.
- Some culturally and ecologically-aware resource exploration and extraction that supports the local economies.
- All permitted land use activity does not significantly impact movement and habitats of caribou.
- Continued use of the Blackstone River for accessible wilderness tourism.

Rationale for Designation

- Adjacency to the Dempster Highway may allow development to occur more readily with less access-related impacts.
- Existing tourism and recreation opportunities are generally reliant on Dempster Highway, and may be somewhat more tolerant of development than in more remote areas.
- Flatter areas of unit makes cumulative effects monitoring more effective in limiting impacts on habitat in those area; however,
- Most of the unit is quite rugged, thus limiting the effectiveness of cumulative effects monitoring; and,
- The high value of this unit for the Porcupine caribou herd, Dall's sheep, and the people that hunt them calls for a limited scale of industrial development, thus meriting a Zone III designation.

Biophysical Setting

Setting	Generally mountainous terrain with forested valley bottoms, slopes and flats.
Ecoregions	North Ogilvie Mountains
Bioclimate Zones	Taiga Wooded, Taiga Shrub and Alpine
Image	Weathering and lack of glaciation and have resulted in pillars of rocks called tors. Deep forested valleys are also characteristic of this area. (YG photo)

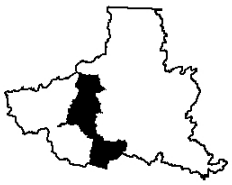
Ecological Resources

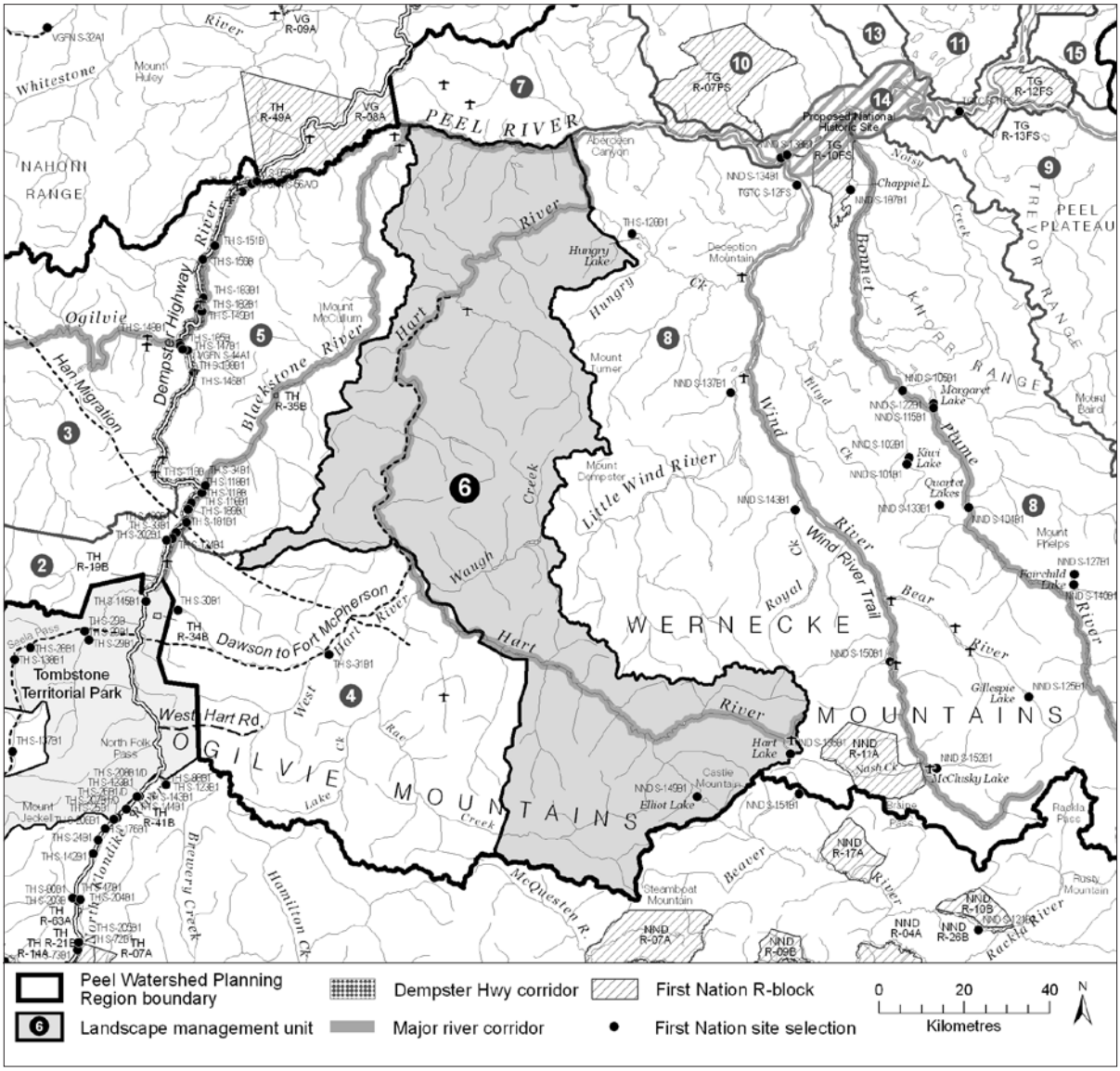
Significant Wildlife and Fish Habitats

Caribou	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.
Moose	Narrow bands of high habitat suitability along smaller tributaries; generally low late winter habitat suitability elsewhere.
Marten	Generally poor quality winter habitat; significant pockets of moderate habitat occur.
Sheep	Extensive areas of highly suitable winter habitat with documented (TK, big game outfitters, scientific) habitat use. Scattered licks.
Fish	Winter overflow, open water and surface groundwater locations indicate overwintering potential, fish in rivers and lower gradient tributaries.
Grizzly Bear	Mostly moderate habitat suitability in low to mid elev.; high in riparian areas and subalpine zones.
Peregrine Falcon	High potential for peregrine falcon foraging and nesting habitat in lower elevations.

Birds (General)	High value waterbird habitat in riparian areas; low to moderate breeding bird species richness; moderate number species of conservation concern.
Vegetation	High endemism/rarity. Alpine plants, low-mid elevation dry herb/shrub/coniferous forests, mid-subalpine shrub, riparian communities.
Wetlands, Lakes and Riparian Areas	Few small wetlands. Narrow riparian strips.
Permafrost	Extensive high water content permafrost expected for flatter pediments/plateaus.
Special Features	Some mineral licks. Several possible wildlife passes.
Heritage, Social and Cultural Resources	
Heritage Resources	Cabins (TH) and camps (NND). Culturally important places for TGFN, TH, VGFN. Several heritage routes.
Palaeontological Resources	The Bouvette Formation; Road River Group: Ogilvie Formation and Michelle Formation sedimentary rocks in this area have known fossil localities and have high potential to yield further discoveries.
Economic Development	
Transportation and Access	The Dempster Highway lies at the western boundary. A few airstrips of unknown status along highway and near mouth of the Blackstone River.
Traditional Economy	Significant harvesting along Dempster Highway. Other traditional harvesting and wildlife area and big game/fur-bearing locations.
Recreation and Tourism	Near the Dempster Highway there are front-country tourism opportunities. Blackstone River provides as readily accessible “backcountry” paddling experience.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	Blackstone Outfitting Ltd.; some high value hunting.
Oil and Gas Resources	No potential.
Mineral Resources	Approximately 340 quartz claims; moderate zinc-lead potential; moderate-high general mineral potential.
Special Management Considerations	
1. The proposed right-of-way for the Dempster Highway lateral pipeline runs along western boundary. 2. Major River Corridor management directions apply along the Ogilvie and Blackstone Rivers. 3. Dempster Corridor management directions apply near the Dempster Highway. 4. Subsequent Dempster Highway land use plan may apply near the Dempster Highway. 5. The administrative boundary between NND and TH traditional territories runs through NE corner.	

LMU 6: Hart River	
Land Use Designation	Wilderness Area
Land Status	Non-Settlement Land, NND Settlement Land (S-135B, S-149B)
Traditional Territories	Tr'ondëk Hwëch'in, Na-Cho Nyäk Dun, Vuntut Gwitchin, Tetłit Gwich'in Primary and Secondary Use Area
Area	8,305 km² (12% of Region)





LMU 6: Hart River

Objectives

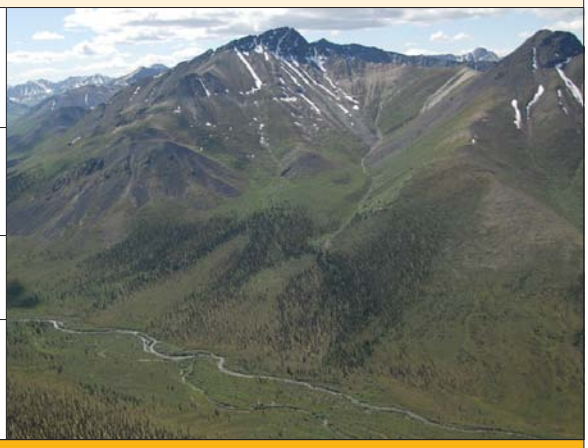
- Wilderness character is maintained.
- First Nations' cultural activities are practiced without significant disturbance from other land-use activities.
- Unfettered movement and habitat use of Porcupine and Hart River caribou herds, Dall's sheep and other large mammals.
- Wilderness tourism and outfitting activities that are consistent with the objectives above.

Rationale for Designation

- Extensive habitat and key areas for the Hart River herd which is of the Northern Mountain ecotype, listed as "Special Concern" under SARA.
- Extensive general winter and fall use areas for the Porcupine caribou herd.
- Extensive sheep habitat valued by outfitters and the TH.
- Provided connectivity between Tombstone Territorial Park and LMU 4 to the west, and LMU 8 to the east.
- Generally high ecological values, no coal, oil and gas potential, and generally low potential for carbonate hosted zinc-lead and Wernecke Breccias.

Biophysical Setting

Setting	A large mountainous watershed punctuated with bands of flatter, forested terrain
Ecoregions	Mackenzie Mountains, North Ogilvie Mountains, transition to Eagle Plains
Bioclimate Zones	Taiga Wooded, Taiga Shrub and Alpine (minor Boreal)
Image	Gentle mountains separated by often broad valleys characterize LMU 6. (CWS photo)



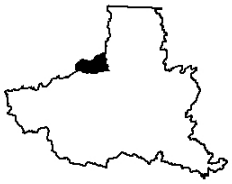
Ecological Resources

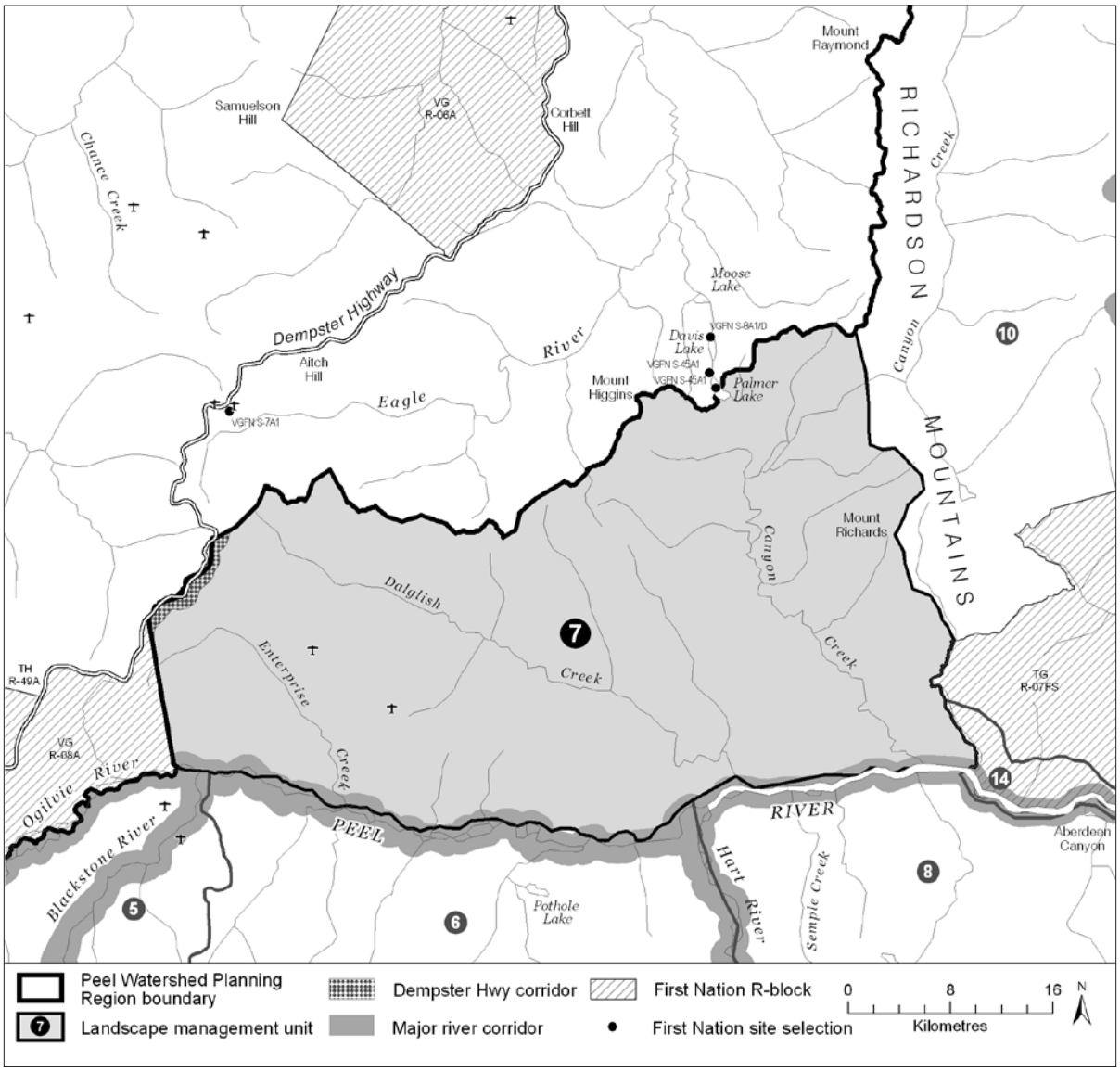
Significant Wildlife and Fish Habitats

Caribou	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.
Moose	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.
Marten	In headwaters, the high value winter habitat is in valley-bottom forests. Moderate-high quality habitat gets more extensive down towards the Peel River.
Sheep	Extensive areas of highly suitable winter habitat with documented (TK, big game outfitters, scientific) habitat use. Scattered licks and movement corridor(s).
Fish	Scattered known fish occupancy sites, fish presence likely in rivers, lower gradient tributaries. Little fish data for this area.
Grizzly Bear	Mostly moderate habitat suitability in low to mid elevations, high in riparian areas.
Peregrine Falcon	High potential for peregrine falcon foraging and nesting along lower Hart River and Peel River.

Birds (General)	High value waterbird habitat in riparian areas; low breeding birds species richness, high in riparian areas; high number species of conservation concern.
Vegetation	Moderate-high endemism/rarity along upper Rae Creek and below West Hart River. Low-mid elevation wet/dry shrub, subalpine shrub, and alpine exposed rock.
Wetlands, Lakes and Riparian Areas	Large wetland complexes on Hart River, scattered wetlands. Three sizeable lakes in headwaters (Worm, Elliot, and Hart Lakes).
Permafrost	Continuous permafrost is predicted.
Special Features	Several mineral licks; several possible wildlife passes.
Heritage, Social and Cultural Resources	
Heritage Resources	Numerous travel routes connecting to Blackstone River, to Dempster Hwy/Tombstone (via West Hart River), to Little Wind River (via Waugh Creek), to Wind River (via Hungry Lakes) and through Rae Creek. Several cabins (TH, NND).
Palaeontological Resources	Sedimentary rocks in this area have high potential to yield Paleozoic fossils.
Economic Development	
Transportation and Access	Few old winter roads in the lower section of unit; a conceptual access route has been identified in this unit between Waugh Creek to West Hart/Dempster Hwy. Three airstrips. Floatplane landing at three lakes.
Traditional Economy	TH traditional harvesting and wildlife areas and TG seasonal land use; TH fish harvesting.
Recreation and Tourism	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.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	Blackstone Outfitting Ltd. and Midnight Sun Outfitting Ltd.; high value hunting.
Oil and Gas Resources	No potential.
Mineral Resources	Approximately 950 quartz claims and no proven deposits; low copper/gold/uranium potential; moderate zinc-lead potential; moderate-high general potential.
Special Management Considerations	
1. The administrative boundary between NND and TH traditional territories runs through the central-west part of the unit.	

LMU 7: Dalglish Creek	
Land Use Designation	Integrated Management Area, Zone IV
Land Status	Non-Settlement Land
Traditional Territories	Tr'ondëk Hwëch'in, Na-Cho Nyäk Dun, Vuntut Gwitchin, Tetłit Gwich'in Primary and Secondary Use Area
Area	1,599 km^2 (2% of Region)





LMU 7: Dalglish Creek

Objectives

- Ecological integrity is maintained.
- Some culturally and ecologically-aware resource exploration and extraction that supports the local economies.
- All permitted land use activity does not significantly impact movement and habitats of caribou.
- Industrial activity does not result in any alteration to the Peel River's viewscape.

Rationale for Designation

- Adjacency to the Dempster Highway may allow development to occur more readily with less access-related impacts.
- Highest oil and gas development potential in the Region.
- No big-game outfitting activities and no tourism/recreation activities beyond the Peel River corridor.
- Porcupine caribou use the entire unit, though only the extreme SW corner falls in a concentrated winter use area. The biggest value of this unit for this herd likely is as a migration route. This calls for some limitations on industrial development; however,
- Development will likely occur on relatively flat terrain, making the recommended cumulative effects monitoring more effective in limiting impacts on habitat in those area, thus meriting a Zone IV designation.

Biophysical Setting

Setting	Rolling forested plateau with incised creeks north of the Peel River and west of the Richardson Mountains
Ecoregions	Eagle Plains
Bioclimate Zones	Taiga Wooded
Image	LMU 7 is characterized by rolling forested (front left) or recently burned (centre) terrain. A historic winter road (circa 1950s) to Eagle Plains is visible in this photo. (CWS photo)

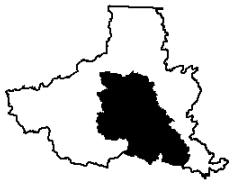
Ecological Resources

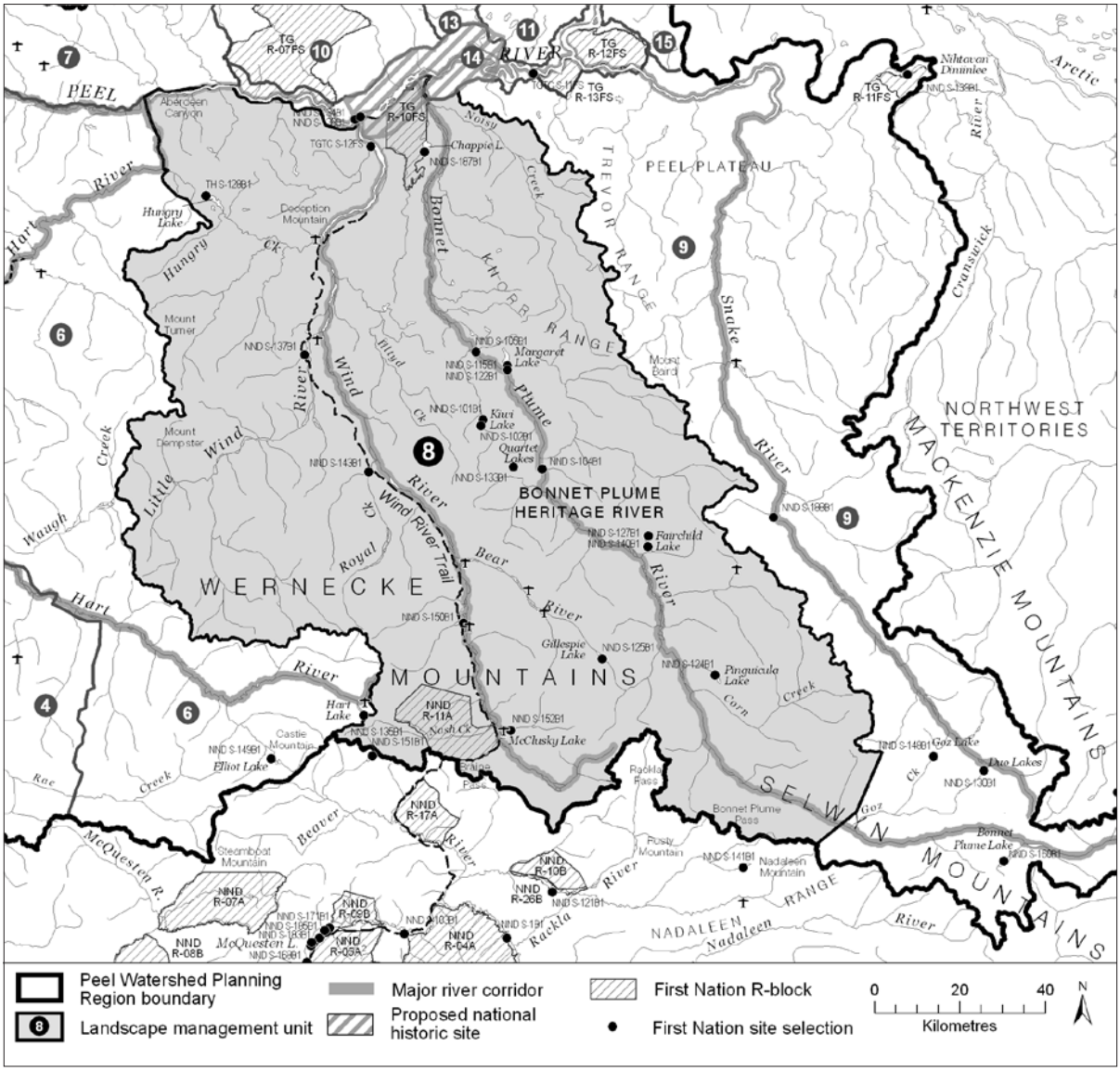
Significant Wildlife and Fish Habitats

Caribou	Moderate habitat suitability for the Porcupine herd, and includes general use areas for the fall migration, rutting, and winter seasons. Importance to the migration of the Porcupine herd may increase as development occurs to the north.
Moose	Generally low late winter habitat quality, though ribbons of high value habitat follow major creeks.
Marten	Variable winter habitat value, though generally moderate or high.
Sheep	Virtually no sheep habitat.
Fish	Fish likely present throughout unit.
Grizzly Bear	Moderate to high habitat suitability.
Peregrine Falcon	Some peregrine foraging habitat along Peel River.
Birds (General)	High value waterbird habitat along riparian areas; variable breeding spp. richness and moderate species of conservation concern (high pockets).
Vegetation	Low endemism/rarity. Low-mid elev. wet/dry herb and shrub, and dry coniferous forest.

Wetlands, Lakes and Riparian Areas	Wetlands along Peel River and a few scattered wetlands within unit.
Permafrost	Continuous permafrost is predicted.
Special Features	Wildlife passes, Canyon Creek Canyon.
Heritage, Social and Cultural Resources	
Heritage Resources	TG and TH travel routes along Dalglish and Canyon Creeks to Peel River; many VG and TG archaeological sites; TG culturally important places.
Palaeontological Resources	The Eagle Plains and sandstone sedimentary rocks have known fossil localities and this area (including Canyon Creek) has high potential to yield further discoveries
Economic Development	
Transportation and Access	Adjacent to a short section of the Dempster Highway. 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; two airstrips. Adjacent to floatplane landing on the Peel River at Canyon Creek.
Traditional Economy	TG seasonal land use and traditional harvesting and wildlife areas.
Recreation and Tourism	Little current tourism beyond some paddling along the Peel River, though the canyon on Canyon Creek has very high tourism potential.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	No registered concessions.
Oil and Gas Resources	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).
Mineral Resources	Approximately 140 quartz claims; generally low mineral potential.
Special Management Considerations	
1. The proposed right-of-way for the Dempster Highway lateral pipeline runs along western boundary. 2. Major River Corridor management directions apply along the Peel River. 3. Dempster Corridor management directions apply near the Dempster Highway. 4. Subsequent Dempster Highway land use plan may apply near the Dempster Highway. 5. Much of the unit was affected by fire in the summer of 2005.	

LMU 8: Wind and Bonnet Plume Watersheds	
Land Use Designation	Special Management Area
Land Status	Non-Settlement Land, NND Settlement Land (R-11A, S-101B, S-102B, S-104B, S-105B, S-115B, S-122B, S-124B, S-125B, S-127B, S-133B, S-137B, S-138B, S-140B, S-143B, S-150B, S-152B, S-187B), TG Yukon Land (R-10FS, S-12FS), TH Settlement Land (S-128B)
Traditional Territories	Na-Cho Nyäk Dun, Tetłit Gwich'in Primary Use Area
Area	19,172 km^2 (28% of Region)





LMU 8: Wind and Bonnet Plume Watersheds

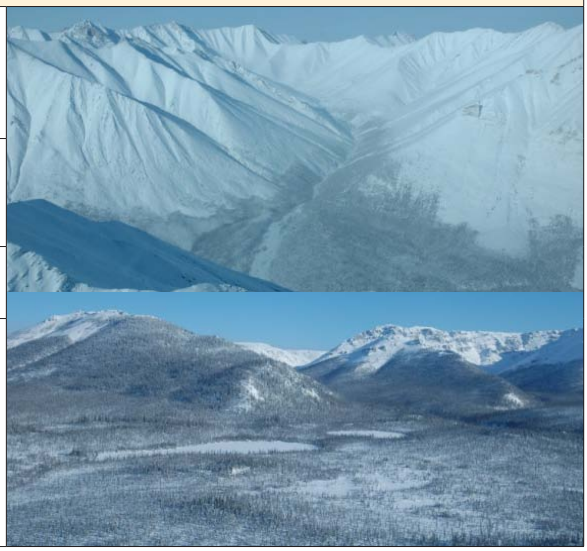
Objectives

- Wilderness character is maintained.
- Wilderness tourism and big-game outfitting industries are encouraged in a manner consistent with protection of sensitive ecological values, and within their carrying-capacity.
- Community cultural activities practiced without significant disturbance.
- The core range of the Bonnet Plume caribou herd continues to be able to support the historic full size of the herd.

Rationale for Designation

- The Bonnet Plume River is a Canadian Heritage River.
- The Wind River watershed, Hungry Lakes, Chappie Lake, Margaret Lake, and Quartet Lake were recommended for consideration for protection by the Peel River Watershed Advisory Committee.
- Numerous culturally important places and First Nation traditional travel routes.
- Two large and mostly pristine watersheds that are well suited for wildness tourism and big-game outfitting.
- The Bonnet Plume caribou herd is of the Northern Mountain ecotype, which is listed as “Special Concern” under SARA; most of its range is within this one unit.
- Wide-ranging species like caribou and grizzly bears need large tracks of largely unfragmented landscape. This unit may offer an unusual opportunity to conserve sufficient habitat for these species.
- Large unfragmented landscapes with N-S oriented valleys and large elevation ranges are well suited to allowing species to shift their ranges in response to climate change.
- Despite apparently high mineral potential, remoteness and other factors have precluded any development to date. Future mineral development is therefore speculative.
- Aerial access for mineral exploration has already impacted other land-uses; road development that is required to support mining would be almost irreconcilable with them.
- Though large numbers of mineral claims may be an impediment to the zoning of this unit, most were established following the rise of base metal prices between 2004 and 2008.
- Low oil and gas potential due to small size, remoteness, and likely lower quality of the Bonnet Plume Basin.

Biophysical Setting

Setting	Rocky mountainous terrain with deep forested valleys and large rivers that give way to forested plateaus with many wetlands	
Ecoregions	Mackenzie Mountains, Peel River Plateau, some North Ogilvie Mountains and Eagle Plains	
Bioclimate Zones	Taiga Wooded, some Taiga Shrub and Alpine	
Image	Rugged Wernecke Mountains with narrow forested or shrubby valleys are characteristic the headwaters (top), while flatter foothills and plateau are characteristic of the lower reaches (bottom). (YG photo)	

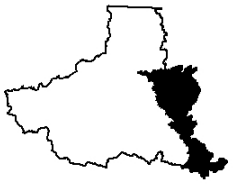
Ecological Resources	
Significant Wildlife and Fish Habitats	
Caribou	High value winter habitat, key winter, and migratory use areas of the Bonnet Plume herd concentrated along forested valley bottoms, largest concentration of key use areas; extensive moderate winter habitat potential for the Porcupine herd – little use east of Hungry Lakes in recent decades.
Moose	High habitat suitability and use in valley bottoms; moderate-low late winter habitat suitability elsewhere.
Marten	High habitat suitability in valley bottoms and in lower plateaus; low-nil late winter habitat suitability elsewhere.
Sheep	Large concentration of high value winter habitat and documented habitat use in upper and mid portions of unit. Scattered mineral licks and associated trails.
Fish	Fish presence potential in larger tributaries, several known fish occupancy and spawning sites, and winter open water sites and surface ground water.
Grizzly Bear	Moderate to high habitat suitability in riparian areas and high elevation subalpine zones.
Peregrine Falcon	High potential for peregrine falcon foraging, some nesting habitat in the lower plateau areas.
Birds (General)	High value waterbird habitat in riparian areas; breeding bird species richness highest along rivers and in the lower plateaus; variable number species of conservation concern.
Vegetation	Wide range of vegetation. Moderate rarity/endemism along the transition between mountains and plateau.
Wetlands, Lakes and Riparian Areas	Several larger lakes in the headwaters (McClusky, Gillespie, Pinguicula, Fairchild, Quartet, Kiwi, and Margaret Lakes) and on lower reaches (Hungry and Chappie Lakes). A territorially significant wetland complex between Bonnet Plume and Wind Rivers around Chappie Lake.
Permafrost	Continuous permafrost is predicted, likely with high water content on the flatter plateau areas of the lower Bonnet Plume and Wind Rivers.
Special Features	Regionally significant concentration of mineral licks; documented and possible wildlife passes (especially for sheep); caribou migration corridors.
Heritage, Social and Cultural Resources	
Heritage Resources	Numerous travel corridors and cabins (NND and TG). Culturally important sites for TG, VGFN.
Palaeontological Resources	The coal bearing deposits of the Bonnet Plume Formation in this region have high potential to be associated with Mesozoic plant and vertebrate fossils. There have been woolly mammoth fossils collected on Noisy Creek in the past. The carbonate rocks of the Road River Formation in this region have known trilobite fossil localities and have high potential to yield further Paleozoic fossils.
Economic Development	
Transportation and Access	Wind River winter trail; conceptual access routes run along the Wind River to Eagle Plains and also cross the unit linking the Hart River to the Little Wind, Bonnet Plume and Snake Rivers. Several airstrips and opportunities for floatplane landing.
Traditional Economy	NND and TG traditional harvesting and wildlife areas.
Recreation and Tourism	High value wilderness paddling, hiking and wildlife viewing especially in upper mountainous areas; Canadian Heritage River.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	Midnight Sun Outfitting Ltd, Bonnet Plume Outfitting Ltd. and Widrig Outfitting Ltd. Extensive high value hunting in mountainous areas.

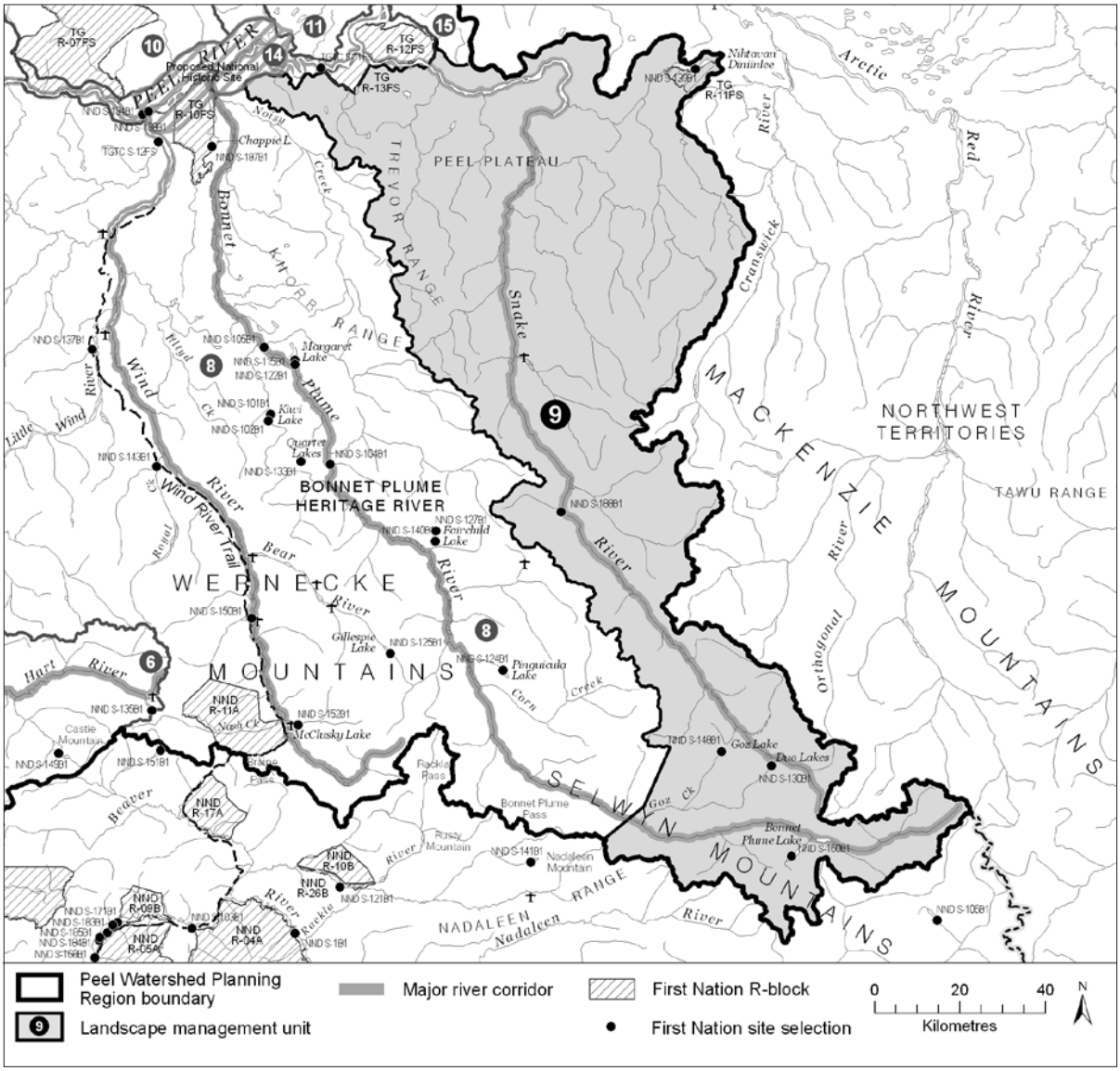
Oil and Gas Resources	Noisy Creek drainage is part of the Peel Plateau and Plain Basin and has moderate potential; lower reaches of the Bonnet Plume and Wind Rivers are within the Bonnet Plume basin, which has low potential.
Mineral Resources	All of the region's coal licenses; several coal deposits; approximately 5430 quartz claims; some iron potential; mostly moderate with some high copper/gold/uranium potential; moderate to high zinc-lead , one proven deposit.

Special Management Considerations

1. The Wind River Trail accesses the unit from the south. Use of this trail by commercial motor vehicles other than snowmobiles is not allowed.
2. The upcoming Northern Mountain Caribou Action Plan may be relevant to management of land-use activities in this unit.
3. The Bonnet Plume Heritage River Management Plan provides further direction for management of land-use activities in this unit.

LMU 9: Snake River	
Land Use Designation	Special Management Area
Land Status	Non-Settlement Land, TG Yukon Land (R-11FS), NND Settlement Land (S-106B, S-130B, S-139B, S-148B, S-188B)
Traditional Territories	Na-Cho Nyäk Dun, Tetłit Gwich'in Primary Use Area
Area	11,193 km² (17% of Region)





LMU 9: Snake River

Objectives

- Wilderness character is maintained.
- Wilderness tourism and big-game outfitting industries are encouraged in a manner consistent with protection of sensitive ecological values, and within their carrying capacity.
- Community cultural activities practiced without significant disturbance.
- Unfettered movement and habitat use of Bonnet Plume and Redstone caribou herds, Dall's sheep and other large mammals.

Rationale for Designation

- "Source Peaks" of Snake and Bonnet Plume Rivers (and others), the Snake River watershed, and Bonnet Plume Lake were recommended consideration for protection by the Peel River Watershed Advisory Committee.
- From the perspective of protected area network planning, the unit is "buffered" by the Arctic Red (to the east) and the Bonnet Plume (to the west) Canadian Heritage Rivers.
- A large and mostly pristine watershed that is well suited for wildness tourism and big game outfitting.
- The Bonnet Plume caribou herd is of the Northern Mountain ecotype, which is listed as "Special Concern" under SARA; some of its key areas are within this unit.
- Wide-ranging species like caribou and grizzly bears need large tracks of largely unfragmented landscape. This unit may offer an unusual opportunity to conserve sufficient habitat for these species.
- Large unfragmented landscapes with N-S oriented valleys and large elevation ranges are well suited to allowing species to shift their ranges in response to climate change.
- Despite apparently high mineral potential, remoteness and other factors have precluded any development to date. Future mineral development is therefore speculative.
- Aerial access for mineral exploration has already impacted other land uses; road development that is required to support mining would be almost irreconcilable with them.
- Lower oil and gas potential due to access difficulties, and moderate quality of the Peel Plateau and Plain Basin.

Biophysical Setting

Setting	Deep forested valley and a large river set in rugged mountains that give way to an incised forested plateaus with many wetlands
Ecoregions	Peel River Plateau (north) and Mackenzie Mountains (south)
Bioclimate Zones	Taiga Wooded, Taiga Shrub and Alpine
Images	The upper Snake River (left) is often braded, and flanked by a fairly narrow band of forest on the toe of mountains. The lower Snake River (right) is carved into a forested plateau with wetlands. A seismic line is also depicted at right. (YG photos)

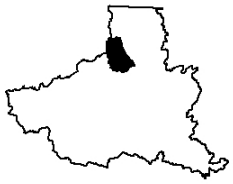
Ecological Resources

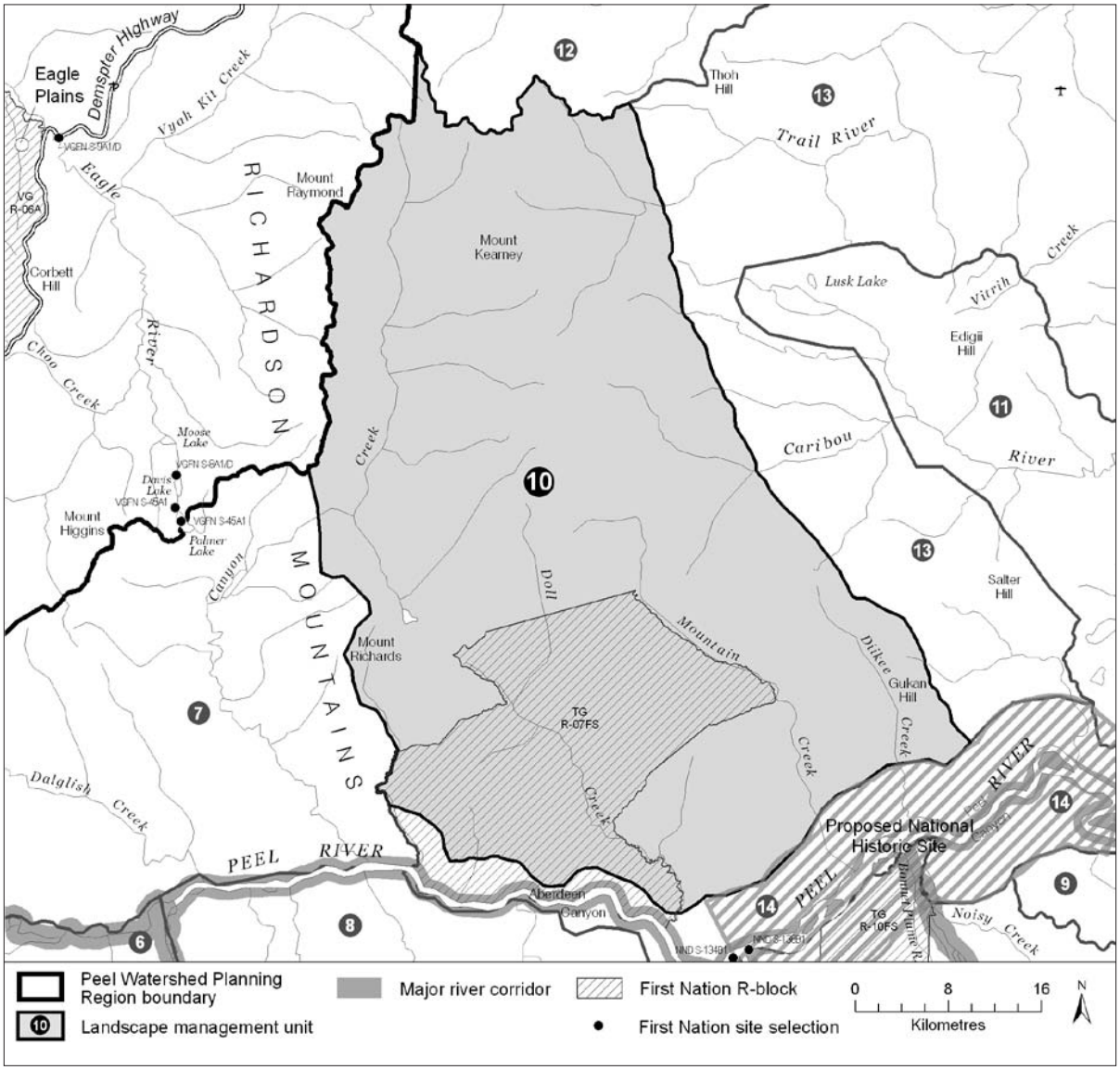
Significant Wildlife and Fish Habitats

Caribou	High value winter habitat and some key areas of the Bonnet Plume herd concentrated along forested valley bottoms and on lower plateau; moderate-low winter habitat for the Porcupine herd, with little use in recent decades.
Moose	High habitat suitability in valley bottoms; low-nil late winter habitat suitability elsewhere.

Marten	The most extensive high quality winter habitat in the region, mostly in plateau taiga forests; quality winter habitat in valley-bottom forests, poor elsewhere.
Sheep	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.
Fish	Fish presence potential in larger rivers and streams, several known fish occupancy and winter open water sites.
Grizzly Bear	High grizzly bear habitat suitability in riparian corridors and valleys.
Peregrine Falcon	Regionally significant concentration of peregrine falcon nesting and foraging habitat along lower Snake River.
Birds (General)	Extensive waterbird habitat in riparian areas and on lower plateau; low -moderate breeding birds species richness; several species of conservation concern.
Vegetation	Wide range of vegetation. Moderate rarity/endemism along the transition between mountains and plateau.
Wetlands, Lakes and Riparian Areas	Three larger lakes in the headwaters (Goz, Duo, and Bonnet Plume Lakes). Numerous wetlands and small lakes (including Popcornfish Lake) in the lower plateau areas.
Permafrost	Continuous permafrost is predicted.
Special Features	This area has known palaeontological sites with fossil fish and trilobites. The sedimentary rocks throughout this LMU have high potential to yield additional Paleozoic fossil specimens.
Heritage, Social and Cultural Resources	
Heritage Resources	Very few cabins and travel routes.
Palaeontological Resources	The coal bearing deposits of the Bonnet Plume Formation in this region have high potential to be associated with Mesozoic plant and vertebrate fossils. There have been woolly mammoth fossils collected on Noisy Creek in the past. The carbonate rocks of the Road River Formation in this region have known trilobite fossil localities and have high potential to yield further Paleozoic fossils.
Economic Development	
Transportation and Access	Old winter road and seismic lines in lower portion; a conceptual access route running along most of the Snake Valley has been identified that links Margaret Lake to Duo Lake.
Traditional Economy	TG trapping area and NND traditional harvesting and wildlife areas, especially sheep.
Recreation and Tourism	Highest current value in the region. High value wilderness paddling and access to hiking.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	Bonnet Plume Outfitters Ltd. and Widrig Outfitting Ltd. Extensive high value hunting in mountainous areas.
Oil and Gas Resources	Peel Plateau and Plain Basin, which overlaps with the lower plateau portion of this unit, has moderate oil and gas potential. Two abandoned wells.
Mineral Resources	Very large proven iron deposit; some high zinc-lead potential with a known deposit; small area of coal potential. Very high gold potential. Approximately 195 quartz claims and 525 Iron-mica leases.
Special Management Considerations	
1. The Northern Mountain Caribou Action Plan may be relevant to management of land-use activities in this unit. 2. The Bonnet Plume Heritage River Management Plan provides further direction for management of land-use activities in the portion of this unit that includes the headwaters of the Bonnet Plume River.	

LMU 10: Richardson Mountains - South	
Land Use Designation	Wilderness Area
Land Status	Non-Settlement Land, TG Yukon Land (R-07FS)
Traditional Territories	Na-Cho Nyäk Dun, Vuntut Gwitchin, Tetłit Gwich'in Primary and Secondary Use Area
Area	2,434 km^2 (4% of Region)





LMU 10: Richardson Mountains - South

Objectives

- Wilderness character is maintained.
- Community cultural activities practiced without significant disturbance.
- Unfettered movement and habitat use of Porcupine caribou herds Dall's sheep and other large mammals.
- Wilderness tourism activities within their carrying-capacity.
- Archaeological, palaeontological and other heritage resources are identified and studied.

Rationale for Designation

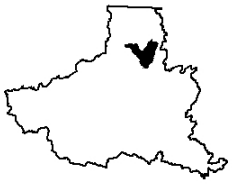
- Concentrated or moderate use by the Porcupine caribou herd in recent decades over much of the unit.
- Important N-S migration route for the Porcupine caribou herd.
- A small and isolated population of Dall's sheep that may be at risk of decline.
- Rare and/or endemic plants and high number of species of nesting bird of conservation concern.
- The Peel River Watershed Advisory Committee and the Gwich'in Interim Land Use Planning
- Board concluded that the Richardson Mountains should be a candidate for protection.
- High concentration of VG and TG archaeological sites.
- No oil and gas potential, low-moderate mineral potential, and few quartz claims.

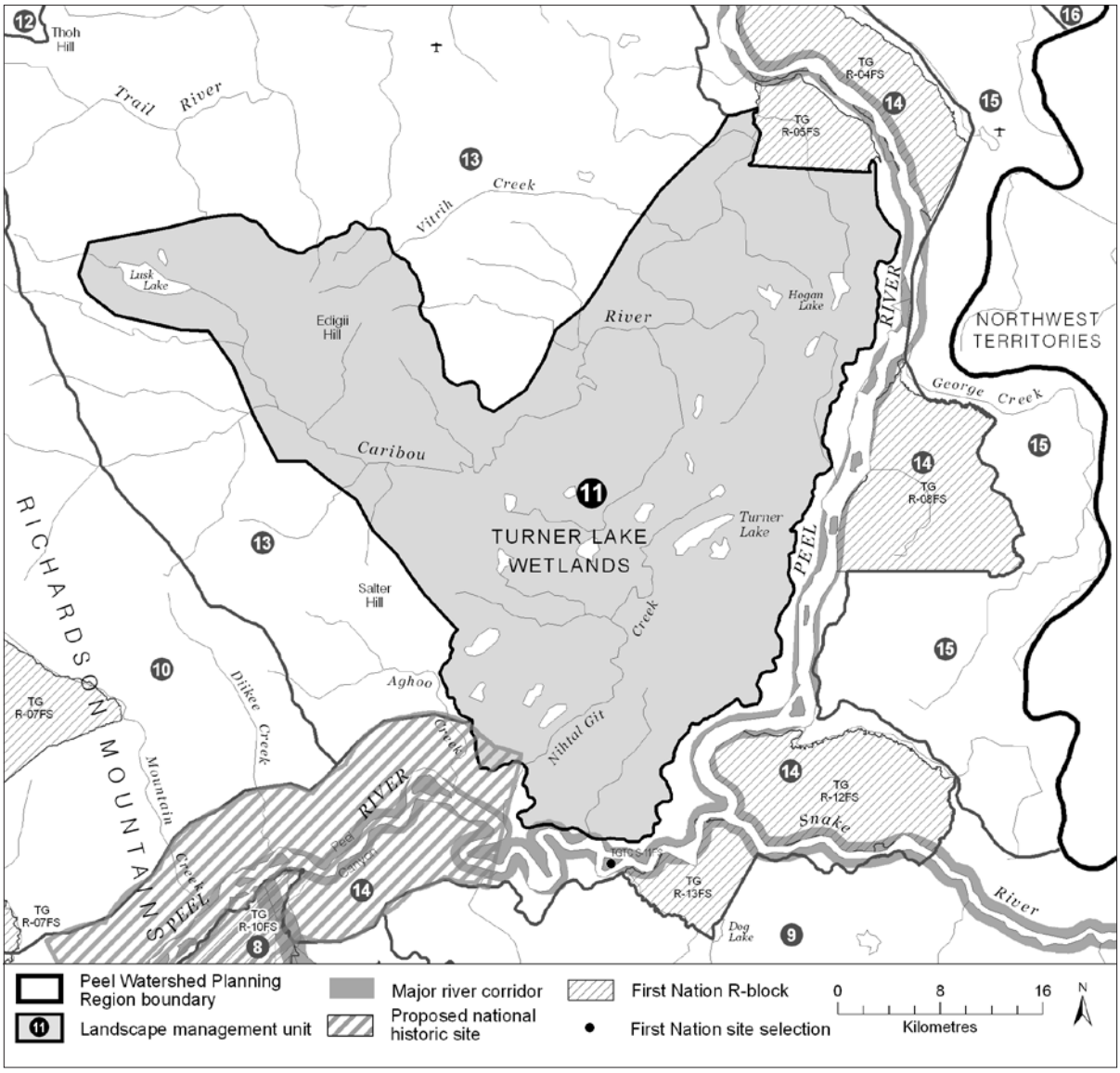
Biophysical Setting

Setting	Unglaciated, sparsely forested mountains lying north of Aberdeen Canyon, and separating Eagle Plains to the west from the Peel Plateau to the east.
Ecoregions	British Richardson Mountains
Bioclimate Zones	Alpine, Taiga Shrub and Taiga Wooded
Image	Rolling mountains interspersed with valleys carpeted with shrubs and scattered trees characterize much of LMU 10. (CWS photo)

Ecological Resources	
Significant Wildlife and Fish Habitats	
Caribou	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.
Moose	Generally poor late winter habitat, though ribbons of high value habitat follow creeks.
Marten	Generally poor winter habitat suitability, except for extensive high value winter habitat on lower slopes to the south of the unit.
Sheep	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.
Fish	
Grizzly Bear	Moderate to high habitat suitability, especially high in riparian zones.
Peregrine Falcon	
Birds (General)	Pockets of high value waterbird habitat and in riparian areas; moderate breeding species richness and high concentration of species of conservation concern.
Vegetation	High endemism/rarity index. Low – mid elev. shrub and conifer forest, subalpine shrub and alpine exposed rock.
Wetlands, Lakes and Riparian Areas	A few scattered wetlands. Forms the upper watersheds of Doll Creek, Trail, and Caribou Rivers.
Permafrost	Continuous permafrost is predicted.
Special Features	Several documented wildlife passes and possible pass.
Heritage, Social and Cultural Resources	
Heritage Resources	High concentration of VG and TG archaeological sites. Several TG culturally important places. Travel route from Caribou River to lower Peel River.
Palaeontological Resources	
Economic Development	
Transportation and Access	
Traditional Economy	TG seasonal land use and traditional harvesting and wildlife areas; TH fish harvest on Trail River.
Recreation and Tourism	
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	No registered concessions.
Oil and Gas Resources	No potential.
Mineral Resources	Approximately 260 quartz claims; low to moderate general mineral potential.
Special Management Considerations	

LMU 11: Turner Lake Wetlands and Caribou River	
Land Use Designation	Special Management Area
Land Status	Non-Settlement Land
Traditional Territories	Na-Cho Nyäk Dun, Tetłit Gwich'in Primary Use Area
Area	1,611 km^2 (2% of Region)





LMU 11: Turner Lake Wetlands and Caribou River

Objectives

- Water quality and flow in Lusk Lake, the Turner Lake wetlands and the Caribou River are not affected by human activities.
- Community cultural activities practiced without significant disturbance.
- The ecological and cultural significance of Edigii Hill (aka Caribou Mtn) remains undiminished.
- Wilderness character is maintained.

Rationale for Designation

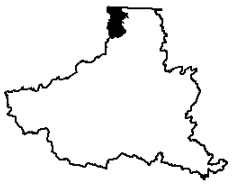
- Includes a Yukon Key Wetland complex that is a well situated stop over for migrating waterfowl.
- Highest concentration of lakes and wetland complexes in the Region.
- Highly valued for trapping and other cultural activities.
- Edigii Hill (or, Caribou Mountain) and Lusk Lake are culturally important places for the TG.
- Traditional Knowledge indicates that Edigii Hill has been used an alternate calving ground for the Porcupine Caribou Herd. It could be a significant feature during other stages.
- Several traditional travel routes traverse the unit.
- Both Edigii Hill and the Turner Lake wetlands were recommended for consideration for protection by the Peel River Watershed Advisory Committee.
- The steep escarpments that overlook the Caribou River are underlain with permafrost and therefore are especially susceptible to surface disturbance. This susceptibility is predicted to increase as a result of climate change. Resulting slope failures could result in hydrological changes catastrophic to the wetlands.
- Low mineral potential, and moderate oil and gas potential. Difficult access into the area makes resource development more challenging.

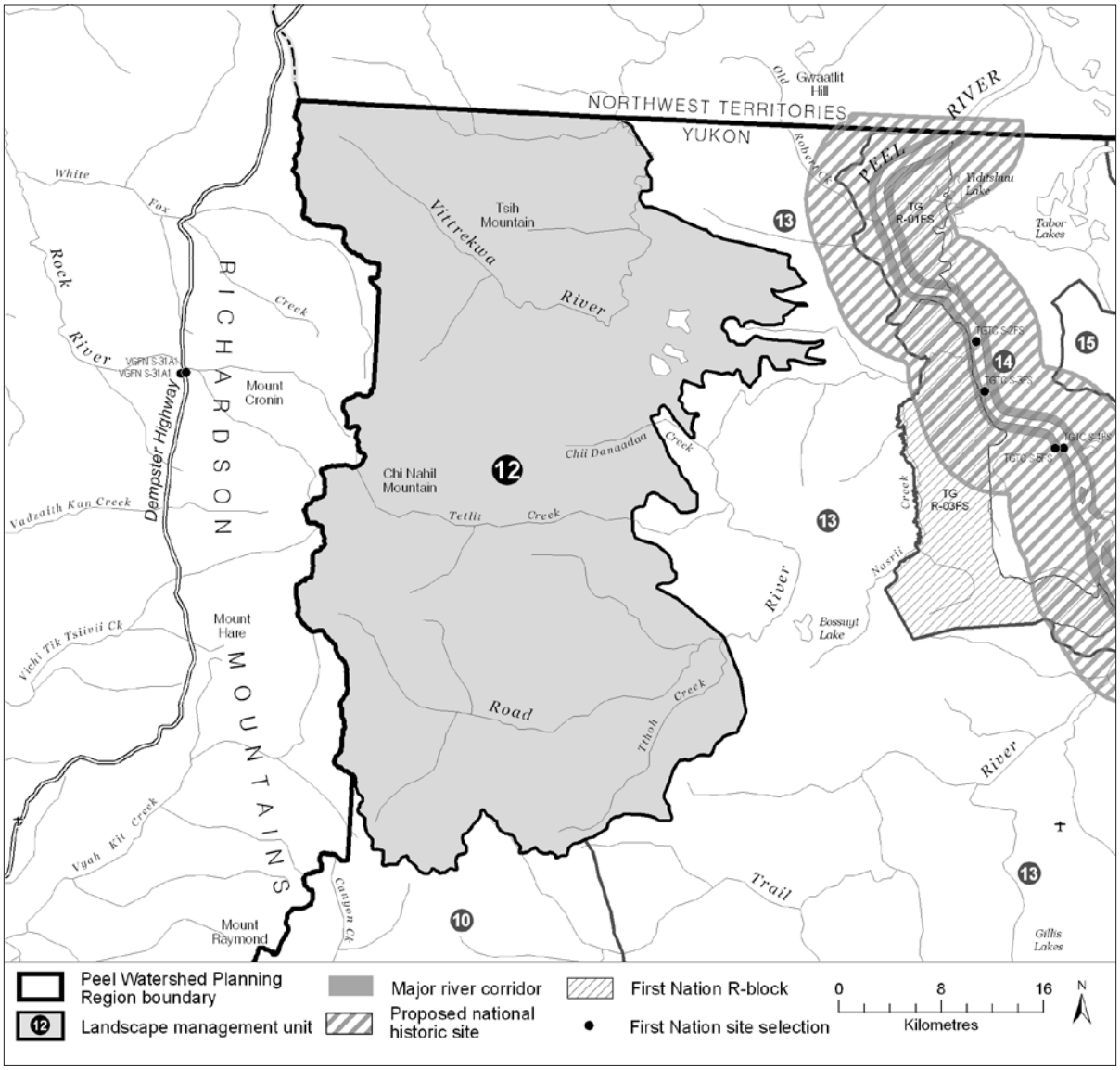
Biophysical Setting

Setting	Flat wetland complex, a large incised river fed by a large lake, and a broad flat hill rising out of the plateau	
Ecoregions	Peel River Plateau	
Bioclimate Zones	Taiga Wooded and Taiga Shrub	
Image	Scattered lakes, wetlands and open forests underlain with lichens and permafrost are throughout this unit. The incised Caribou River valley is in the background. (CWS photo)	

Ecological Resources	
Significant Wildlife and Fish Habitats	
Caribou	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.
Moose	Expansive moderate-low value late winter habitat.
Marten	Extensive and concentrated moderate to high winter habitat suitability. A culturally-significant trapping area.
Sheep	No sheep habitat.
Fish	Fish presence likely throughout; several known spawning locations.
Grizzly Bear	Low habitat suitability in wetlands, moderate to high towards Richardson foothills.
Peregrine Falcon	Significant peregrine falcon foraging and nesting habitat.
Birds (General)	High concentration of waterbird habitat; high breeding species richness and moderate species of conservation concern.
Vegetation	Low-mid elev. wet herb/shrub/conifer, lichen and dry coniferous forest.
Wetlands, Lakes and Riparian Areas	Highest concentration of lakes and wetland complexes in the PWPR; wetland key area (YG) and territorially significant. Narrow riparian strip along Caribou River
Permafrost	Extensive high water content permafrost expected. Wetlands “perched” above incised valleys and stable slopes rely on intact permafrost.
Special Features	Some mineral licks. Several possible wildlife passes.
Heritage, Social and Cultural Resources	
Heritage Resources	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).
Palaeontological Resources	The sedimentary rocks in this area have high potential to yield Mesozoic fossils.
Economic Development	
Transportation and Access	Extensive network of old winter roads and unclassified linear features; a conceptual access route has been identified in this unit from Road River to the Peel River.
Traditional Economy	TG traditional harvesting and wildlife areas. Turner Lake wetlands are known for good trapping.
Recreation and Tourism	No identified high recreation values.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	No registered concessions.
Oil and Gas Resources	Peel Plateau and Plain basin and is moderate potential; four abandoned wells. Oil and gas permit (#0018).
Mineral Resources	Generally low mineral potential.
Special Management Considerations	

LMU 12: Richardson Mountains and Vittrekwa River	
Land Use Designation	Special Management Area
Land Status	Non-Settlement Land
Traditional Territories	Na-Cho Nyäk Dun, Vuntut Gwitchin, Tetłit Gwich'in Primary and Secondary Use Area
Area	1,622 km^2 (2% of Region)





LMU 12: Richardson Mountains and Vittrekwa River

Objectives

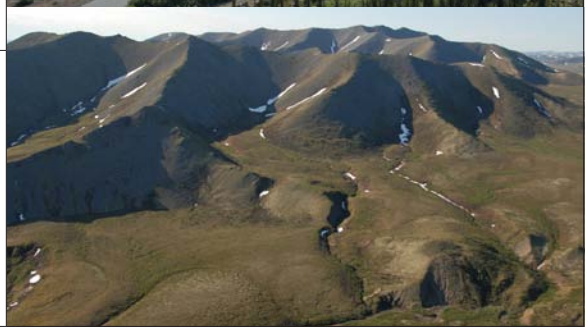
- Wilderness character is maintained.
- Archaeological resources are protected and integrity of First Nation cultural practices is maintained.
- Unfettered movement and habitat use of Porcupine caribou herd, Dall's sheep and other large mammals.
- Habitats are maintained for water birds and fish, along with the watershed and hydrological functions upon which they depend.
- Wilderness tourism activities linked the Dempster Highway that are consistent with the objectives above and don't require significant infrastructure.

Rationale for Designation

- Borders a Conservation Area in the Gwich'in Land Use Plan
- Porcupine caribou herd uses this area for habitat and as an important migration route.
- Extensive wilderness hiking opportunities within a short distance from the Dempster Highway.
- Includes a Yukon Key Wetland complex.
- Several traditional travel routes traverse the unit. Other culturally important places also exist.
- A small and isolated population of Dall's sheep that may be at risk of decline is found here.
- A regionally unique and culturally important Dolly Varden spawning runs up the Vittrekwa River to spawn.
- The steep escarpments that overlook the Vittrekwa and adjacent Road rivers are underlain with permafrost and therefore are especially susceptible to surface disturbance. This susceptibility is predicted to increase as a result of climate change. Resulting slope failures could result in hydrological changes catastrophic to the Vittrekwa River wetlands.
- Low to moderate mineral potential, with no current claims. Part of the Peel Plateau and Plain basin with lower oil and gas potential.

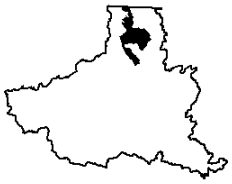
Biophysical Setting

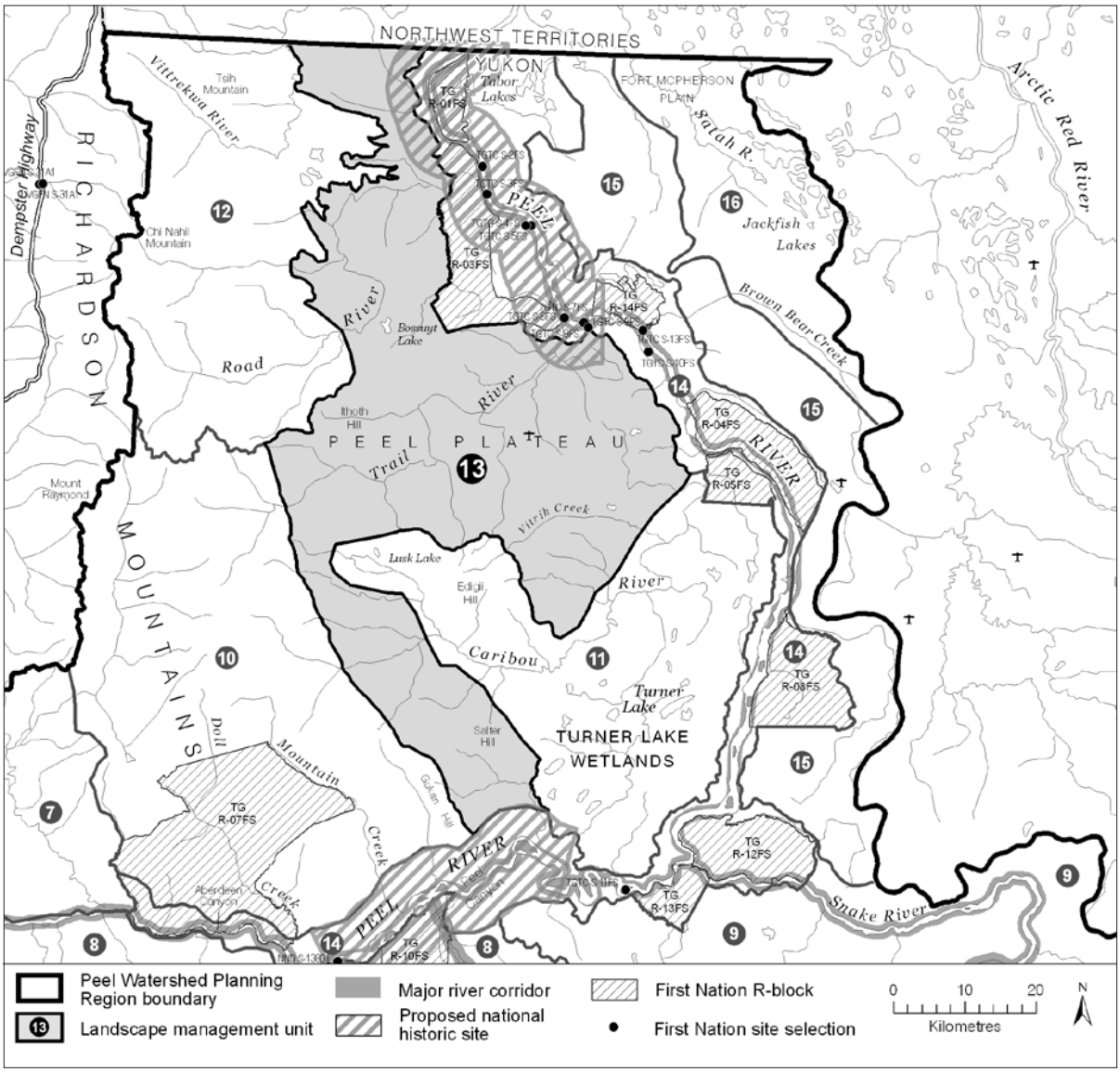
Setting	Unglaciated, sparsely forested mountains and foothills dividing Eagle Plains from the Peel Plateau giving way to Perched wetlands and an adjacent riparian strip on the NWT border west of the Peel River.
Ecoregions	British Richardson Mountains and Peel River Plateau
Bioclimate Zones	Alpine, Taiga Shrub and Taiga Wooded
Images	Deciduous forests, and steep escarpments are found along the upper Vittrekwa River in the eastern portion (top). Gentle mountains interspersed with valleys carpeted with alpine vegetation characterize the western portion (bottom). (CWS photos).



Ecological Resources	
Significant Wildlife and Fish Habitats	
Caribou	Extensive concentrated and general use areas for Porcupine herd for fall and winter seasons, despite generally low predicted habitat potential for the Porcupine herd. Exposed slopes are important foraging areas, especially in high snow years.
Moose	High habitat use and quality along creeks and around wetlands.
Marten	Concentrated moderate to high winter habitat suitability around wetlands and on lower slopes to the south of the unit.
Sheep	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.
Fish	Fish likely present on lower gradient streams; some winter open water areas, one known sea-run fish spawning site on Vittrekwa River.
Grizzly Bear	Moderate to high habitat suitability, especially high in riparian zones.
Peregrine Falcon	
Birds (General)	Pockets of high value waterbird habitat and in riparian areas; moderate breeding species richness and high concentration of species of conservation concern.
Vegetation	Low – mid elev. shrub and conifer forest, subalpine shrub and alpine exposed rock.
Wetlands, Lakes and Riparian Areas	Several large lakes and wetland complexes and hundreds of scattered wetlands; key wetland area (YG) around Vittrekwa River and Lakes. Forms the upper watersheds of Vittrekwa, and Road Rivers.
Permafrost	Extensive high water content permafrost expected. Wetlands perched above incised valleys and stable slopes rely on intact permafrost.
Special Features	One documented wildlife pass and one possible pass.
Heritage, Social and Cultural Resources	
Heritage Resources	High concentration of VG and TG archaeological sites. Several TG culturally important places. Travel route through Road River from Kit Creek; Route along unnamed creek from Dempster to Peel River.
Palaeontological Resources	
Economic Development	
Transportation and Access	One old winter roads; a conceptual access route has been identified in this unit from Dempster Hwy to Road River. Several seismic lines or trails.
Traditional Economy	TG seasonal land use and traditional harvesting and wildlife areas.
Recreation and Tourism	High value hiking in with access from Dempster Highway. Snowmobiling and wildlife viewing.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	No registered concessions.
Oil and Gas Resources	Peel Plateau and Plain basin with low potential in the flatter eastern portion of unit.
Mineral Resources	Generally low mineral potential.
Special Management Considerations	
1. Dempster Corridor management directions apply near the Dempster Highway. 2. Subsequent Dempster Highway land use plan may apply near the Dempster Highway.	

LMU 13: Peel Plateau West	
Land Use Designation	Integrated Management Area, Zone IV
Land Status	Non-Settlement Land
Traditional Territories	Na-Cho Nyäk Dun, Vuntut Gwitchin, Tetłit Gwich'in Primary Use Area
Area	2,707 km² (4% of Region)





LMU 13: Peel Plateau West

Objectives

- Ecological integrity is maintained.
- Some culturally and ecologically-aware resource exploration and extraction that supports the local economies.
- All permitted land use activity does not significantly impact movement and habitats of caribou.
- Meaningful consultation is done with the TG and NND regarding any new significant land-use activities that might cause surface disturbance.

Rationale for Designation

- Moderate oil and gas development potential.
- Reasonably close to the Dempster Highway.
- No big-game outfitting activities and no tourism/recreation activities.
- Little use by caribou in recent years.
- Development will likely occur on relatively flat terrain, making the recommended cumulative effects monitoring more effective in limiting impacts on habitat in those area, thus meriting a Zone IV designation.

Biophysical Setting

Setting	Sparsely treed plateau and plain with deeply incised rivers
Ecoregions	Peel River Plateau
Bioclimate Zones	Taiga Wooded and Taiga Shrub
Image	Plateau with forests, lakes and wetlands are characteristic of LMU 5. (CWS photo)

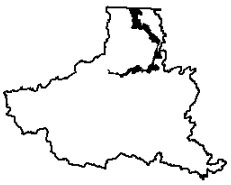
Ecological Resources

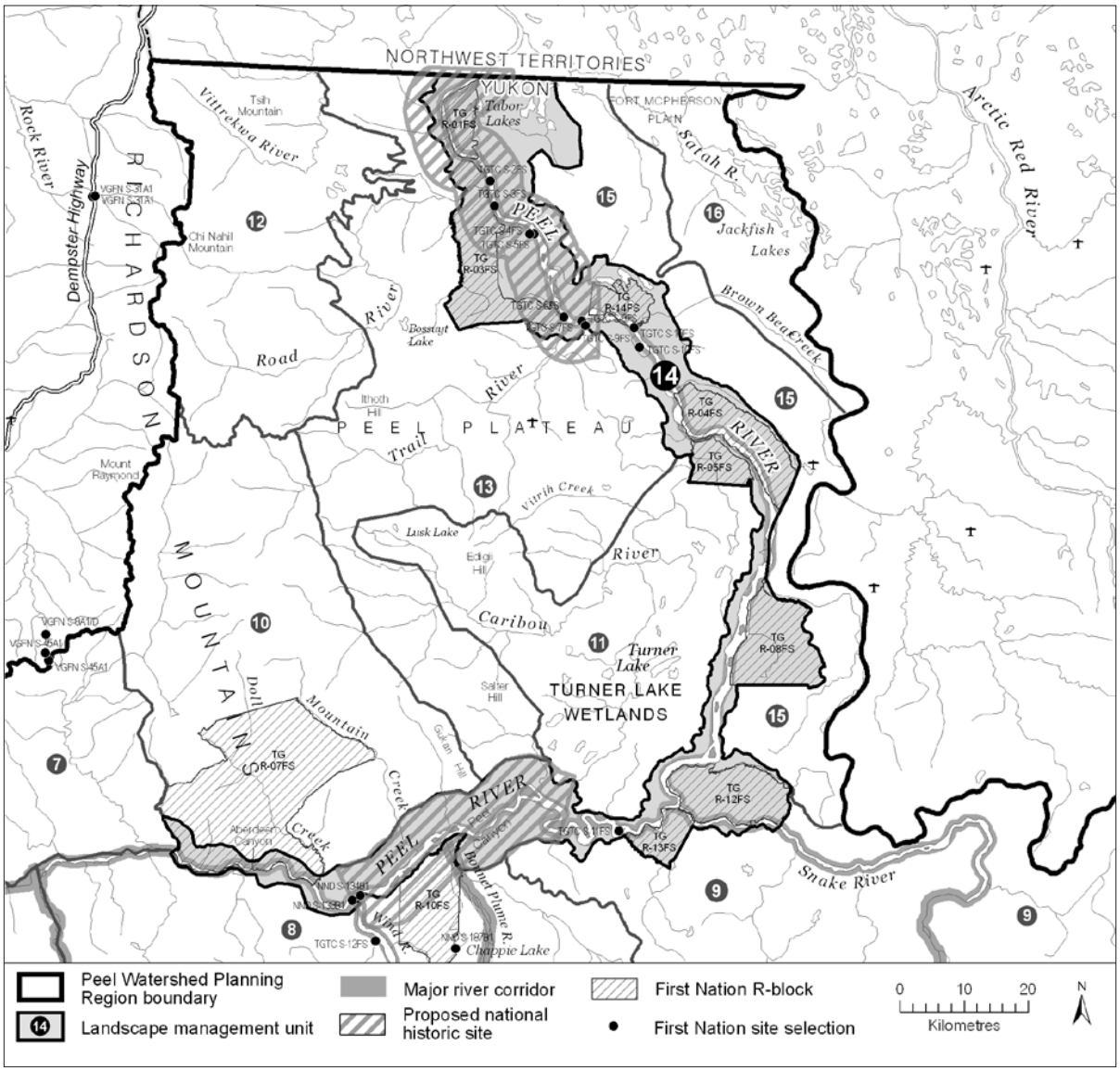
Significant Wildlife and Fish Habitats

Caribou	Variable habitat suitability for the Porcupine herd. Evidence of more frequent and intense use in the past.
Moose	Variable quality late winter moose habitat – generally moderate, with ribbons of high. High habitat use along incised tributaries.
Marten	Extensive and concentrated moderate to high winter habitat suitability.
Sheep	No sheep habitat.
Fish	Fish presence likely throughout; Trail River upstream of key sea-run fish spawning site; other known fish spawning sites; and known winter overflow site.
Grizzly Bear	Low habitat suitability increasing to moderate towards the Richardson foothills and riparian areas.
Peregrine Falcon	Very high peregrine foraging and nesting habitat adjacent to the Trail and Road rivers.
Birds (General)	Scattered high quality waterbird habitat; varied breeding spp. richness and species of conservation concern.
Vegetation	Low endemism/rarity. Low-mid elev. dry/wet shrub and conifer forest; riparian forests and shrubs.
Wetlands, Lakes and Riparian Areas	Several large lakes and wetland complexes and hundreds of scattered wetlands. Riparian along Road and Trail Rivers.

Permafrost	Extensive high water content permafrost expected. Wetlands “perched” above incised valleys and stable slopes rely on intact permafrost.
Special Features	Wildlife passes. Perched wetlands.
Heritage, Social and Cultural Resources	
Heritage Resources	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.
Palaeontological Resources	Sedimentary rocks in this area have high potential to yield fossil discoveries.
Economic Development	
Transportation and Access	Highest concentration of old winter roads and linear features (e.g., seismic lines); a conceptual access route has been identified in this unit connecting Road River to the Bonnet Plume River watershed; one airstrip. Somewhat close to the Dempster Highway.
Traditional Economy	TG traditional harvesting and wildlife areas and seasonal land use; TG fish harvest on Trail River.
Recreation and Tourism	No identified current recreation values, though high potential along Road River and Caribou headwaters.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	No registered concessions.
Oil and Gas Resources	Peel Plateau and Plain basin; low (southwest) to moderate (northeast) potential on either side of the Trevor fault; seven abandoned wells. Oil and gas permit (#0018).
Mineral Resources	Approximately 160 quartz claims; generally low mineral potential. Three iron-mica leases.
Special Management Considerations	
1. Surface disturbances on escarpments risk triggering a “retrogressive thaw” that would result in stream sedimentation and possibly the draining of adjacent wetlands. Such a slump would be difficult to remediate. 2. If required, any new surface access to this LMU, either winter or all-season, should occur from the north, through the NWT, linking to the Dempster Highway.	

LMU 14: Peel River	
Land Use Designation	Special Management Area
Land Status	Non-Settlement Land, NND Settlement Land (S-134B), TG Yukon Land (R-01FS, R-03FS, R-04FS, R-05FS, R-08FS, R-12FS, R-13FS, R-14FS, S-2FS, S-3FS, S-4FS, S-6FS, S-7FS, S-8FS, S-9FS, S-10FS, S-11FS)
Traditional Territories	Na-Cho Nyäk Dun, Tetłit Gwich'in Primary Use Area
Area	2,334 km^2 (3% of Region)





LMU 14: Peel River

Objectives

- Wilderness character is maintained.
- Community cultural activities practiced without significant disturbance.
- Regionally significant spawning and fish overwintering habitat maintained.
- Wilderness and cultural tourism activities linked to large tributaries that are consistent with the objectives above.

Rationale for Designation

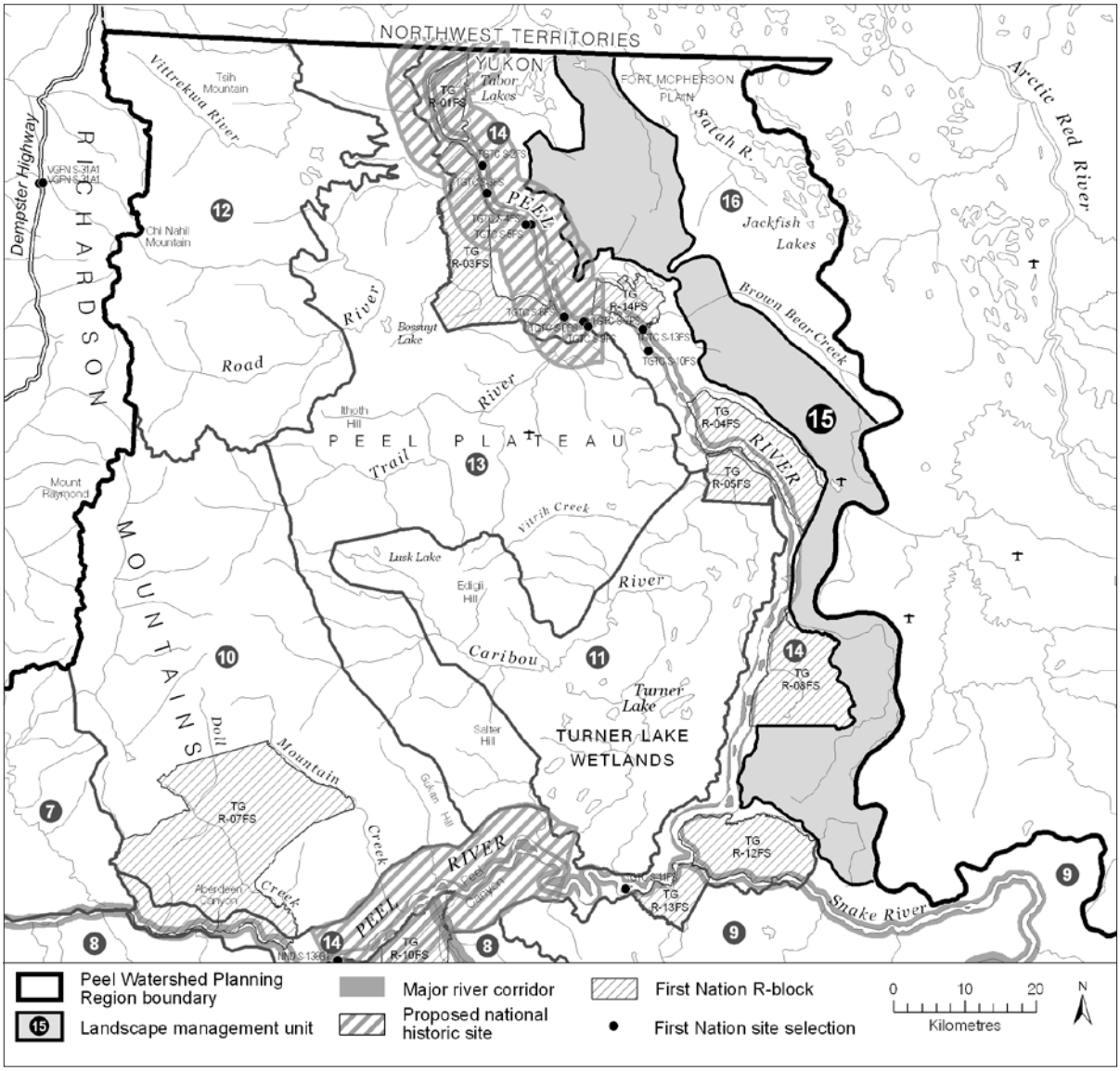
- The Gwich'in Social and Cultural Institute nominated two large portions of this unit (Tshuu tr'adaojìich'uu and Teetl'it njik) to be National Historic Sites, in recognition of their great cultural importance to the Tetłit Gwich'in (Heart of the Tetłit Gwich'in Cultural Landscape)
- Large segments of this unit are Tetłit Gwich'in Yukon Lands (fee simple land held by the Tetłit Gwich'in) that were originally selected because of their cultural importance and proximity to significant wildlife and fish resources.
- Numerous culturally important places for the Tetłit Gwich'in.
- Extensively used for subsistence hunting and fishing.
- Wilderness and cultural tourism corridor.
- The Peel Watershed Advisory Committee suggested that Aberdeen Canyon and the Peel Canyon be considered for protection.
- Important spawning habitat for culturally important species.
- Extensive foraging and nesting habitat for Peregrine Falcons.
- Medium mineral potential, and moderate oil and gas potential.

Biophysical Setting

Setting	Broad alluvial flats of the Peel River, adjacent banks and plateau. Two significant canyons (Aberdeen and Peel), several confluences with large tributaries.	
Ecoregions	Primarily Peel River Plateau	
Bioclimate Zones	Taiga Wooded	
Images	The dramatic Aberdeen Canyon (left) (DFO). Riparian forests and wetlands and often steep escarpments line the Peel River (right) (CWS photo).	

Ecological Resources	
Significant Wildlife and Fish Habitats	
Caribou	Variable habitat suitability for the Porcupine herd, and moderate to high habitat suitability for the Boreal herd. At the periphery of the ranges of the Porcupine, Boreal and Bonnet Plume populations.
Moose	Extensive moderate valued late winter habitat with pockets of high value habitat along the Peel River. Traditional place to hunt moose.
Marten	Generally moderate value winter habitat.
Sheep	No sheep habitat.
Fish	Fish present throughout, several known spawning locations, sea-run fish spawning throughout; a few winter open water sites; winter surface groundwater throughout.
Grizzly Bear	Variable habitat suitability, highest at river confluences and riparian areas.
Peregrine Falcon	Very high peregrine foraging and nesting habitat along Peel River.
Birds (General)	Moderate waterbird habitat; low to mod breeding spp. richness and species of conservation concern.
Vegetation	Low-mid elev. dry/wet herb and shrub and coniferous forest.
Wetlands, Lakes and Riparian Areas	Wetland complexes along Peel River and confluences. Tabor Lakes are a Yukon Key Wetlands.
Permafrost	Extensive high water content permafrost expected. Wetlands “perched” above escarpments; stable slopes rely on intact permafrost.
Special Features	Peel Canyon; Aberdeen Canyon, Ezhinakàn (Burning Rock).
Heritage, Social and Cultural Resources	
Heritage Resources	This unit has extensive cultural value to the Tetł’it Gwich’in. High concentration of VG and TG culturally important places; several cabins identified. Several travel routes. Highest concentration of VG and TG archaeological sites.
Palaeontological Resources	Sedimentary rocks in this area have known invertebrate fossil localities and have high potential to yield further discoveries.
Economic Development	
Transportation and Access	The Peel River itself is a well used route, for both summer travel (river boats, historically barges) and winter travel. Many old winter roads; a conceptual access route has been identified in this unit downstream of the Bonnet Plume River confluence with the Peel River.
Traditional Economy	Many fishing locations, big game/fur-bearer locations; TG traditional harvesting and wildlife areas and seasonal land use.
Recreation and Tourism	High value wilderness paddling.
Forestry	Potential localized demand for fuel wood, logs for cabins.
Big Game Outfitters and Trapping	No registered concessions.
Oil and Gas Resources	Peel Plateau and Plain basin; moderate below above the Snake River, low above; three abandoned wells.
Mineral Resources	Medium mineral potential; some coal potential. Approximately 20 quartz claims.
Special Management Considerations	

LMU 15: Peel Plateau East	
Land Use Designation	Wilderness Area-Boreal Caribou
Land Status	Non-Settlement Land
Traditional Territories	Na-Cho Nyäk Dun, Tetłit Gwich'in Primary Use Area
Area	1,297 km^2 (2% of Region)



LMU 15: Peel Plateau East

Objectives

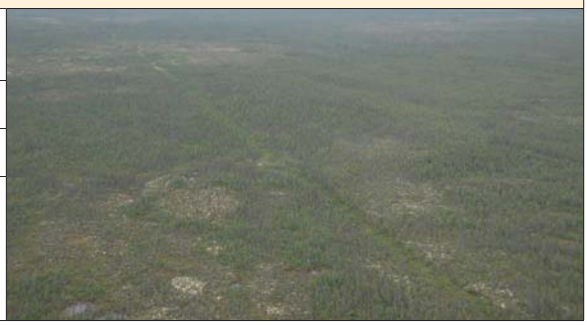
- Ecological integrity is maintained.
- Helps meet requirements under the federal SARA, with respect to protecting critical habitat of the Boreal caribou herd.
- Permitted land use activities do not significantly impact movement and habitats of caribou.
- Meaningful consultation is done with the TG and NND regarding any new significant land-use activities that might cause surface disturbance.

Rationale for Designation

- Unique overlap of key habitats including Yukon's core habitat of Boreal caribou herd.
- Yukon's obligations under SARA with respect to Boreal caribou.
- No big-game outfitting activities and no tourism/recreation activities.

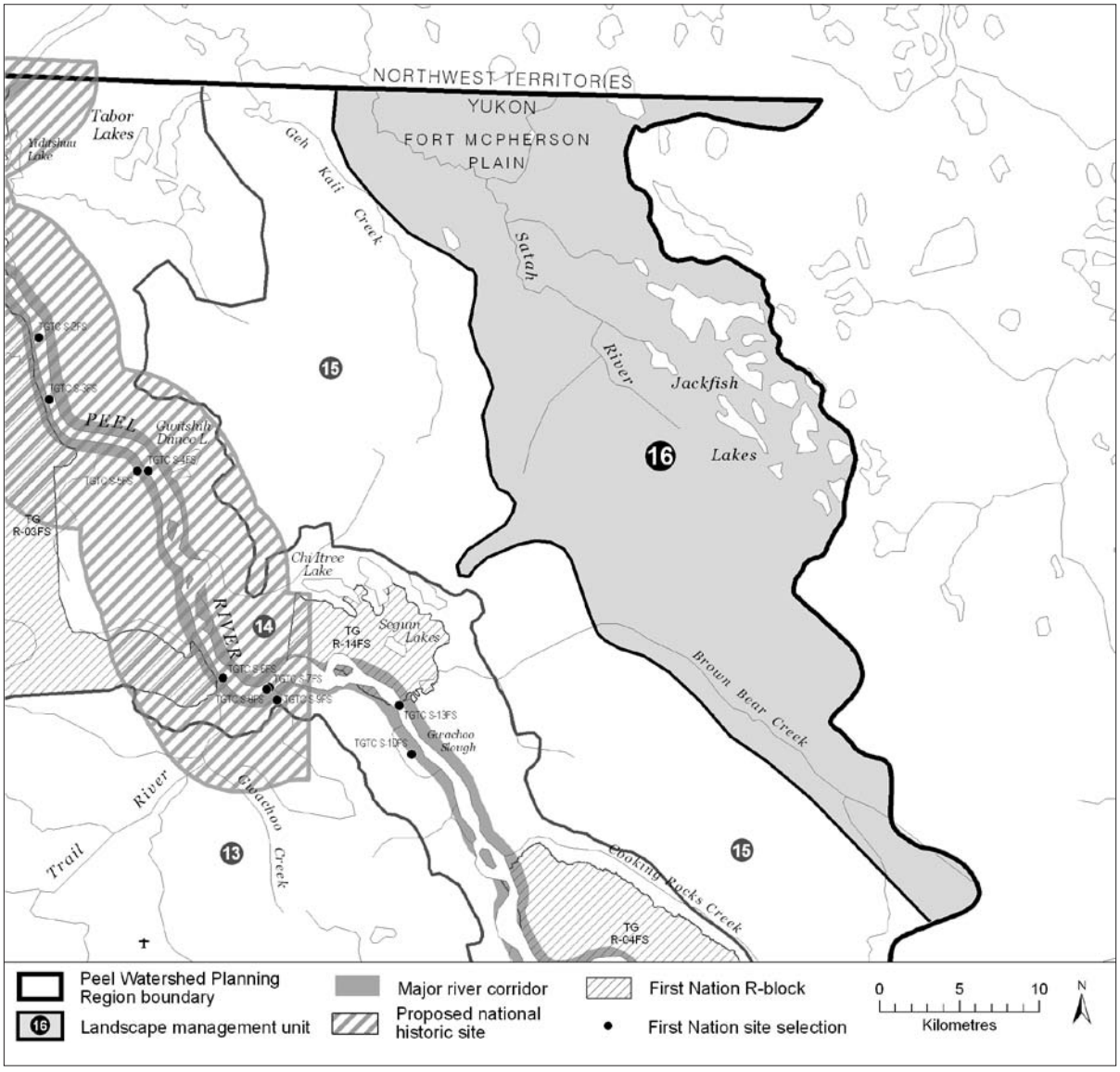
Biophysical Setting

Setting	Sparsely treed and plain with wetlands.
Ecoregions	Fort McPherson Plain
Bioclimate Zones	Taiga Wooded and Taiga Shrub
Image	Plain with sparse forests, wetlands and historic seismic lines are characteristic of LMU 15. (CWS photo)



Ecological Resources	
Significant Wildlife and Fish Habitats	
Caribou	Moderate and high habitat suitability for the Boreal caribou herd.
Moose	Variable quality late winter moose habitat – generally moderate, with ribbons of high. High habitat use along incised tributaries.
Marten	Extensive and concentrated moderate to high winter habitat suitability.
Sheep	No sheep habitat.
Fish	Fish presence likely throughout.
Grizzly Bear	Low habitat suitability increasing to moderate along riparian areas.
Peregrine Falcon	
Birds (General)	Extensive high quality waterbird habitat; moderate breeding spp. richness and species of conservation concern.
Vegetation	Low endemism/rarity. Low-mid elev. dry/wet shrub and conifer forest; riparian forests and shrubs.
Wetlands, Lakes and Riparian Areas	Extensive wetlands, including part of a Yukon Key Wetland.
Permafrost	Extensive high water content permafrost expected.
Special Features	
Heritage, Social and Cultural Resources	
Heritage Resources	TG historic travel route and use area.
Palaeontological Resources	
Economic Development	
Transportation and Access	High concentration of old winter roads and linear features (e.g., seismic lines). Somewhat close to the Dempster Highway.
Traditional Economy	TG traditional harvesting and wildlife areas and seasonal land use.
Recreation and Tourism	No identified current recreation values.
Forestry	Little potential for forestry.
Big Game Outfitters and Trapping	No registered concessions.
Oil and Gas Resources	Peel Plateau and Plain basin with moderate (northeast) potential; one abandoned well.
Mineral Resources	Unknown mineral potential.
Special Management Considerations	

LMU 16: Jackfish Creek Lakes	
Land Use Designation	Wilderness Area-Boreal Caribou
Land Status	Non-Settlement Land
Traditional Territories	Na-Cho Nyäk Dun, Tetłit Gwich'in Primary Use Area
Area	772 km^2 (1% of Region)



LMU 16: Jackfish Creek Lakes

Objectives

- Ecological integrity is maintained.
- To help meet requirements under SARA with respect to protecting critical habitat of the Boreal caribou.
- All permitted land use activity does not significantly impact movement and habitats of caribou.
- Meaningful consultation is done with the NND and TG regarding any new significant land-use activities that might cause surface disturbance.

Rationale for Designation

- Unique overlap of key habitats including Yukon's core habitat of Boreal caribou and a Yukon Key Wetland.
- Yukon's obligations under SARA with respect to Boreal caribou.
- NWT's Boreal Caribou Action Plan stated that habitat protection of the Boreal caribou is a key action.
- Underlying permafrost makes local hydrology sensitive to disturbance and/or climate change.
- Generally low/nil oil and gas, and unknown mineral potential.
- No big-game outfitting activities and no tourism/recreation activities beyond.
- High conservation values merit limited levels of development.

Biophysical Setting

Setting	Wetland complex and upstream tributaries draining into the Satah River
Ecoregions	Fort McPherson Plain
Bioclimate Zones	Taiga Wooded
Image	Numerous lakes make up the Jackfish Lake complex. These lakes are surrounded by wetlands and lichen-rich open forests. (CWS photo)

Ecological Resources	
Significant Wildlife and Fish Habitats	
Caribou	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.
Moose	Expansive moderate value late winter habitat.
Marten	Extensive and concentrated moderate winter habitat suitability.
Sheep	No sheep habitat.
Fish	Fish presence likely throughout.
Grizzly Bear	Low habitat suitability, moderate along Satah River.
Peregrine Falcon	
Birds (General)	Highest concentration of waterbird habitat; moderate breeding species richness and of conservation concern (pockets of high areas).
Vegetation	Low-mid elev. Wet herb/shrub conifer forest, lichen and open water.
Wetlands, Lakes and Riparian Areas	Many large lakes and high concentration of small to large wetlands; key wetland area (YG).
Permafrost	Extensive high water content permafrost expected.
Special Features	
Heritage, Social and Cultural Resources	
Heritage Resources	Travel along the Satah River.
Palaeontological Resources	
Economic Development	
Transportation and Access	Extensive network of old winter roads and unclassified linear features.
Traditional Economy	TG seasonal land use.
Recreation and Tourism	No identified high recreation values.
Forestry	Potential for very limited forestry.
Big Game Outfitters and Trapping	No registered concessions.
Oil and Gas Resources	On periphery of portion Peel Plateau and Plain basin with moderate potential – otherwise, low to no potential; two abandoned wells.
Mineral Resources	Unknown mineral potential.
Special Management Considerations	
1. The Boreal Caribou Recovery Plan is relevant to management of land-use activities in this unit.	

6. Plan Implementation and Revision

The implementation of a land use plan—putting the plan into effect—is a critical stage in the planning process. It is when the guiding principles, goals, and recommendations of the Plan are turned into actions. Periodically monitoring these actions provides an opportunity to:

- determine the effectiveness of the Plan,
- decide if goals are being met, and
- find out if the Plan has been used in making decisions about land and resources.

If land use circumstances change in the region, the Plan may also need changing.

6.1. Plan Implementation

The Parties to the Plan will make best efforts to jointly implement the Plan in its entirety. However, putting the Plan into effect is up to the Parties. The Plan is strictly advisory.

This Plan provides a framework and tools to help the Parties make well-informed management decisions about land and resources. The Plan also guides land and resource users when they are developing project proposals and carrying out activities in the Peel region.

After the Parties have approved a Peel Watershed Regional Land Use Plan, they will jointly develop a strategy for putting the Plan into effect (i.e. implementation plan) on both Settlement Land and Non-Settlement Land.

6.1.1. Implementation Responsibilities

The First Nation of Na-Cho Nyäk Dun, the Vuntut Gwitchin First Nation, the Tr'ondëk Hwëch'in, the Gwich'in Tribal Council, and the Government of Yukon are the Parties to the Peel Watershed Regional Land Use Plan. They have the main responsibility for its implementation. Other groups may also be responsible for putting the Plan into effect, including:

- Government of Canada;
- Yukon Environmental and Socio-economic Assessment Board (YESAB);
- Yukon Land Use Planning Council (YLUPC); and,
- Other UFA boards and committees.

Until the Parties have decided how to jointly implement the Plan, the roles and responsibilities for these other groups are undetermined.

6.1.2. Implementing Landscape Management Units and their Designations

Putting Landscape Management Units (LMU) and their land use categories into effect depends on their designation: Conservation Area, or Integrated Management Area (IMA).

6.1.2.1. Conservation Area

The Conservation Area has three land categories that require different implementation approaches: Special Management Area (SMA), Wilderness Area (WA) and Wilderness Area-Boreal Caribou (WA-BC).

Special Management Area

Chapter 10 of the Final Agreements describes how SMAs may be created and managed. The Parties must decide what legal designation will be given to each SMA, ensuring that it is consistent with this Plan (Final Agreements 10.6.1.1). For the purpose of Final Agreements 10.5, joint implementation means that the Government of Yukon 'otherwise agrees' so that all Parties can share management authority for SMA on Non-Settlement Land.

When the Plan is put into effect, adjoining LMUs that are categorized in this Plan as SMA may be combined into one larger SMA. However, the Parties may also decide to assign different categories to adjoining SMAs to achieve different conservation or economic objectives.

In the Peel, any SMA planning exercise should:

- Enable the tracking of all backcountry recreation and tourism visits;
- Provide for visitor rates to be regulated so that recreational use is kept to acceptable levels (using wilderness tourism industry standards);
- Promote practices for wilderness campers and trekkers that are low-impact and/or culturally appropriate (e.g., "Into the Yukon Wilderness" [Environment Yukon, 2009]);
- Promote integration with other First Nation community programs (e.g., culture camps);
- Promote development of the local tourism industry as set out in the Silver Trail Regional Tourism Plan; and,
- Consider services and employment in the regional gateway communities of Mayo, Keno, Dawson, Tsiigehtchic and Fort McPherson.

Wilderness Area

An Order-in-Council withdrawing WAs from new industrial land uses may be all that is needed to put the WA category of this Plan into effect. No management plans for these areas are necessary. The "Gwich'in Conservation Zones" established through the Gwich'in Land Use Plan in NWT are regulated in a similar manner.

Wilderness Area-Boreal Caribou

The WA-BC category requires an Order-in-Council withdrawing the area from new industrial land uses, a legal designation and a management plan, to ensure that Yukon is meeting its obligations to the federal SARA with respect to the protection of Boreal caribou critical habitat.

6.1.2.2. Integrated Management Area

The tracking of cumulative effects indicators, including existing disturbances, is necessary for managing land use in the IMA. The Parties must discuss and determine the process for tracking and for keeping surface disturbance below cautionary or critical indicator levels. This process will recognize that it is up to the Parties to make final decisions, informed by:

- indicator levels;
- other management plan recommendations; and,
- advice from third parties such as YESAB.

6.1.3. Plan Conformity

For this Plan to be effective, the conformity or agreement of new land uses with the Plan must be assessed. This assessment should be linked to the Development Assessment Process (i.e., YESAA) as generally described in 12.17 of the Final Agreements.

However, the Commission itself does not have to perform the conformity checks at the request of YESAB (12.17.1). If the Commission is decommissioned following this planning exercise, the YLUPC secretariat can take on the task of checking conformity (11.3.4). Plan conformity checks in the North Yukon Planning Region have been satisfactorily completed in this way.

Policy Recommendation #28	A conformity evaluation process should be developed soon after Plan approval that involves a relevant third-party board or committee (such as the YLUPC).

6.2. Changing the Plan

This Plan is designed to be flexible, and is intended to be a living document. It is open to periodic change and revision as agreed to by the Parties. YLUPC General Terms of Reference both provide for these revisions.

Periodic changes to the Plan can include new research that contributes to improved decision-making. A process for reviewing and changing the Plan supports the adaptive management principle.

The Plan may need changes when:

- New land management concepts emerge;
- New land and resource information becomes available;
- Technology, or knowledge about land use effects, develops;
- The management values that the Plan is based upon change; or,
- Demand for land and resources in the region changes.

There are three ways to make changes to the Plan:

- Plan Variance—when the Plan needs minor changes;
- Plan Amendment—when the Plan needs alterations to its management strategies; and,
- Plan Review—when the entire Plan is re-evaluated, usually when it needs major changes and revisions.

6.2.1. Plan Variance and Amendment

Not every land use planning need can be foreseen. From time to time, the Plan may need small changes (amendments) or very small changes (variances). The Parties will have to develop a process for considering these smaller changes. The process should provide for input from proponent(s), the public, and all Parties. The re-designation of lands currently designated as WA or WA -BC cannot be considered a plan variance, but would be considered a Plan amendment, which would require full consideration by the Parties, following a jointly conducted public review.

Policy Recommendation #29	A process for assessing Plan Variances and Amendments should be developed soon after plan approval that provides for input from the proponent(s), the public, and all Parties.

6.2.2. Plan Review

Significant changes to any of the Plan's concepts require a Plan Review conducted jointly by the Parties. These concepts may include LMUs, the Land Use Designation System, or General Management Direction. A Plan Review must also take place in order to alter the extent or designation of any WA.
Plan Reviews will take place on an agreed-upon schedule, or whenever the Parties agree that a review is needed. However, management plans developed for the SMA designated by this Plan are to be reviewed at least every 10 years (Final Agreements 10.5.4). It may therefore make sense for the Peel Plan Review to coincide with the SMA planning cycle.

The Parties will develop the methods and timelines for Plan Reviews as part of their detailed implementation strategy. However, the Commission should be reconvened to play a central role in any Plan Review.

The status of Plan recommendations should be evaluated in future Plan Reviews. Other research or management items that were considered for this Plan, but deferred for future consideration, should also be re-evaluated during a Plan Review. Table 6.1 lists suggested items for future Plan Reviews.

Policy Recommendation #30	A Plan review process and timeline should be jointly developed by the Parties, soon after Plan approval.

Table 6.1: Suggested items for consideration in future Plan Reviews.

Task	Actions
1. Evaluate success of Plan in achieving goals.	» Determine if recommendations from Plan were successfully put into action. » Determine if goals are still relevant. » Consider if the goals of Plan were met and/or if they are still achievable. » If required, revise Plan content.
2. Evaluate interim protected area status of both classes of WAs.	» Review if changes are needed to interim land withdrawal status in all or parts of WAs. » Possible changes include choice of either SMA or IMA land use categories.
3. Develop and put into effect additional indicators.	» Consider including habitat targets for focal species in specific LMUs. » Consider indicators of aquatic habitat integrity and water quality (e.g., stream crossing index, CCME water quality index, etc.) to complement current terrestrial indicators. » Consider inclusion of regional sustainability indicators (see Table 6.2 for suggested list). » Consider social indicators of wilderness integrity (e.g., total human presence in an LMU, visible site impacts)
4. Consider refining LMU boundaries.	» Consider refining LMU boundaries to better match more detailed base data (1:50,000 scale CanVec).
5. Consider refining boundaries and zoning system for Major River corridors.	» Consider refining boundaries of Major River corridors to better reflect topography and river valley features (1:50,000 scale CanVec). » Consider zoning system for the Major River corridors that is complementary to the existing land designation system proposed in the Plan.
6. Consider zoning system for Dempster Highway corridor.	» Re-evaluate zoning of LMUs next to the Dempster Highway in light of the Dempster Highway sub-regional plan.
7. Refine application of cumulative effects indicators and indicator levels.	» Consider weighting the effects of linear disturbance in different ways in different types of habitat (e.g., floodplains versus upland habitats). » Incorporate new information on re-vegetation rates and standards for surface disturbances, if needed. » Incorporate current information on social carrying capacity and community well-being.

Table 6.2: Potential regional indicators for sustainable development.

Indicator Type	Indicator	Current Indicator Status	Description
Socio-Economic	Availability of Current Use Areas	From Resource departments of peripheral First Nations	» 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 the Plan documented current use areas.
	Regional Gross Domestic Product (RGDP)	From Yukon Economic Development	» Provides measure of regional economic activity and production.
	Regional Production by Sector	From Yukon Economic Development	» Provides a measure for comparing the contribution of each sector to the greater regional economy.
	Human use and activity level (number person days per LMU)	Not presently considered	» Provides measure of human use and activity as an indicator of potential stress on wilderness characteristics.
Ecological	Hart River caribou herd population status	Estimated at 2,200 animals (2006)	» Much of the habitat of the Hart River caribou herd is in portions of the region that are relatively easy to reach, including IMAs. As a herd of the Northern Mountain population, it is listed nationally as of "special concern."
	Bonnet Plume caribou herd population status	Estimated at 5,000 animals (1984)	» Almost the entire range of the Bonnet Plume caribou herd is within the Conservation Area. Trends in this Northern Mountain population could serve as a benchmark.
	Porcupine caribou herd winter range use	Core area mapping (Ryder *et al.*, 2006)	» Change in the use of winter range by the Porcupine caribou herd should be tracked over time. Possible links to changing land use patterns should be determined.
	Boreal caribou herd NT1 population status	Unknown population estimate, but considered stable (Environment and Climate Change Canada 2015)	» Almost the entire Yukon portion of the Boreal caribou herd NT1 population range lies within the planning region – the majority within Conservation Areas.
	Regional habitat integrity	Examined during periodic Regional Assessments	» Regional assessment of land habitat conditions, including identifying areas of concern. Surface disturbance and linear density indicators provide measure of habitat integrity.

Table 6.2 (con't): Potential regional indicators for sustainable development.

Indicator Type	Indicator	Current Indicator Status	Description
Ecological	Extent of wilderness	Examined during periodic Regional Assessments	» A measurable definition of wilderness should be developed. For example, surface disturbance and linear disturbance, or core area, could be used as indicators of wilderness extent.
	LMU habitat integrity	Examined during periodic Regional Assessments	» Assessment of land habitat conditions for each LMU. Surface disturbance and linear density indicators provide measure of habitat integrity.
	Regional aquatic habitat integrity	Examined during periodic Regional Assessments	» Regional assessment of water habitat conditions, including identifying areas of concern. Stream crossing index and water quality suggested as future indicators.
	LMU (or watershed) aquatic habitat integrity	Examined during periodic Regional Assessments	» Regional assessment of water habitat conditions for each LMU or watershed. Stream crossing index and water quality suggested as future indicators.

7. References

Alcan Railink Inc. 2007. Rails to Resources to Ports. 12 pp.

Alcan Railink Inc and Prolog Canada Inc. 2014. Haines Rail Access Report. 84 pp. Canada *Species at Risk Act*, 2002, c.29

Council of Ministers Responsible for Transportation and Highway Safety. 2005. National Highway System Review Task Force Report (v. September 2005). Council of Ministers Responsible for Transportation and Highway Safety. Unpublished document. 52 pp.

Dehcho Land Use Planning Committee. 2006. NDÉH TS'EDÎÎCHÁ: Dehcho Ndéh T'áh Ats'et'î K'eh Eghálats'ênda / RESPECT FOR THE LAND: The Dehcho Land Use Plan. Final Draft Plan. 96 pp.

Department of Indian Affairs and Northern Development. 1998. Tr'ondëk Hwëch'in Final Agreement. Department of Indian Affairs and Northern Development. Ottawa, ON, Canada. 368 pp.

Department of Indian Affairs and Northern Development. 1993. First Nation of Nacho Nyäk Dun Final Agreement. Department of Indian Affairs and Northern Development. Ottawa, ON, Canada. 409 pp.

Department of Indian Affairs and Northern Development. 1993. Vuntut Gwitchin First Nation Final Agreement. Department of Indian Affairs and Northern Development. Ottawa, ON, Canada. 414 pp.

Department of Indian Affairs and Northern Development. 1992. Gwich'in Comprehensive Land Claim Agreement. Department of Indian Affairs and Northern Development. Ottawa, ON, Canada. 368 pp.

Earle, T. 2008. Peel Watershed Tourism and Recreation Report. Unpublished report prepared for Yukon Department of Tourism and Culture and Yukon Department of Environment, Parks Branch. 58 pp.

Fekete and Associates Inc. and Vector Research (Fekete). 2006. North Yukon conceptual oil and gas development scenario and local benefits assessment. Unpublished report prepared for North Yukon Oil and Gas Working Group. March 2006.

First Nation of Nacho Nyäk Dun v. Yukon, 2017 SCC 58, 2017 CSC 58, 2017 Carswell Yukon 135, 2017 Carswell Yukon 136, 12 C.E.L.R. (4th) 183, 415 D.L.R. (4th) 389, [2017] 2 S.C.R. 576 (S.C.C.)

Fisheries and Oceans Canada. Fisheries and Oceans Canada – oceans and fish habitat. Streamlining referrals. Department of Fisheries and Oceans Canada website. Accessed April 28, 2007. URL: http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/modernizing-moderniser/streamlining-rationalisation_e.asp

Francis, S.R., and J. Hamm. 2009. North Yukon planning region land use scenarios report: ALCES® land use modeling results. November, 2009. Whitehorse, Yukon, Canada. [online] URL: http://nypc.planyukon.ca/index.php?option=com_docman&task=cat_view&gid=102&Itemid=338

Gartner Lee Limited. 2006. Strategic overview of possible mineral development scenarios – phase 1 Peel River Watershed Planning Region. Prepared for Economic Development, Government of Yukon. September 2006. 34 pp.

Gray, D.R., and Alt, B.T. 2001. Resource description and analysis of Vuntut National Park of Canada. Parks Canada, Western Canada Service Centre. Final Report. 54 pp.

Green, M.J.B., S. McCool and J. Thorsell. 2008. Peel watershed, Yukon: International significance from the perspective of parks, recreation and conservation. Report prepared for Yukon Parks, Department of Environment, Whitehorse, Yukon. 31pp. plus maps.

Gwich'in Land Use Planning Board. 2003. Nành' Geenjit Gwitr'it Tigwaa'in, Working for the Land – The Gwich'in Land Use Plan (v. August 2003). Gwich'in Land Use Planning Board. Inuvik, NT, Canada. 166 pp.

Gwich'in Social and Cultural Institute. 2003. At the Heart of the Teetł'it Gwich'in Cultural Landscape. Application for the Designation of a National Historic Site. Yellowknife, NT, Canada. 34 pp.

International Institute for Sustainable Development 2005. Environment and Trade: A Handbook - Second Edition (Chapter 2 - Principles) 142 pp. URL: http://www.iisd.org/trade/handbook/2_2.htm

Kennedy, K., and Froese, D. 2008. Aggregate resource exploration using a process-depositional model of meltwater channel development in the Eagle Plains area, northern Yukon. *In:* Emond, D.S., Blackburn, L.R., Hill, R.P., and L.H. Weston (editors), Yukon Exploration and Geology 2007. Yukon Geological Survey, p. 169-178.

Kennedy, K.E., 2009. Preliminary assessment of aggregate potential in Peel Watershed (including parts of 116I, 106L, 106K, 106F, 106E, and 116H). Yukon Geological Survey Open File 2009-43, 1 DVD.

Klondike region tourism marketing strategy. 2002. Prepared for The Steering Committee Klondike Region Tourism Marketing Plan. Prepared by Graham and Associates. March 2000. 27 pp.

Mackenzie Delta-Beaufort Sea Regional Land Use Planning Commission. 1991. A community-based regional land use plan for the Mackenzie Delta-Beaufort Sea Region (v. October 1991). Mackenzie Delta-Beaufort Sea Regional Land Use Planning Commission. Inuvik, NT, Canada. 318 pp.

Mackenzie River Basin Transboundary Waters Master Agreement. 1997. Prepared by the Government of Canada, the Government of the Province of British Columbia, the Government of the Province of Alberta, the Government of the Province of Saskatchewan, the Government of the Northwest Territories and the Government of the Yukon. 8 pp.

McNeil, P., D.E. Russell, B. Griffith, A. Gunn and G.P. Kofinas. 2005. Where the wild things are: Seasonal variation in caribou distribution in relation to climate change. Rangifer Special Issue 16:51-63.

Mining Environment Research Group. 2002. Flying in Sheep Country: How to minimize disturbance from aircraft. MERG Report 2002-6. Prepared for the Mining Environmental Research Group by Laberge Environmental Services, Whitehorse, Canada. 12 pp.

Mining and Petroleum Environment Research Group. 2008. Flying in Caribou Country: How to minimize disturbance from aircraft. Prepared for the Mining and Petroleum Environmental Research Group by EDI Environmental Dynamic Inc., Whitehorse, Canada. 15 pp.

Minister of Indian Affairs and Norther Development Ottawa, 1998 Yukon Transboundary Agreement Lands 35 pp.

National Wetlands Working Group. 1988. Wetlands of Canada. Ecological Land Classification Series no. 24. Sustainable Development Branch. Environment Canada, Ottawa, Ontario and Polyscience Publications Inc. Montreal, Quebec, Canada. 452 pp.

North Yukon Planning Commission. 2009. North Yukon Regional Land Use Plan. URL: http://www.emr.gov.yk.ca/lands/nyrlup.html.

North Yukon Planning Commission. 2007a. North Yukon Planning Region Resource Assessment Report. URL: http://www.planyukon.ca/index.php/documents/cat_view/79-commission-documents/81-north-yukon-planning-commission-documents.html.

Peel Watershed Planning Commission. 2009a. Peel Watershed Planning Region Land Use Scenarios. URL: http://www.peel.planyukon.ca/downloads/downpldo.html

Peel Watershed Planning Commission. 2009b. Draft Peel Watershed Land Use Plan. URL: http://www.peel.planyukon.ca/downloads/downpldo.html

Peel Watershed Planning Commission. 2009c. Recommended Peel Watershed Regional Land Use Plan. URL: http://www.peel.planyukon.ca/downloads/downpldo.html

Peel Watershed Planning Commission. 2008a. Peel Watershed Planning Region Conservation Priorities Assessment Report. URL: http://www.peel.planyukon.ca/downloads/downpldo.html

Peel Watershed Planning Commission. 2008b. Peel Watershed Planning Region Resource Assessment Report - Maps. URL: http://www.peel.planyukon.ca/downloads/downpldo.html

Peel Watershed Planning Commission. 2008c. Plan Principles Statement. URL: http://www.peel.planyukon.ca/downloads/downpldo.html

Peel Watershed Planning Commission. 2005. Statement of Intent. URL: http://www.peel.planyukon.ca/

Petrula, M.J. 1994. Ecology of ducks nesting in interior Alaska. M.S. Thesis, University of Alaska, Fairbanks. 124 pp.

Porcupine Caribou Management Board. 2000. Porcupine Caribou Herd Management Plan – 2000/2001 to 2002/2003. PCMB, Whitehorse, YT, Canada. 28 pp.

Raffensperger, C and J. Tickner. 1999. Protecting public health and the environment: implementing the precautionary principle. Island Press, Washington, DC.

Ryder, J.L., P. McNeil, J. Hamm, W.A. Nixon, D. Russell and S.R. Francis. 2006. An integrated assessment of Porcupine caribou seasonal distribution, movements and habitat preferences for regional land use planning in northern Yukon Territory, Canada. Rangifer (Special Issue) 17:259-270.

Silver Trail Region Tourism Plan. 1998. Prepared for The Silver Trail Tourism Plan Steering Committee and Tourism Yukon. Prepared by Inukshuk Planning and Development and Albert Drapeau and Aasman Design Inc. March 1998. 36 pp.

Tombstone Territorial Park Draft Management Plan. 2002. Prepared by the Tombstone Park Steering Committee. May 2002. 74 pp.

Umbrella Final Agreement. 1993. Prepared by the Government of Canada, the Council for Yukon Indians and the Government of the Yukon. 308 pp.

Working Group for Northern Richardson Mountains Dall's Sheep. 2008. Management Plan for Dall's Sheep in the Northern Richardson Mountains. 39 pp.

Yukon Department of Energy, Mines and Resources, 2009. Energy Strategy for Yukon. January, 2009.

Yukon Department of Energy, Mines and Resources, Oil and Gas Management Branch. 2007a. Best Management Practices for Historic Resources. Yukon Government Oil and Gas Best Management Practices website. Accessed April 28, 2007. URL: http://www.emr.gov.yk.ca/oilandgas/best_management_practices.html

Yukon Department of Energy, Mines and Resources, Oil and Gas Management Branch. 2007b. Best Management Practices for Seismic Exploration. Yukon Government Oil and Gas Best Management Practices website. Accessed April 28, 2007. URL: http://www.emr.gov.yk.ca/oilandgas/best_management_practices.html

Yukon Department of Energy, Mines and Resources, Oil and Gas Management Branch. 2007c. Best Management Practices for Wilderness Tourism. Yukon Government Oil and Gas Best Management Practices website. Accessed April 30, 2007. URL: http://www.emr.gov.yk.ca/oilandgas/best_management_practices.html

Yukon Department of Environment. 1996. Guidelines for Reclamation/Revegetation in the Yukon – Volume II. Kennedy, C.E. (ed.). Whitehorse, YT, Canada.

Yukon Department of Environment, Vuntut Gwitchin First Nation and North Yukon Renewable Resources Council. 2008. North Yukon Fish and Wildlife Management Plan. A guide to the management of fish and wildlife in the traditional territory of the Vuntut Gwitchin. 29 pp.

Yukon Department of Tourism and Culture and Vuntut Gwitchin First Nation. 2006. North Yukon Tourism Strategy. Prepared by TransNorthern Management Consulting. Whitehorse, YT, Canada. March, 2004. 47 pp.

Yukon Environment Act, 2002, c 76.

Yukon Fish and Wildlife Management Board, 2002. The effects of oil and gas industry activity on fish and wildlife. A review of selected scientific literature. Prepared by Niki Wilson Environmental Consultant. 81 pp.

Yukon Government, Vuntut Gwitchin First Nation, First Nation of Nacho Nyäk Dun, and Tr'ondek Hwech'in First Nation. 2006. Northern Yukon Economic Development Partnership Agreement – Dempster corridor economic opportunities identification. Unpublished document. Yukon Government. Whitehorse, YT, Canada. 7 pp.

Yukon Government, Department of Environment. 2006. Climate Change Strategy. Prepared by Policy and Planning Branch, V-2. July, 2006. 14 pp.

Yukon Government, Department of Energy Mines and Resources. 2003. Conceptual study report to identify potential natural resource infrastructure access corridors Yukon, 2002-2003. Prepared by Access Consulting Group, Whitehorse, YT. March, 2003. 89 pp.

Yukon Land Use Planning Council. 2004. General Terms of Reference for the Peel Watershed Planning Commission (PWPC). URL: http://www.peel.planyukon.ca/downloads/downpldo.html

8. Glossary of Terms

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.

***Area Development Act*:** The *Area Development* Act allows government to regulate the orderly development of an area. Regulations can be made with respect to: zoning of the area, buildings, transportation and infrastructure to support it, water resources, waste management, graveyards, fire management, and regulation of firearms. The *Dempster Highway Development Area Regulations* (created from the *Area Development Act*) are 30 years old (formed April 18, 1979). They apply to the Dempster Highway Development Area, which follows the Dempster Highway from kilometer 68 to the Northwest Territories boundary, and extents outwards from the centre line of the Dempster Highway, capturing a swath eight kilometers wide.

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.

Boreal caribou: A North American subspecies of caribou.

CanVec: A digital cartographic reference product produced by Natural Resources Canada (NRCan), which originates from the best available data sources covering Canadian territory and offers quality topographic information in vector format that complies with international geomatics standards.

Category A: Settlement Land owned fully by a Yukon First Nation, including both surface and subsurface rights. (Umbrella Final Agreement)

Category B: Settlement Land owned by a Yukon First Nation, but not including subsurface rights. (Umbrella Final Agreement)

Coal license: Under the *Territorial Lands (Yukon) Act* (*Coal Regulations*), a licence to explore for coal on territorial lands may be issued by a public officer designated by the Minister to perform the duties of the Chief under this Regulation. A licence is in force for three years commencing on the day of the application, and an extension to this period may be granted.

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 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).

Conservation Area: A broad land use category, which is managed for conservation or protection of ecological and cultural resources and where long-term wilderness character is to be maintained. No new industrial land use or surface access is allowed, existing mineral claims or leases may be respected, and pre-existing non-industrial land uses are respected.

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).

Core Area: See Concentrated Use Area

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. Changes can be positive or negative.

Cumulative Impacts: Negative consequences of cumulative effects; may involve both direct and indirect impacts.

Cultural Landscapes: A place valued by an Aboriginal group (or groups) because of their long and complex relationship with that land. It expresses their unity with the natural and spiritual environment. It embodies their traditional knowledge of spirits, places, land uses, and ecology. Material remains of the association may be prominent, but will often be minimal or absent (Parks Canada, An Approach to Aboriginal Cultural Landscapes)

Decommissioning: A general term for a formal process to remove something from active status.

Deposit (mineral): A mass of naturally occurring mineral material, usually of economic value.

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.

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.

Ecotypes: Describes a genetically distinct geographic variety, population within species which is adapted to specific environmental conditions.

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 contains portions of six ecozones: Taiga Plain and Taiga Cordillera.

Endangered Species: Under Committee on the Status of Endangered Wildlife in Canada (COSEWIC), wildlife species facing imminent extirpation or extinction. Those species are listed in Part 2 of Schedule 1 to SARA.

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.

Final Agreements: Is the outcome of successful negotiations of modern-day treaties between Aboriginal claimant groups, Canada and the relevant province or territory. While each one is unique, these agreements usually include such things as land ownership, money, wildlife harvesting rights, participation in land, resource, water, wildlife and environmental management as well as measures to promote economic development and protect Aboriginal culture. In the Yukon these agreements also included Aboriginal self-government.

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.

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.

Free-entry system: Mineral tenure is granted under the free entry system in the Yukon. This system gives individuals exclusive right to publicly-owned mineral substances from the surface of their claim to an unlimited extension downward vertically from the boundary of the claim or lease. All Commissioner's lands are open for staking and mineral exploration unless they are expressly excluded or withdrawn by order-in-council (e.g. parks, interim protected lands, buildings, dwelling houses, cemeteries, agricultural lands, Settlement Lands).

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.

Heritage Resources: Sites and objects that are 45 years old or older and relate to human history, including archaeological and historic sites and artifacts. 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. National Historic Sites are designated under the federal *Historic Sites and Monuments Act*.

Hydrologic system: The interconnected water system, including soil, surface water, groundwater, and atmosphere. Wetlands are complex hydrologic systems.

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.

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: As per 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 town site; 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.

Integrated Management Area (IMA): In the Plan, a land-use category where mineral and oil and gas disposition processes, other industrial activities, and other land uses are allowed, subject to the approved regional plan and existing legislation/regulations. 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.

Iron-mica claims: Iron and mica mining are dealt with separately from other minerals, as outlined in Sections 20 and 21 of the *Quartz Mining Act*. Grants for locations as outlined in Section 20 for iron and mica do not include the surface rights of the lands.

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 LMUs 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. 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.

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 LMU. 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.

Laws of general application: Laws defined by common law.

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 LMU or sub-unit (measured in km^2). Linear density is expressed as km/km^2. 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 Ogilvie, Blackstone, Hart, Wind, Bonnet Plume, Snake and Peel Rivers.

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.

NT1: The portion of the Boreal caribou herd that is in Yukon and NWT.

Occurrence (mineral): Mineral occurrences are generally the least important and least economic. They included are all known occurrences of minerals of economic interest, including outcrops and manifestations. Often, such occurrences of mineralization are the peripheral manifestations of nearby ore deposits

Outfitting concessions: In 1958 the current system of outfitting concessions in Yukon was set up, with assistance from famous guide Johnny Johns, who drew many of the concession area boundaries (Yukon Outfitters' Association website). At the moment there are 18 active concession areas in the Yukon operated by registered Yukon outfitters.

Palaeontological Resources: Fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth.

Parties: The Government of Yukon, Tr'ondëk Hwëch'in, First Nation of Na-cho Nyäk Dun, Vuntut Gwitchin Government and Gwich'in Tribal Council; any one of which is a Party to the Peel Watershed Regional Land Use Plan.

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. North Ogilvie Mountains Ecoregion contains extensive pediments.

Perched wetlands: Perched wetlands occur where an impervious layer lies within the aeration zone and therefore, above the water table. Surface runoff infiltrates the soils above the impervious layer creating a "perched water table" that can produce wetland conditions. Often an impervious layer beneath the surface but above the water table, such as permafrost can lead to the formation of perched wetlands.

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.

Placer Claim: A parcel of land located or granted for placer mining. Also includes any ditches or water rights used for mining the claim, and all other things belonging to or used in the working of the claim for mining purposes.

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.

Primary Use Area: Primary Use Area as defined in s. 1.1.1 of the Yukon Transboundary Agreement, means the Fort McPherson Group Trapping Area, which was established by the *Trapping Concession Boundary Regulation*, Order-in-Council 1989/94, made pursuant to the *Wildlife Act*, R.S.Y. 1986, c. 178, ss. 153 and 178. Subject to laws of general application, a Tetlit Gwich'in shall have the right to use water for a traditional use in the primary and secondary use areas. A Tetlit Gwich'in shall have the right to harvest for subsistence, within the primary use area, the secondary use area and those areas of the Traditional Territory of the First Nation of Na-cho Nyäk Dun which are not subject to any overlap with the traditional territory of another Yukon First Nation, all species of fish and wildlife for themselves and their families at all seasons of the year and in any numbers on Crown land within such areas to which they have a right of access pursuant to 4.2 (Yukon Transboundary Agreement), subject only to limitations prescribed pursuant to this appendix.

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.

Quartz Claim: A parcel of land located or granted for hard rock mining. A quartz claim also includes any ditches or water rights used for mining the claim, and all other things belonging to or used in the working of the claim for mining purposes.

R-Block or Rural Settlement Land: Generally, these are parcels of Settlement Land larger than S-Sites, and are of heritage, cultural, or traditional economic significance to the First Nation. See also "S-Sites", "Category A" and "Category B".

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.

Remediation (environmental): Environmental remediation deals with the removal of pollution or contaminants from environmental media such as soil, groundwater, sediment, or surface water for the general protection of human health and the environment.

Renewable Energy: The generation of heat or electricity from natural resources, such as sun, wind or water, 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 soil and better drainage.

Rubber tire tourism: Generally refers to a tourism industry individuals or groups experience an area within close proximity to a vehicle travelling by road.

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: Secondary Use Area as defined in s. 1.1.1 of the Yukon Transboundary Agreement, means the lands described in Annex A to the Yukon Transboundary Agreement, and for which rights concerning government notice, consultation, use of water, harvesting, trapping, and forest harvesting are granted. (See Yukon Transboundary Agreement, sections 9.4.2, 9.4.3, 10.3, 12.3.1, 12.3.13, 13.2.2). Subject to laws of general application, a Tetlit Gwich'in shall have the right to use water for a traditional use in the primary and secondary use areas. A Tetlit Gwich'in shall have the right to harvest for subsistence, within the primary use area, the secondary use area and those areas of the Traditional Territory of the First Nation of Na-cho Nyäk Dun which are not subject to any overlap with the traditional territory of another Yukon First Nation, all species of fish and wildlife for themselves and their families at all seasons of the year and in any numbers on Crown land within such areas to which they have a right of access pursuant to 4.2 (Yukon Transboundary Agreement Lands), subject only to limitations prescribed pursuant to this appendix.

Settlement Land: All land in Yukon owned by a Yukon First Nation with a Final Agreement. Settlement Land may be Category A or B.

Significant Discovery License: A tenure for oil and gas rights disposition, based on the discovery of oil or gas deposit, which is granted for an indefinite term in recognition that some discoveries may not be immediately economical.

Significant Adverse Effect: A significant effect is one which will likely diminish or harm the quality of the land and water or any renewable resource in the region.

Site-specific (S-Site): These are Yukon First Nation Settlement Land parcels smaller than Category A and B land selections, and are of heritage, cultural, or traditional economic significance to the First Nation.

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 Resources Councils, depending on the area and jurisdiction (Chapter 10, Final Agreements).

Species of Special Concern: Under COSEWIC, a species with characteristics that make it particularly sensitive to human activities or natural events.

Subsistence Harvesting: The use of edible fish, wildlife or plant products, used for sustenance and for traditional ceremonial purposes and the use of non-edible by-products of harvests of fish or wildlife, for such domestic purposes as clothing, shelter or medicine, or for domestic, spiritual and cultural purposes.

Sustainable Development: Beneficial socio-economic change that does not undermine the ecological and social systems upon which communities and societies are dependent (Chapter 1, Final Agreements).

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.

Tetłit Gwich'in Yukon Land or **Tetłit Gwich'in Fee-Simple Lands:** Land where the Tetlit Gwich'in have the same fee simple title as other land registered in the Land Titles Office.

Threatened Species: Under COSEWIC, a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction. Those species are listed in Part 3 of Schedule 1 to the SARA.

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.

Traditional Territory: The geographic area within the Yukon identified as that which has been traditionally used by a Yukon First Nation, and as outlined on a map in the Umbrella Final Agreement.

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.

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 or wilderness character: 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 areas that have been restored to a largely natural condition. (Yukon *Environment Act*).

Wilderness Area (WA): A land use designation designed for conservation and protection of ecological and cultural resources and wilderness character. These areas are under interim protection from industrial activities.

Wilderness Area – Boreal Caribou (WA-BC): A land use designation designed for conservation and protection of ecological and cultural resources and wilderness character. This designation also meets the test of SARA, by requiring a legal designation and a management plan. These areas are under interim protection from industrial activities.

Wilderness tourism: A commercial enterprise where clients engage in activities that are based on wilderness landscapes, parks and special areas, significant wildlife features and wilderness-based historical sites and events.

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 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 Dün First Nation, Liard First Nation, Little Salmon/ Carmacks First Nation, First Nation of Na-Cho Nyäk Dun, Ross River Dena Council, Selkirk First Nation, Ta'an Kwäch'än Council, Teslin Tlingit Council, Vuntut Gwitchin First Nation, and 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 (Umbrella Final Agreement)

Appendix A: Maps

Map 1 – Current Status

Map 2 – Landscape Management Units

Map 3 – Ecologically Important Areas

Map 4 – First Nation Land Use and Heritage / Cultural Resources

Map 5 – Economic Development Potential and Interests: Renewable Resources

Map 6 – Economic Development Potential and Interests: Non-Renewable Resources

MAP 1
Current Status

PEEL WATERSHED PLANNING REGION, YUKON

1:1,400,000

10 0 10 20 30 40 50 km

Yukon Albers Projection, NAD83

LEGEND

First Nation Boundaries
- Na-Cho Nyak Dun Traditional Territory
- Vuntut Gwitchin Traditional Territory
- Tr'ondëk Hwëch'in Traditional Territory
- Tetlit Gwich'in Primary Use Area
- Tetlit Gwich'in Secondary Area
- Tr'ondëk Hwëch'in / Na-Cho Nyak Dun Contiguous Boundary
- Proposed Vuntut Gwichin / Tr'ondëk Hwëch'in Contiguous Boundary

First Nation Settlement Lands and Tetlit Gwich'in Yukon Lands
- Rural Settlement Land
- Site Specific Settlement Land

Park
- Yukon territorial park

Transportation
- Major road/highway
- Winter road
- Dempster Highway Development Area

Mineral Claims
- Active quartz claim
- Active coal license

Oil and Gas Dispositions
- Significant Discovery License
- Oil and gas permit

Final Peel Watershed Land Use Plan
- Landscape management unit
- Dempster Highway Corridor
- Major river corridor

Adjacent Land Use Planning Zones
- LMU 1A — North Yukon Regional Land Use Plan (Landscape management units)
- SMZ 15 — Gwich'in Land Use Plan Zones (NWT) (Special management zone: Gwich'in conservation zone)

DATA SOURCES

Base data: Yukon Government

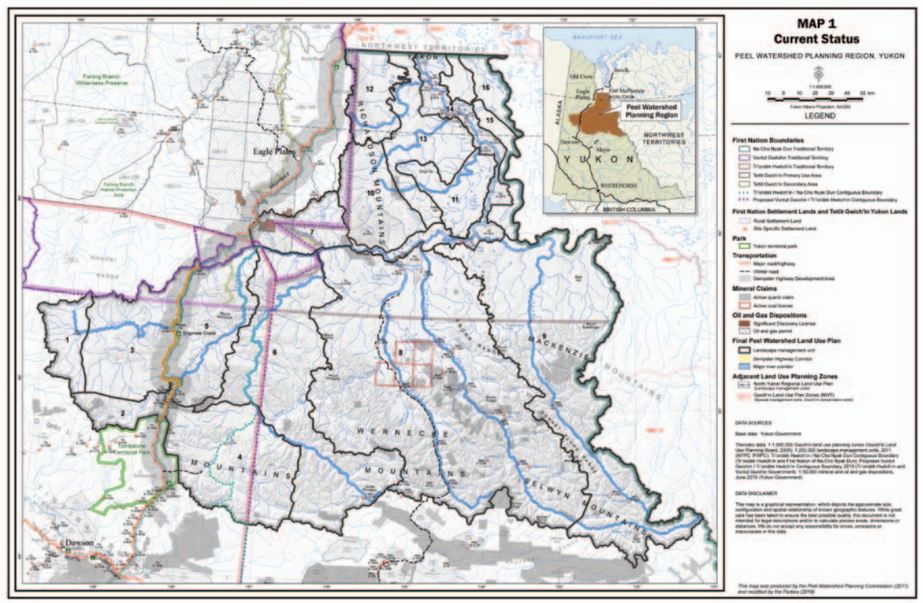
Thematic data: 1:1,000,000 Gwich'in land use planning zones (Gwich'in Land Use Planning Board, 2005); 1:250,000 landscape management units, 2011 (NYPC, PWPC); Tr'ondëk Hwëch'in / Na-Cho Nyak Dun Contiguous Boundary (Tr'ondëk Hwëch'in and First Nation of Na-Cho Nyak Dun); Proposed Vuntut Gwichin / Tr'ondëk Hwëch'in Contiguous Boundary, 2018 (Tr'ondëk Hwëch'in and Vuntut Gwichin Government); 1:50,000 mineral and oil and gas dispositions, June 2019 (Yukon Government).

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.

This map was produced by the Peel Watershed Planning Commission (2011) and modified by the Parties (2019)

Map 1
Current Status



MAP 2
Landscape Management Units

PEEL WATERSHED PLANNING REGION, YUKON

1:1,400,000

10 0 10 20 30 40 50 km

Yukon Albers Projection, NAD83

LEGEND

Landscape Management Units

- Special Management Area (SMA)
- Wilderness Area (WA)
- Wilderness Area - Boreal Caribou (WA-BC)
- Integrated Management Area Zone III
- Integrated Management Area Zone IV

Final Peel Watershed Land Use Plan

- Peel Watershed planning region
- Landscape management unit
- Dempster Highway Development Area
- Dempster Highway Corridor
- Major river corridor

First Nation Settlement Lands and Tetlit Gwich'in Yukon Lands

- Rural Settlement Land
- Site Specific Settlement Land

Adjacent Land Use Planning Zones

- North Yukon Regional Land Use Plan (Landscape management units)
- Gwich'in Land Use Plan Zones (NWT) (Special management zone, Gwich'in conservation zone)

Park

- Yukon territorial park

Transportation

- Major road/highway
- Winter road
- Yukon territorial campground
- Territorial boundary

DATA SOURCES

Base data: Yukon Government

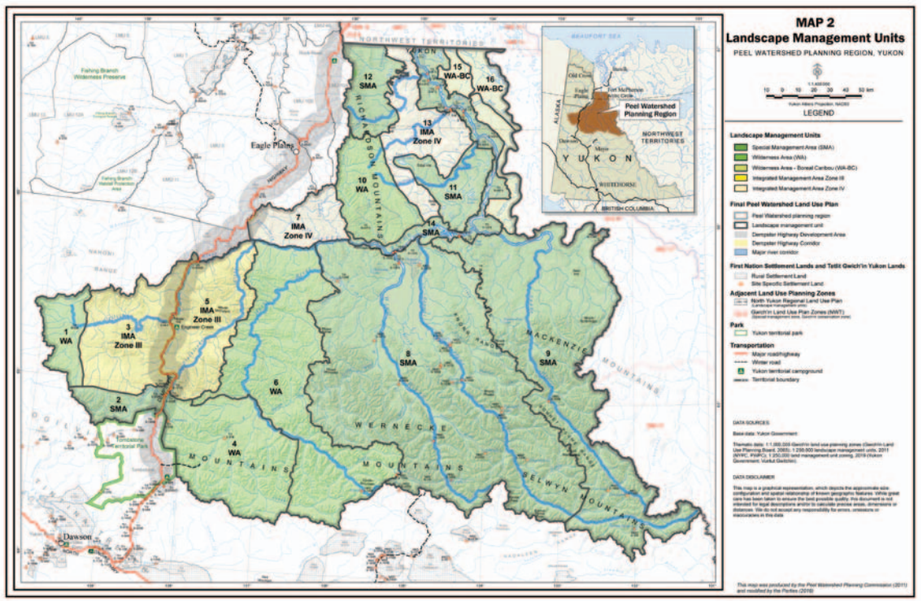
Thematic data: 1:1,000,000 Gwich'in land use planning zones (Gwich'in Land Use Planning Board, 2005); 1:250,000 landscape management units, 2011 (NYPC, PWPC); 1:250,000 land management unit zoning, 2019 (Yukon Government, Vuntut Gwitchin).

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.

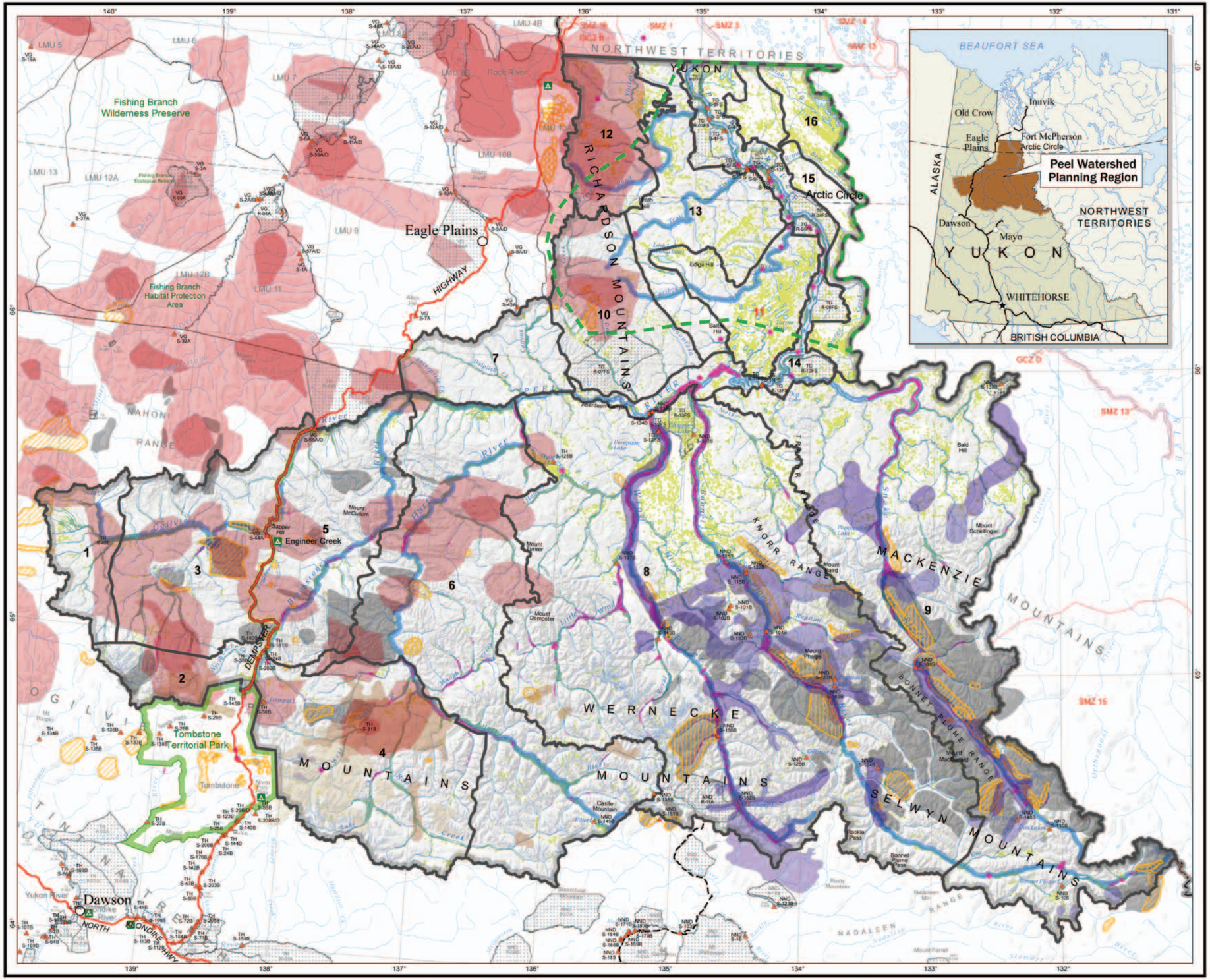
This map was produced by the Peel Watershed Planning Commission (2011) and modified by the Parties (2019)

Map 2
Landscape Management Units



MAP 3
Ecologically Important Areas

PEEL WATERSHED PLANNING REGION, YUKON



1:1,400,000

10 0 10 20 30 40 50 km

Yukon Albers Projection, NAD83

LEGEND

Porcupine Caribou Herd
- Winter concentrated use area
- Winter moderate use area

Dall's Sheep Key Areas
- Breeding
- Lambing
- Winter

Hart River Caribou Herd
- Winter use
- Fall use

Local/Public Knowedge
- High quality sheep habitat

Bonnet Plume Caribou Herd
- Winter use
- Fall use

Wetlands/ Waterbird Habitat Suitability
- High

Boreal Caribou Herd
- Yukon range

Fish
- Spawning and overwintering potential

Final Peel Watershed Land Use Plan
- Landscape management unit
- Dempster Highway Corridor
- Major river corridor

First Nation Settlement Lands and Tetlit Gwich'in Yukon Lands
- Rural Settlement Land
- Site Specific Settlement Land

Adjacent Land Use Planning Zones
- LMU 1A North Yukon Regional Land Use Plan (Landscape management units)
- Gwich'in Land Use Plan Zones (NWT) (Special management zone, Gwich'in conservation zone)

Park
- Yukon territorial park

Transportation
- Major road/highway
- Winter road

DATA SOURCES

Base data: Yukon Government

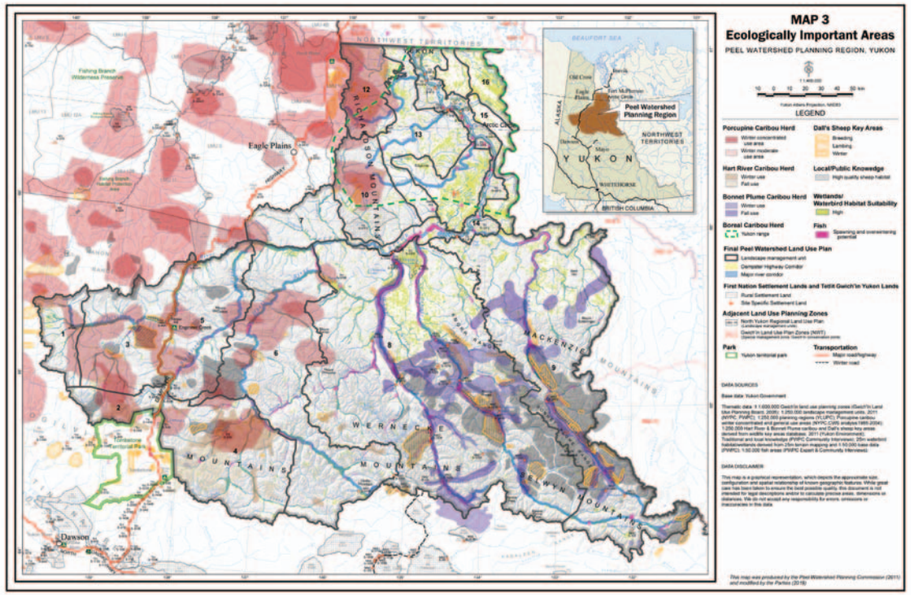
Thematic data: 1:1,000,000 Gwich'in land use planning zones (Gwich'in Land Use Planning Board, 2005); 1:250,000 landscape management units, 2011 (NYPC, PWPC); 1:250,000 planning regions (YLUPC); Porcupine caribou winter concentrated and general use areas (NYPC,CWS analysis1985-2004); 1:250,000 Hart River & Bonnet Plume caribou and Dall's sheep key areas derived from wildlife key areas database, 2011 (Yukon Environment); Traditional and local knowledge (PWPC Community Interviews); 25m waterbird habitat/wetlands derived from 25m terrain mapping and 1:50,000 base data (PWPC); 1:50,000 fish areas (PWPC Expert & Community Interviews).

DATA DISCLAIMER

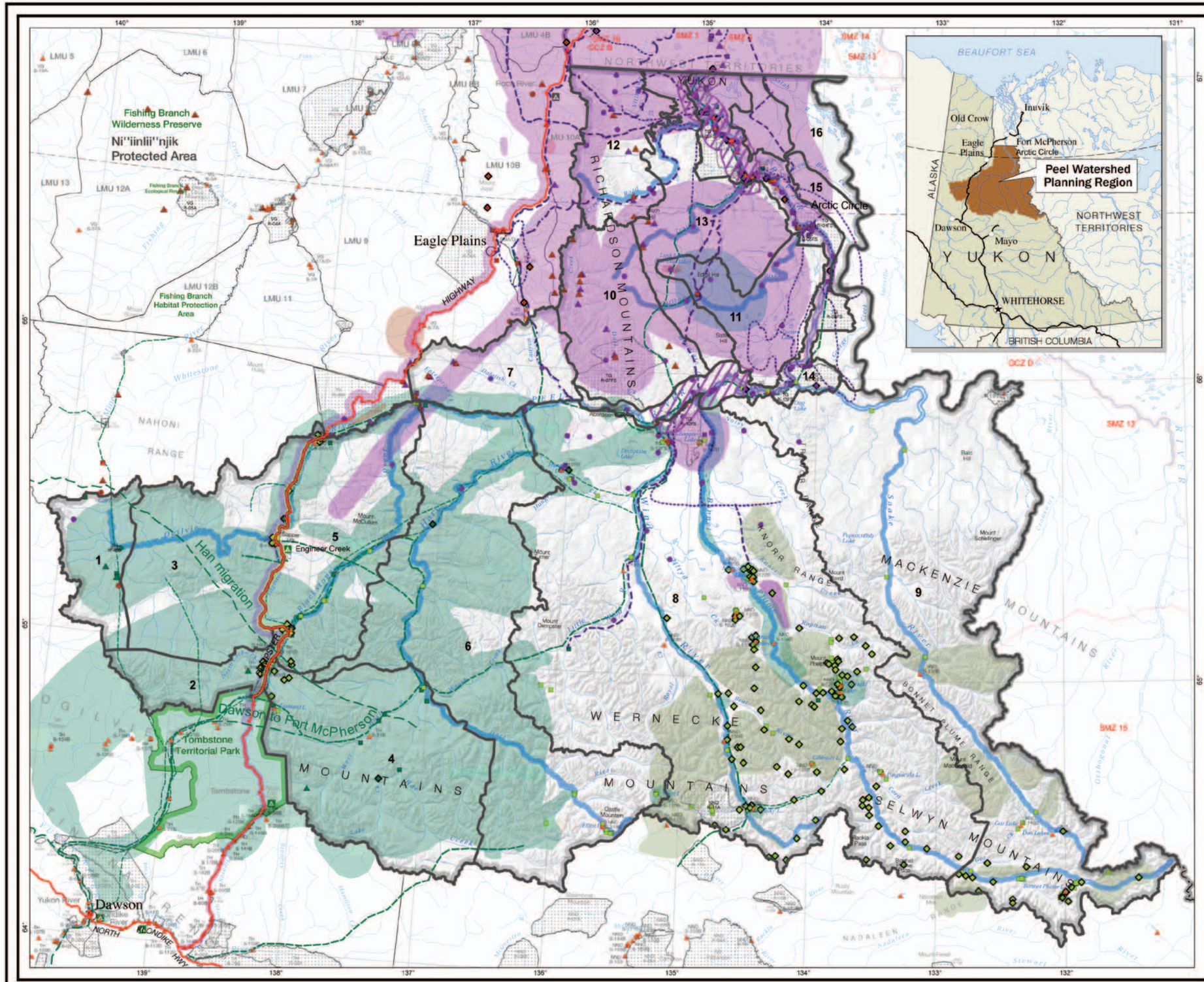
This map is a graphical representation, which depicts the approximate size, configuration and spatial relationship of known geographic features. While great care has been taken to ensure the best possible quality, this document is not intended for legal descriptions and/or to calculate precise areas, dimensions or distances. We do not accept any responsibility for errors, omissions or inaccuracies in this data.

This map was produced by the Peel Watershed Planning Commission (2011) and modified by the Parties (2019)

Map 3
Ecologically Important Areas



MAP 4
First Nations Land Use and Heritage/Cultural Resources
PEEL WATERSHED PLANNING REGION, YUKON



LEGEND

Tr'ondëk Hwëch'in
- Cabin/camp
- Archaeological site
- Culturally important place
- General harvesting
- General land use*
- Travel route
- Trapline

Vuntut Gwitchin
- Cabin/camp
- Archaeological site
- Culturally important place
- General harvesting
- General land use*

Tetl'it Gwich'in
- Cabin/camp
- Archaeological site
- Culturally important place
- General harvesting
- General land use*
- Proposed National Historic Sites
- Travel route
- Trapline

Na-Cho Nyak Dun
- Cabin/camp
- General harvesting
- General land use*

*hunting, fishing, trapping & travel

Final Recommended Peel Watershed Land Use Plan
- Landscape management unit
- Dempster Highway Corridor
- Major river corridor

First Nation Settlement and Tetlit Gwich'in Yukon Lands
- Rural Settlement Land
- Site Specific Settlement Land

Adjacent Land Use Planning Zones
- LMU 1A — North Yukon Regional Land Use Plan (Land management unit)
- GMU 1-13 — Gwich'in Land Use Plan Zones (NWT) (Special management zone, Gwich'in conservation zone)

Park
- Yukon territorial park

Transportation
- Major road/highway
- Winter road

DATA SOURCES

Base data: Yukon Government

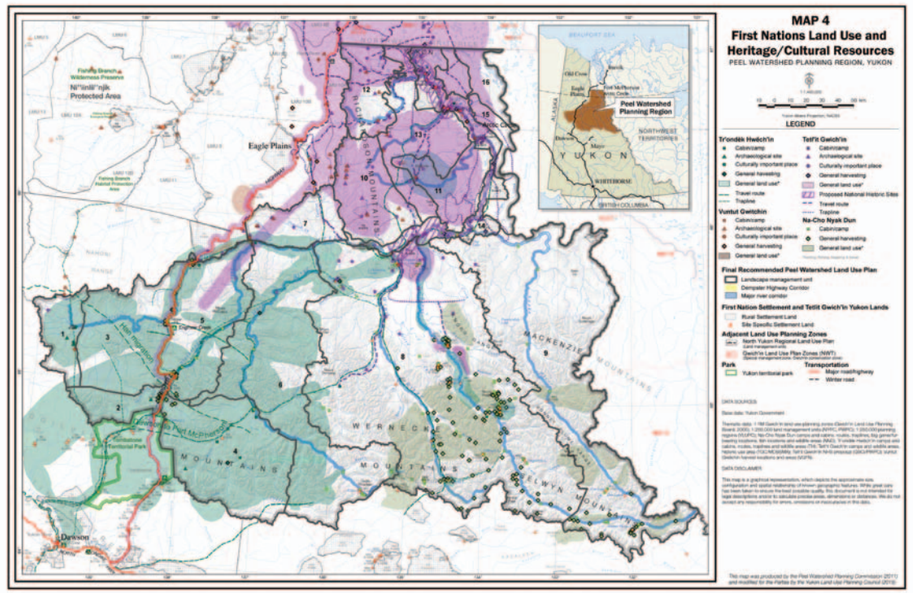
Thematic data: 1:1M Gwich'in land use planning zones (Gwich'in Land Use Planning Board, 2005); 1:250,000 land management units (NYPC, PWPC); 1:250,000 planning regions (YLUPC); Na-Cho Nyak Dun camps and cabins, routes, traplines, big game/fur-bearing locations, fish locations and wildlife areas (NND); Tr'ondëk Hwëch'in camps and cabins, routes, traplines and wildlife areas (TH); Tetl'it Gwich'in camps and wildlife areas, historic use area (TGC/MDBSMA); Tetl'it Gwich'in NHS proposal (GSCI/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.

This map was produced by the Peel Watershed Planning Commission (2011) and modified for the Parties by the Yukon Land Use Planning Council (2019)

Map 4
First Nation Land Use and Heritage Cultural Resources



MAP 5
Economic Development Potential and Interests: Renewable Resources

PEEL WATERSHED PLANNING REGION, YUKON

1:1,400,000

10 0 10 20 30 40 50 km

Yukon Albers Projection, NAD83

LEGEND

Tourism Activity

- Canoeing
- Climbing
- Horseback tour
- Snowmobiling
- Driving tour
- Viewpoint
- Wildlife viewing
- Interpretive centre
- Primitive campsite
- Outfitting camp

Tourism Potential

- High recreation potential
- High value hiking
- River activity corridor
- Dempster highway activity corridor

Outfitter and Trapping Concessions

- Outfitting concession
- Registered trapping concession

Final Peel Watershed Land Use Plan

- Landscape management unit
- Dempster Highway Corridor
- Major river corridor

First Nation Settlement Lands and Tetlit Gwich'in Yukon Lands

- Rural Settlement Land
- Site Specific Settlement Land

Adjacent Land Use Planning Zones

- North Yukon Regional Land Use Plan
- Gwich'in Land Use Plan Zones (NWT)

Park

- Yukon territorial park

Transportation

- Major road/highway
- Winter road

DATA SOURCES

Base data: Yukon Government

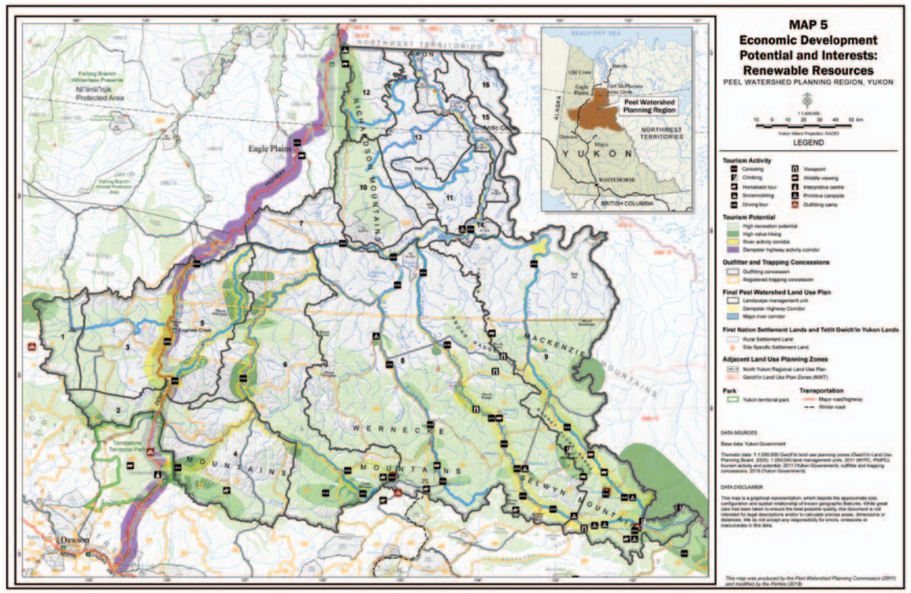
Thematic data: 1:1,000,000 Gwich'in land use planning zones (Gwich'in Land Use Planning Board, 2005); 1:250,000 land management units, 2011 (NYPC, PWPC); tourism activity and potential, 2011 (Yukon Government), outfitter and trapping concessions, 2019 (Yukon Government).

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.

This map was produced by the Peel Watershed Planning Commission (2011) and modified by the Parties (2019)

Map 5
Economic Development Potential and Interests: Renewable Resources



MAP 6
Economic Development Potential and Interests: Non-Renewable Resources

PEEL WATERSHED PLANNING REGION, YUKON

1:1,400,000

10 0 10 20 30 40 50 km

Yukon Albers Projection, NAD83

LEGEND

Oil and Gas Basin Potential
- Higher
- Lower

Mineral Potential
- Higher
- Lower

Oil and Gas Dispositions
- Significant Discovery License
- Oil and gas permit
- Dempster proposed gas pipeline

Mineral Claims
- Active quartz claim
- Active coal license

Final Peel Watershed Land Use Plan
- Landscape management unit
- Dempster Highway Corridor
- Major river corridor

First Nation Settlement Lands and Tetlit Gwich'in Yukon Lands
- Rural Settlement Land
- Site Specific Settlement Land

Adjacent Land Use Planning Zones
- North Yukon Regional Land Use Plan
- Gwich'in Land Use Plan Zones (NWT)

Park
- Yukon territorial park

Transportation
- Major road/highway
- Winter road

DATA SOURCES

Base data: Yukon Government

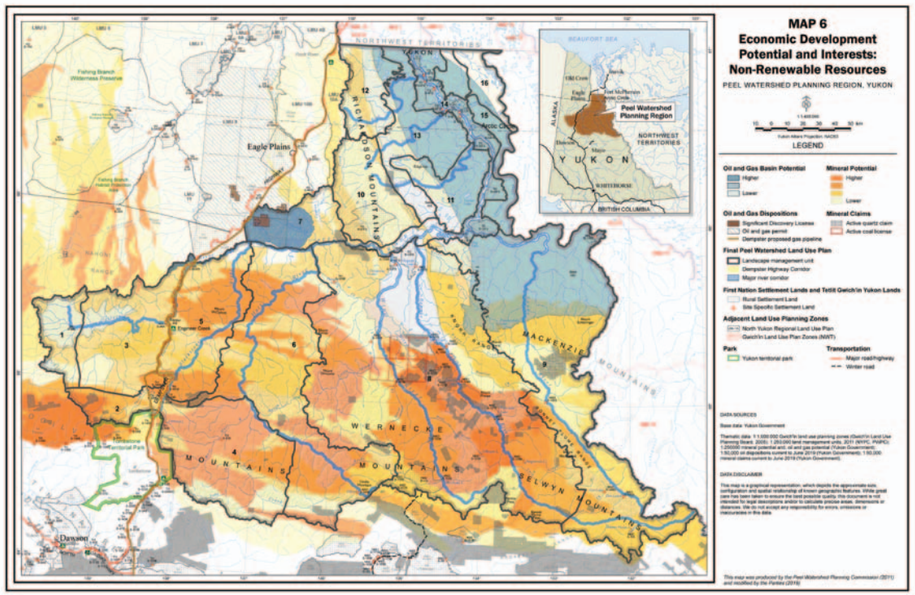
Thematic data: 1:1,000,000 Gwich'in land use planning zones (Gwich'in Land Use Planning Board, 2005); 1:250,000 land management units, 2011 (NYPC, PWPC); 1:250000 mineral potential and. oil and gas potential (Yukon Government); 1:50,000 oil dispositions current to June 2019 (Yukon Government); 1:50,000 mineral claims current to June 2019 (Yukon Government).

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.

This map was produced by the Peel Watershed Planning Commission (2011) and modified by the Parties (2019)

Map 6
Economic Development Potential and Interests: Non-Renewable Resources



Appendix B: Summary of Plan Goals, Strategies and Best Management Practices

Table B.1 summarizes the goals and management strategies of the Peel Watershed Regional Land Use Plan. For detailed discussion and explanation of goals and strategies, see appropriate sections in the Plan. A list of references describing best management practices to minimize impacts of land use activity on wildlife, fish, ecosystems and other land uses is provided in Table B.2.

Table B.1: Plan goal and management strategy summary.

Plan Goals	Management Strategies
Environment	
Goal 1 Maintain the **wilderness character** of much of the planning region.	Land use designation, recommendations, management strategies and best management practices are designed to achieve maintenance of wilderness character.
Goal 2 Maintain **ecological integrity** by ensuring terrestrial and aquatic habitats remain in a suitable condition to sustain healthy native wildlife and fish populations and communities within their natural ranges. **Goal 3** Maintain the quantity, quality, and rate of flow of **water** within its natural range. **Goal 4** Ensure that any lands disturbed by human activities are reclaimed or restored to their **natural state.**	Many environmental strategies achieve multiple goals related to minimizing development impacts, and maintaining ecological integrity, wildlife and fish habitats, and water quality and quantity. **Wildlife and Terrestrial Habitats** 1. Reduce size, intensity and duration of human-caused physical surface disturbances (e.g., utilize low impact seismic, winter roads and principle of full reclamation). 2. Coordinate, manage and minimize new road and trail access. » To the extent possible, avoid routing new roads and trails through concentrated seasonal use areas and significant habitats (see Map 3, Appendix A for locations). » Avoid using or crossing seasonal migration corridors with new access routes. 3. Avoid or reduce activities in significant wildlife habitats during important biological periods (e.g., utilize timing windows). » Avoid sensitive sheep habitats and key areas, with emphasis on winter range avoidance (see Map 3, Appendix A for locations). » Porcupine Caribou are typically in the region during winter period (December – March) » Avoid concentrated woodland caribou use areas (see Map 3, Appendix A for locations) 4. Reduce other human land use-related disturbances such as noise, smell and light.

Plan Goals	Management Strategies
Environment (con't)	
Goal 2 (con't) Maintain **ecological integrity** by ensuring terrestrial and aquatic habitats remain in a suitable condition to sustain healthy native wildlife and fish populations and communities within their natural ranges. **Goal 3** Maintain the quantity, quality, and rate of flow of **water** within its natural range. **Goal 4** Ensure that any lands disturbed by human activities are reclaimed or restored to their **natural state.**	**Hydrology and Aquatic Habitats** 1. Minimize surface and vegetation disturbance in riparian areas. 2. Avoid or minimize industrial land use activities in wetlands and riparian areas. » Activities in the vicinity of wetlands and wetland complexes should be carried out during the winter period. » Locations of all-season infrastructure should maintain a minimum distance of 100m from wetlands and lakes[1]. 3. Prohibit significant levels of winter in-stream water withdrawals in sensitive over-wintering fish habitat[2]. 4. Avoid large-scale industrial and/or infrastructure projects within Major River Corridors. 5. Avoid in-stream aggregate (gravel) extraction. 6. Prohibit direct disturbance to sensitive over-wintering and spawning habitats. 7. Minimize stream crossings; if stream crossings are required ensure proper bridge and crossing structures are used, and are designed for ease of removal (i.e. temporary structures). 8. Avoid direct or indirect blocking of identified fish migration routes.
Social (Heritage and Culture)	
Goal 5 Recognize, conserve, and promote the **heritage and cultural resources and values, and traditional land use practices**, of affected First Nations and the Yukon.	Management strategies related to heritage and culture focus on avoiding or reducing other land use activities near identified resources and places: 1. Avoid or minimize land use impacts in the vicinity of identified heritage and historic resources. 2. Avoid or minimize land use conflicts by avoiding or reducing the level of land use activities in important subsistence harvesting and current community use areas. 3. Avoid or reduce activities in significant heritage and current community use areas during important seasonal use periods \ (e.g., utilize timing windows). 4. Where impacts to identified heritage and cultural sites and resources may occur, implement the following appropriate mitigation practices. » Work camps associated with resource exploration and development activity should be sited near areas of resource production, and away from identified heritage routes, historic sites, and current community use areas. » Implement immediate stop work orders if evidence of heritage or cultural values is detected, to assess significance.

1 Source: Petrula (1994).

2 Department of Fisheries and Oceans, or other relevant management authority, to determine acceptable level of water withdrawals.

Plan Goals	Management Strategies
Economy	
Goal 6 Facilitate **economic opportunities** and activities that result in benefits to surrounding communities, affected First Nations, and Yukon as a whole, and that contribute to achieving the goals established by this Plan. **Goal 7** Provide **land use certainty** and **minimize land use conflicts** throughout the region. **Goal 8** Maintain **future land use options** by adopting a cautious but flexible approach to land and resource decision-making.	This Plan does not identify detailed management strategies for Economic goals. Land use designation system and zoning are key strategies to provide land use certainty, minimize land use conflicts, and maintain future land use options. Management strategies that support Environment and Social (Heritage and Culture) goals are used as a means to reduce potential negative impacts of economic development activities on ecological and social values and resources.

Table B.2: Best Management Practice references.

Wildlife and Fish
Flying in Sheep Country. How to minimize disturbance from aircraft. MPERG Report 2002-6. Available online: https://yukon.ca/sites/yukon.ca/files/env/env-flying-sheep-country.pdf Flying in Caribou Country. How to minimize disturbance from aircraft. MPERG Report 2008-1. Available online: https://yukon.ca/sites/yukon.ca/files/env/env-flying-caribou-country.pdf Guidelines for Industrial Activity in Bear Country. For the mineral exploration, placer mining and oil and gas industries. MPERG Report 2008-2. Available online: https://yukon.ca/sites/yukon.ca/files/env/env-guidelines-industrial-activity-bear-country.pdf
Water
Preferred Practices for Works Affecting Yukon Waters. Water Resources Branch, Yukon Environment. May 2011. Available online: https://yukon.ca/sites/yukon.ca/files/env/env-preferred-practices-works-affecting-yukon-waters.pdf
Heritage and Historic Resources
Oil and Gas Best Management Practices for Historic Resources. Yukon Energy, Mines and Resources. August 2006. Available online: http://www.emr.gov.yk.ca/oilandgas/pdf/bmp_general_brochure_web.pdf Land Use and Land Application Best Management Practices for Heritage Resources. Government of Yukon, Tourism and Culture. March 2015. Available online: http://www.tc.gov.yk.ca/pdf/Land_Use_and_Land_Application_BMP.pdf
Wilderness Tourism and Recreation
Best Management Practices for Wilderness Tourism. Yukon Energy, Mines and Resources. Available online: http://www.emr.gov.yk.ca/oilandgas/pdf/bmp_wilderness_tourism.pdf Into the Wilderness. Yukon Environment. Available online: https://yukon.ca/en/outdoor-recreation-and-wildlife/wilderness-safety/travel-safely-yukon-wilderness Leave no Trace. Yukon Environment. Available online: https://yukon.ca/en/outdoor-recreation-and-wildlife/wilderness-safety/travel-safely-yukon-wilderness
Off-road Vehicles
Best Management Practices for Off-road Vehicle Use on Forestlands. Available online: http://www.willallen.com/JCP/JCP_2012_V08_2_Switalski.pdf All terrain vehicles and the Environment. Available online: https://yukon.ca/en/outdoor-recreation-and-wildlife/atvs-and-road-vehicles
General Industry
Yukon Mineral and Coal Exploration Best Management Practices and Regulatory Guide. Yukon Chamber of Mines. August 2010. Available online: https://www.yukonminers.org/index.php/all-docs/guidebooks/3-yukon-mineral-and-coal-exploration-best-management-practices-and-regulatory-guide/file Best Management Practices for Seismic Exploration. Yukon Energy, Mines and Resources. August 2006. Available online: http://www.emr.gov.yk.ca/oilandgas/pdf/brochures_seismic_aug2006.pdf

Appendix C: Summary of Recommendations

The following tables summarize policy and research recommendations from the Peel Watershed Regional Land Use Plan. For detailed discussion and explanation of recommendations, see appropriate sections in the Plan.

Table C.1: Policy recommendations summary.

Topic	Policy Recommendation # and Description	
Environment		
Cumulative Effects Management (Section 4.1.1)	1	In the Integrated Management Area, the amount of surface disturbance in a LMU should be maintained below the cumulative effects indicator levels recommended in the Plan.
Protection of Boreal caribou habitat (Section 4.1.2)	2	In the Integrated Management Area, the protection of Boreal caribou habitat should be given special consideration in the assessment of potential development.
Disturbance to Wildlife and Terrestrial Habitats (Section 4.1.2)	3	Ensure adequate wildlife and habitat baseline data collection is completed prior to any development activities occurring in the Peel Watershed Planning Region.
Disturbance to Fish, Aquatic Habitats and Hydrology (Section 4.1.3)	4	Ensure adequate fish, waterbird, aquatic habitat and water quality baseline data collection is completed prior to any development activities occurring in the Peel Watershed Planning Region.
Contaminated Sites (Section 4.1.4)	5	Contaminated sites should be remediated, with the priority being those sites with the highest potential to negatively affect water quality and/or tourism and big game outfitting.
Social (Heritage and Culture)		
Heritage and Historic Resources (Section 4.2.1)	6	Ensure adequate heritage and historic resource surveys and data collection are completed prior to any development activities occurring in the Peel Watershed Planning Region.
	7	Heritage and historic resource education materials should be developed for tourism operators and clients, big game outfitters and clients, and other workers to help understand and identify potential heritage resources, sites and artifacts in the Peel Watershed Planning Region.
	8	Two National Historic Sites within LMU #14 (Peel River) should be established in support of what is now the Gwich'in Tribal Council Culture and Heritage Department', proposal for Tshuu tr'adaojìich'uu and Teetl'it njik National Historic Sites (GSCI, 2003). This designation is consistent with the Special Management Area designation of the LMU. These two areas are shown in Map 4, Appendix A, as 'Proposed National Historic Sites'.
	9	Research and use traditional place names wherever possible.

Topic	Policy Recommendation # and Description	
Economy		
Existing Access: Dempster Highway (Section 4.3.1.1)	10	A sub-regional plan for the Dempster Highway Corridor should be jointly developed by the Yukon government, affected First Nations and the Gwich'in Tribal Council. The sub-regional plan should consider the following: » The corridor planning area should be defined jointly by the Yukon government, affected First Nations and Gwich'in Tribal Council. » Where the Dempster Highway passes through Conservation Area land use designations (LMU #2 and #4), the corridor should be managed with a higher level of conservation focus. This may include limits on aggregate extraction and new above-ground infrastructure. » Harvesting activities and concerns. » Commercial wildlife viewing and concerns. » The scenic integrity of the entire highway corridor should be maintained at all times. » Unregulated backcountry access, particularly for off-road vehicles, should not be allowed. » As with all human-caused disturbances, high standards of restoration should apply to all new surface disturbances within the corridor (e.g., gravel pits).
Existing Access: Wind River Trail (Section 4.3.1.1)	11	Within the Peel Watershed Planning Region, the Wind River Trail should no longer be recognized as an existing route under the Yukon Highways Act. The existing agreement between Yukon government and Na-Cho Nyäk Dun, and the Yukon Highways Act, should be amended to reflect this change in status.
	12	Within the Peel Watershed Planning Region, the Wind River Trail should no longer be used as an access route to support industrial land use activity. Use of the Wind River Trail for this purpose compromises the recommended Special Management Area land use designation for LMU #8 (the Wind and Bonnet Plume watersheds).
Existing Access: Off-road Vehicles (Section 4.3.1.1)	13	To prevent impacts on wildlife, soil damage and land-user conflicts, the use of wheeled off-road vehicles (quads, motorbikes and Argos-like vehicles) for any purpose should be restricted to the Hart River Trail, existing trails in areas immediately adjacent to the Dempster Highway, licensed camps, and existing facilities.
	14	In areas of allowed use (see Policy Recommendation #13, above), off-road vehicle use should not occur in sensitive habitats. In this Plan sensitive habitats are defined as wetlands and alpine areas in the spring, summer and fall seasons.
New Surface Access (Section 4.3.1.2)	15	In the Conservation Area, outside of existing dispositions, new surface access should not be allowed. The construction of new roads and surface transportation features are incompatible with Conservation Area management objectives.
	16	In the Integrated Management Area, where new surface access is allowed, all proponents of new surface access routes should provide adequate bonding to ensure that full-reclamation is achieved.
	17	The use of all new surface transportation features should be carefully managed and controlled. Public access on all new roads and surface transportation features should not be allowed. This action will decrease the potential for over-harvesting and un-regulated off-road vehicle use.

Topic	Policy Recommendation # and Description	
Air Access (Section 4.3.1.3)	18	In the Conservation Area, outside of existing dispositions, new airstrips should not be allowed. Existing airstrips and landing locations may continue to be used, however.
	19	An air access management plan may be required for LMU #8 (Wind and Bonnet Plume watershed) and LMU #9 (Snake River) and should be addressed during Special Management Area planning. An air access management plan may be required to avoid the "bunching up" of parties at well-used airstrips and landing locations, which affects both groups of tourists/recreationalists and resource exploration programs.
Mineral Resources (Section 4.3.2)	20	The Conservation Area of the Peel Watershed Planning Region should be withdrawn from the issuance of new mineral claims.
	21	Government policy and operating guidelines regulating uranium activity should be created in advance of any uranium exploration and development activities occurring in the Peel Watershed Planning Region.
Oil and Gas Resources (Section 4.3.3)	22	The Conservation Area of the Peel Watershed Planning Region should be withdrawn from the issuance of new oil and gas exploration permits and leases.
	23	Government policy and operating guidelines regulating coal bed methane development should be created in advance of any coal bed methane exploration and development activities occurring in the Peel Watershed Planning Region.
Tourism and Recreation (Section 4.3.4)	24	A wilderness tourism management plan should be developed for LMU #8 (Wind and Bonnet Plume watersheds) and LMU #9 (Snake River). Such a plan should be completed as part of the Special Management Area planning process for these areas. The wilderness tourism plan should address the following: » Wilderness tourism carrying capacity (number of allowable tourism activity days in different areas, party size, and spacing) » Air access management (see also Policy Recommendation #19 in Section 4.3.1.3) » Develop policy on commercial wilderness tourism land tenure
	25	Management guidelines for commercial wildlife viewing along the Dempster Highway should be developed as part of the Dempster Highway Corridor management plan (see also Recommendation #10 in Section 4.3.1.1).
Subsistence Harvesting (Section 4.3.7)	26	Subsistence harvesting activities should be accommodated in the Conservation Area of the Peel Watershed Planning Region, subject to the following recommendation: » The use of off-road vehicles for any purpose should be limited to certain locations and specific trails (see Policy Recommendation #13 in Section 4.3.1.1).
Big Game Outfitting (Section 4.3.9)	27	Big game guiding and outfitting should be accommodated in the Conservation Area of the Peel Watershed Planning Region, subject to the following recommendation: » The use of off-road vehicles for any purpose should be limited to certain locations and specific trails (see Policy Recommendation #13 in Section 4.3.1.1).

Topic	Policy Recommendation # and Description	
Plan Implementation and Revision		
Plan Conformity (Section 6.1.3)	28	A conformity evaluation process should be developed soon after plan approval that involves a relevant third-party board or committee (such as the YLUPC).
Plan Variance and Amendment (Section 6.2.1)	29	A process for assessing Plan Variances and Amendments should be developed soon after plan approval that provides for input from the proponent(s), the public, and all Parties.
Plan Review (Section 6.2.2)	30	A Plan review process and timeline should be developed soon after plan approval.

Table C.2: Research recommendations summary.

Topic	Research Recommendation # and Description	
Environment		
Cumulative Effects Management: Surface Disturbance (Section 4.1.1)	1	To provide a benchmark for the monitoring of cumulative effects indicator levels, the status of existing surface disturbances should be documented.
	2	The effectiveness of the Plans' definition of "surface disturbance recovery" in dealing with water run-off and sediment loading should be evaluated, especially in non-forested/shrubby areas.
Disturbance to Wildlife and Terrestrial Habitats (Section 4.1.2)	3	Empirical information to support caribou conservation through range planning initiatives, is required under the 2012 Recovery Strategy for Boreal caribou in Canada. Currently this is largely limited to that GPS radio-collar data that were collected in the mid-2000s, by Government of NWT. Yukon-focused research on the abundance, distribution, habitat use, and movement of Boreal caribou should be supported to enable range planning activities and inform management decisions in the LMUs that overlap the current Yukon NT1 range.
Disturbance to Fish, Aquatic Habitats and Hydrology (Section 4.1.3)	4	Confirm overwintering and spawning locations of important fish species, with an initial priority on the Integrated Management Area, prior to any new major developments occurring.
	5	Support and, if possible, expand current water quality and flow monitoring programs to the Major River Corridors of the Integrated Management Area. This will provide benchmarks for the monitoring of potential cumulative effects indicators. Monitoring should include benthic invertebrate communities and water chemistry.
	6	A survey of wetlands in the Peel region, with initial emphasis on the Integrated Management Area, should be completed prior to any new major developments occurring. These surveys should include relevant indicators of wetland health.
Economy		
New Surface Access (Section 4.3.1.2)	7	The suitability of large airlift technology now being developed and tested in the marketplace to enable remote access for industrial activities (e.g., Boeing's SkyHook™ Technology) should be examined in advance of any new road construction.

Topic	Research Recommendation # and Description	
Air Access (Section 4.3.1.3)	8	The number of parties and people arriving at common landing locations should be recorded as part of commercial tourism and outdoor recreation use tracking (see Tourism recommendations in Section 4.3.4), and to inform future versions of this Plan.
Water Access (Section 4.3.1.4)	9	On a periodic basis and where necessary, assess the ecological and social impacts of motorized watercraft use on lakes and rivers in order to inform future Plan revisions and management of Special Management Areas.
Aggregate Resources (Section 4.3.5)	10	In the Integrated Management Area, in the vicinity of the Dempster Highway, aggregate assessments should be conducted in advance of any significant development activity. Such aggregate assessments should be completed as part of the Dempster Highway Corridor management plan (see also Recommendation #8 in Section 4.3.1.1).
Trapping (Section 4.3.8)	11	Land use patterns of trappers, including but not limited to the location of cabins and trails, should be documented in order to facilitate improved project assessment and future resource planning.
Big Game Outfitting (Section 4.3.9)	12	Land use patterns of big game outfitters, including but not limited to the location of camps and trails, should be documented in order to facilitate improved project assessment and future resource planning.

Appendix D: Land Use Designation and Landscape Management Unit Summary

Table D.1: Land use designation summary

Land Use Category	Area (km^2)	Area (% region) Land use are percentages are approximate, throughout the Plan
Conservation Area		
Special Management Area	36,905	55
Wilderness Area	16,884	25
Wilderness Area-Boreal Caribou	2,069	3
Total	55,858	83
Integrated Management Area		
Zone I	0	0
Zone II	0	0
Zone III	7,267	11
Zone IV	4,306	6
Total	11,573	17
Regional Total	**67,431**	**100**

Table D.2: Landscape Management Unit (LMU) summary.

LMU#	Name	Land Use Category	Land Use Sub-Category	Area (km^2)	% (of Region)
1	Ogilvie River Headwaters	Conservation Area	Wilderness Area	1,274	2
2	Kit Range / North Cache Creek	Conservation Area	Special Management Area	973	1
3	Central Ogilvie	Integrated Management Area	Zone III	3,676	5
4	West Hart River	Conservation Area	Wilderness Area	4,871	7
5	Blackstone River	Integrated Management Area	Zone III	3,590	5
6	Hart River	Conservation Area	Wilderness Area	8,305	12
7	Dalglish Creek	Integrated Management Area	Zone IV	1,599	2
8	Wind and Bonnet Plume Watersheds	Conservation Area	Special Management Area	19,172	28
9	Snake River	Conservation Area	Special Management Area	11,193	17
10	Richardson Mountains – South	Conservation Area	Wilderness Area	2,434	4
11	Turner Lake Wetlands / Caribou River	Conservation Area	Special Management Area	1,611	2
12	Richardson Mountains / Vittrekwa River	Conservation Area	Special Management Area	1,622	2
13	Peel Plateau West	Integrated Management Area	Zone IV	2,707	4
14	Peel River	Conservation Area	Special Management Area	2,334	3
15	Peel Plateau East	Conservation Area	Wilderness Area-Boreal Caribou	1,297	2
16	Jackfish Creek Lakes	Conservation Area	Wilderness Area-Boreal Caribou	772	1
			Totals	**67,431**	**100**

Appendix E: Other Management Plans

Table E.1: Existing management plans, agreements and planning processes in and adjacent to the Peel Watershed Planning Region.

Plan or Planning Process	Agency	Description	Relationship to the Peel Watershed Regional Land Use Plan
North Yukon Regional Land Use Plan (2009)	YG VGFN	Provides land-use management recommendations for the North Yukon Planning Region.	Presents information on resource values, land use zoning and LMUs, and management directions, and recommendations of direct relevance to the northeastern part of the Peel region.
Gwich'in Land Use Plan	GTC TG	Provides land-use management guidance for the Gwich'in Land Claim area.	Presents information on resource values, land use zoning and management units, and management directions and recommendations of direct relevance to the northern part of the Peel region.
Tombstone Park Management Plan	YG TH	Provides land-use management direction for Tombstone Territorial Park.	Provides direction to manage land use activities along the southwestern border of the Peel watershed.
North Yukon Tourism Strategy (2004) * Approved in 2006	VGFN YG	Tourism strategy for northern Yukon (Vuntut Gwitchin Traditional Territory).	Identifies current and future potential tourism opportunities in the areas of interest within the Tourism region. Richardson Mountains and Dempster Highway are shared areas of interest with Peel region.
Silver Trail Region Tourism Plan (1998)	YG NND TH	Tourism strategy for the Silver Trail Tourism Region.	Identifies current and future potential tourism opportunities in a large portion of the Peel region.
Klondike Region Tourism Marketing Strategy	YG TH	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 (YPSP) Implementation Project for the Porcupine-Peel Landscape #17	YG	Report provides recommendations for implementation of the YPSP for Landscape #17 (Porcupine- Peel).	Describes the natural and cultural features of Ecoregions 18-20 and 22, with emphasis on ecoregion representation, and identification of potential natural environment and historic parks.
Dempster Highway Economic Development Agreement (2006)	VGFN YG NND TH	YG/First Nations Development Partnership Agreement.	Scoping document that may lead to detailed study of economic opportunities within 50km of the Dempster Highway in Yukon.
Porcupine Caribou Herd Management Plan (2000)	PCMB	Transboundary harvest and habitat management plan for Porcupine caribou herd (PCH).	Management objectives, recommendations and strategies for PCH inform the Peel Watershed Land Use Plan. Important PCH habitats identified in plan are considered in the Peel Watershed Regional Land Use Plan.

Plan or Planning Process	Agency	Description	Relationship to the Peel Watershed Regional Land Use Plan
Harvest Management Plan for the Porcupine Caribou Herd in Canada	PCMB RRC's NWT Gov't YG	PCH management plan recommends different harvest management strategies based on different herd population levels	Management issues, objectives and recommendations inform Peel Watershed Regional Land Use Plan.
Mayo Fish and Wildlife Management Plan (plan reviewed on 5-year cycle)	Mayo RRC NND YG	Management plan for fish and wildlife resources of Na-Cho Nyäk Dun Traditional Territory (see Chapter 16 of NND Final Agreement)	Fish and wildlife management objectives and recommendations inform Peel Watershed Regional Land Use Plan Important fish and wildlife habitats identified in management plan are considered in Peel Watershed Regional Land Use Plan Plan informs Peel Watershed Regional Land Use Plan regarding species of concern.
North Yukon Fish and Wildlife Management Plan (plan reviewed on 5- year cycle)	North Yukon RRC VGFN Yukon	Management plan for fish and wildlife resources of Vuntut Gwitchin Traditional Territory (see Chapter 16 of VGFN Final Agreement)	Fish and wildlife management objectives and recommendations inform Peel Watershed Regional Land Use Plan Important fish and wildlife habitats identified in management plan are considered in Peel Watershed Regional Land Use Plan Plan informs Peel Watershed Regional Land Use Plan regarding species of concern.
Management Plan for Dall's Sheep in the Northern Richardson Mountains	YG VGFN NND TH TG RRC's NWT Gov't Others	Sheep management plan for North Richardson Mountains	Management issues, objectives and recommendations inform Peel Watershed Regional Land Use Plan.
Yukon Tourism Development Strategy	YG	This recommended strategy lays out a ten-year vision for tourism to be a vibrant, sustainable component of Yukon's economy and society for the benefit of future generations. It is the culmination of a fourteen-month process to develop a long-term vision for sustainably growing tourism in the territory.	Identifies current and future strategic goals for tourism.

Plan or Planning Process	Agency	Description	Relationship to the Peel Watershed Regional Land Use Plan
Yukon Water Strategy	YG	The strategy has six priorities for maintaining the quality, quantity and health of Yukon water for both nature and people. It provides a comprehensive approach for making decisions about water in Yukon.	Provides guidance for making decisions that may result in impacts to water in the region.
Boreal Caribou Recovery Strategy (Section 11 Agreement)	YG Canada	A recovery strategy for Boreal caribou developed by Environment Canada, which aims to achieve self-sustaining local populations of Boreal caribou across Canada.	YG is committed to conserving 65% of Boreal caribou critical habitat in this area, the core of which is in LMUs 14, 15 and 16.
Agreement for Conservation of the Boreal Caribou	YG NND GTC Canada	An Agreement under which Canada and YG acknowledge the requirement to exercise (SARA) legislative authority in a manner that is consistent with the NND Final Agreement and the GCLCA; and the four parties recognize a shared responsibility for Boreal caribou conservation.	All Parties will exercise discretion in granting interests in the use of land, water and resources in conformity with the Peel Regional Land Use Plan; YG agrees to prohibition on new placer or quartz mineral claims and issuance of oil and gas rights: NND and GTC agree to share their knowledge on Boreal caribou to better understand annual changes; and YG, NND and GTC agree to take measures to improve chances of caribou survival if declining population trends are detected.

Appendix F: Peel Planning Commission Documents, July 22, 2011

Letter of Transmittal for Final Recommended
Peel Watershed Regional Land Use Plan

Message from Commission

Acknowledgements from Commission

July 22, 2011

Letter of Transmittal for Final Recommended Peel Watershed Regional Land Use Plan

---

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

The Peel Watershed Planning Commission (PWPC) is pleased to submit our Final Recommended Peel Watershed Regional Land Use Plan. As per the land use plan approval process described in Section 11.6.0 of the Yukon Final Agreements, the Peel Watershed Planning Commission (the Commission) has considered your comments on our December 2009 Recommended Peel Watershed Regional Land Use Plan (the Recommended Plan).

The following comments were received in February and March, 2011:

- Joint response from the Parties (through the Senior Liaison Committee),
- Joint response from First Nation Parties to the Plan,
- Individual First Nation government responses, and
- Yukon Government response, both general and detailed.

We thank you for your well organized joint and individual comment submissions. The Commission met in March, May and July of 2011 to consider and discuss your comments and suggestions.

Plan Revisions

This version of the land use plan, the Final Recommended Peel Watershed Regional Land Use Plan (the Final Recommended Plan), has been created through careful consideration of all comments received from the Parties.

The Final Recommended Plan contains minor revisions to all sections to improve clarity and organization, and factual or grammatical errors have been identified and resolved. Other revisions are substantial—most notably, the land use designation system has been revised and simplified, the number of landscape management units (LMUs) has been reduced, and implementation concepts have been streamlined. Cumulative effects management concepts for the Integrated Management Area have also been re-introduced.

While many substantive changes have been incorporated into this version of the Plan, the general management direction of the Recommended Plan has not been altered significantly. How the Commission addressed the Parties conflicting concepts of balance

and opportunities for new surface access and resource development, and the rationale for its decisions, are addressed in the message from the Commission, included in the foreword of the Final Recommended Plan.

The following table outlines substantive changes to the Final Recommended Plan. They are organized based on comments received from the Parties joint response (Senior Liaison Committee) to the Recommended Plan.

Comment from SLC	Response from Commission	Reference in Final Recommended Plan
Implementation and role of the Parties Parties are responsible for implementation Parties are responsible for plan conformity evaluations	Plan Implementation and Review » The Commission recognizes that implementation responsibilities for the Plan rest with the Parties and that at this time, detailed implementation methods have not been agreed to. » While the Commission may not have an ongoing role in detailed Plan implementation activities, the Commission recommends that it should play a role in the formal Plan Review. » The addition of the new Wilderness Area land use designation, with interim protected area status, means the Plan Review process may take on greater significance.	See Section 6 (entire), with emphasis on Section 6.2
	Plan Conformity » The Commission agrees that a more stream-lined method of determining project conformity is desirable. The Plan provides adequate direction so that other groups, such as Yukon Land Use Planning Council, could perform required conformity checks during project assessment activities.	See Section 6.1.3
Requirement for extensive sub-regional planning Avoid excessive subsequent planning exercises	Special Management Areas » It is not the intent of the Plan to create onerous Special Management Area planning requirements. The most important task is identifying, and permanently withdrawing, the recommended areas. » A reduced number of LMUs have been recommended for Special Management Area status. The core of the Special Management Area proposal is the contiguous LMUs of Wind and Bonnet Plume Watersheds (LMU #8), and Snake River (LMU #9) and Peel River (LMU #14). » The most appropriate legal designation tool required for creation of Special Management Areas is at the discretion of Parties, providing it respects the management intent of this Plan. » The Parties, at their discretion, may create a single management plan for multiple LMUs designated as Special Management Areas.	See Map 2, Appendix A for revised LMUs and Land Use Designation. See Section 3.2 for description of Land Use Designation System. See Section 6.1.2.1 for more information on Special Management Area planning.

Comment from SLC	Response from Commission	Reference in Final Recommended Plan
Requirement for extensive sub-regional planning (con't) Avoid excessive subsequent planning exercises	Water Management Planning » The creation of a 'water management plan' for the entire Peel region was recommended in earlier versions of the Peel Plan. In this Final Recommended Plan, the Conservation Area land use designation applies to most of the large tributaries and the Peel mainstem. » Given this management approach, risks to water quality and watershed integrity are considered low. For these reasons, the Commission recognizes that a 'water management plan' for the entire Peel watershed may not be required at this time. If water management planning and monitoring is to occur, it should initially be focused on monitoring and assessment in the Integrated Management Area.	See Section 4.1.3
Frequency of Plan review, variance and amendment Frequent plan amendments and variances should be avoided	» The Commission concurs that the potential frequency of Plan variance and amendment processes proposed in the Recommended Plan may have become problematic, and would have lead to decreased land use certainty. » The revised land use designation system relies on a periodic, longer-term, formal review process to re-evaluate the status of interim protected Wilderness Areas, providing for near-term certainty, and future land use flexibility in the region. » The cumulative effects management concepts foundational to the Integrated Management Area will require periodic monitoring and reporting. This management approach is a flexible, results-based approach that will avoid the need for frequent Plan variance and amendment.	See Section 6.2 See Section 3.4 for a description of the cumulative effects management concepts
Complexity and usability of the Plan Avoid large number of similar LMUs Zoning system should be clear The Plan should be more streamlined and better organized	Number of Land Management Units (LMUs) » The number of LMUs has been reduced, and a revised land use designation system has been developed. The revised land use designation system provides increased clarity on management intent for each LMU. » The Parties may effectively further consolidate LMUs by developing management plans for several similar LMUs. » The revised land use designation system (zoning) has also clarified Plan implementation tasks, and reduced the potential number of Special Management Area plans that will be required. » The addition of "overlay zones" around Major Rivers and the Dempster Highway assists in further clarifying the Peel zoning system.	See Map 2, Appendix A for revised LMUs and Land Use Designation. See Section 3.2 for description of Land Use Designation System. See Section 5 for LMU descriptions.
	Organization » The Final Recommended Plan has been re-organized and streamlined, resulting in an easier to use, and more accessible document. Plan organization now more closely follows the approved North Yukon Regional Land Use Plan.	Entire document

The Final Recommended Plan is our final submission for your consideration and approval. We trust that you, as the Parties, will make best efforts to implement the Plan in its entirety, while exercising your discretion over implementation activities and land and resource decision-making in the Peel region.

Sincerely,

For the Peel Watershed Planning Commission

David Loeks, Chairman

Ray Hayes, Vice-chairman

Steve Taylor, Member

Peter J. Kaye, Member

Connie Buyck, Member

Robert Bruce, Jr., Member

Message from the Commission July 22, 2011

The Peel Watershed Planning Commission respectfully submits this, our Final Recommended Plan, to the Parties that appointed us and to the people of the Yukon. We also are aware of the great attention shown to this Plan by people across Canada and abroad. We submit this Plan to these people, too. We trust that we have fulfilled our responsibilities and have served the broad public interest by providing for sustainable development and responsible management in this extraordinary landscape.

We said in our previous document that "no plan will please all people because not all resource conflicts can be solved to everyone's satisfaction". This has not changed. Because no Yukon landscape and no Yukon planning exercise has received so much public notice, it is well to revisit the path that the Commission followed to create this Final Recommended Plan.

The mandate for a Peel Watershed Regional Land Use Plan is established by the Umbrella Final Agreement. The six people comprising the Commission do not represent any of the Parties: as individuals and as a body we understood our overall responsibility was to further the public good in a way consistent with the settlement agreements.

Chapter 11 of the Umbrella Final Agreement and additional context provided in other chapters compel an understanding that "sustainable development" and integrated management are cornerstones for Yukon land use planning. The UFA, and the Commission's General Terms of Reference (GTOR) are our foundation documents - our constitution, so to speak.

Our GTOR sets out eight General Goals. These establish that the Plan must promote the public good ("promote the well-being"), minimize actual or potential land use conflicts, promote the cultural values of First Nations, promote sustainable development (in part through integrated resource management), "recognize" all economic potential in the planning region, and provide opportunities for cooperative land use planning with a number of agencies. We have achieved each of these goals, taking into account that public policy typically involves tradeoffs and the balancing of values and interests in tension.

Sustainable Development is the overarching goal of this plan, defined by the UFA as: "*beneficial socio-economic change that does not undermine the ecological and social systems upon which communities and societies are dependent.*" This is often portrayed as a "balance" between environmental, social, and economic interests. Simple logic dictates that this is better thought of as an optimization of these values, recognizing that sustaining the ecosystem is fundamental. This is readily understood when you consider the reverse: if we fail to sustain the ecosystem, we have no basis for a sustainable society, nor for a sustainable economy. A priority on sustaining the ecosystem is not a redefinition of Sustainable Development, it is simply a clarification based on the logic of its UFA definition.

We made another important clarification by recognizing three kinds of economic activity:

1. That which is sustainable indefinitely *if properly managed*. Trapping, fisheries, hunting, and tourism are examples.
2. That which is not sustainable, but which ecosystems can tolerate or recover from. Some kinds of mining and oil and gas development are examples of this. Best management practices and effective restoration make this possible in some, but not all areas.
3. That which is not sustainable, and causes irreparable or unacceptable impacts on ecosystem integrity or communities and social systems.

Our foundation documents were written before much was known about planning in the Peel Watershed. The Commission's first effort was to learn about the issues and interests in the planning area – in short, what mattered and what was at stake. Based on this, we wrote our *Statement of Intent*, which set out how we understood our task and what we were trying to accomplish in achieving the General Goals of the GTOR. The Statement of Intent was made public in the fall of 2005, and it was accepted by the Parties with no reservations. Therefore, the Statement of Intent was added to our constitution.

The Statement of Intent makes plain that "wilderness characteristics, wildlife and their habitats, cultural resources, and waters are {to be} maintained over time". It is fundamentally important to preserve these qualities in the Peel watershed. We did not make this up; we did not insert these values into our process. We heard it clearly from people experienced in the Peel Watershed; we heard it clearly from the affected First Nations; we heard it from nearby communities; and we heard it from Yukon people in general. We also heard that the planning area has significant interests and potential for minerals and for oil and gas. These facts frame the values in tension that this Plan had to address as it sought to promote sustainable development.

In our *Draft Plan*, we attempted to incorporate both non-renewable (industrial) and renewable economic activities in most of the planning area. Although wilderness characteristics are the most fragile of landscape qualities to conserve, our Statement of Intent was to maintain them "*over time*". The Commission believed that the planning region could accommodate conservative levels of industrial activity and that wilderness characteristics could be restored if impacted sites and access roads were returned to their natural state.

We offered the *Draft Plan* as a compromise, a balance between development and conservation. It would have involved additional expenses and new ways of operating for industry. It would also have required acceptance and reduced expectations from First Nations, wilderness tourism, the "environmental community", and from much of the public. They would have to be patient as impacted sites and roadbeds recovered over time through state-of-the-art restoration.

No one wanted this. Not industry, not the First Nations, not wilderness businesses, not environmentalists, and apparently, not the Yukon public. Society was clearly divided on

the matter of landscape preservation and resource development. The Commission faced a dilemma, since "managed and restored development" pleased no one. The Parties disagreed on their objectives and Yukon society was polarized. The Commission decided that when society is divided, the responsible approach to take is the one that best preserves options. Since development and access in wilderness is largely a one-way gate (barring a commitment to fully restoring land to its natural state), the Commission determined to take a cautious, conservative approach. Its next plan recommended preserving much of the Peel landscape with the understanding that society could always choose to develop in the future if there was agreement on this.

Our *Recommended Plan* embodied this conservative approach. It emphasized landscape conservation and left options open for development through variance and amendment processes. Our assessment is that the *Recommended Plan* was largely applauded by First Nations, by the First Nation Parties, and by the Yukon public in general. It was criticized by spokespeople for the resource industries, by their supporters among the Yukon public, and by the Yukon Government.

The dilemma faced by the Commission has not changed and indeed has intensified: responding to the Recommended Plan, four out of the five Parties want more landscape protection (100%); one out of five wants less. Stakeholders and the public have offered no new ideas about how our Statement of Intent can be met while allowing more access and resource development.

The Parties have formally responded to the Recommended Plan in these ways:

- All Parties Response (through the Senior Liaison Committee),
- United First Nation Parties Response,
- Individual First Nation Party Response,
- Yukon Government Response, both General and Detailed.

The Commission considered all responses carefully. Many, but not all, of the detailed responses we accepted and embodied into this Final Recommended Plan. These items dealt with the clarity and complexity of the plan, its organization and readability, the provisions for implementing it, and other specific items. The Commission's treatments of these detailed responses are addressed in the Letter of Transmittal.

The most substantive responses concerned landscape protection and access. It was impossible for the Commission to accept all of the responses to these topics, since collectively they contradicted each other. We could not both increase and decrease the quantum of protected land. We could not both increase and decrease provisions for access. As these are the fundamental issues of the Peel Watershed planning process, we will discuss the Commission's approach here.

The affected First Nations desire 100% protection of the Peel Watershed in the form of Special Management Areas (SMAs). There would be no new mineral claims or oil and gas activity anywhere in the Planning region. The Plan's recommendations regarding access to

existing claims and leases (no surface access, air access only) would apply throughout. The Commission considered this request in light of its review of Landscape Management Units (LMUs), the resources and values contained in each LMU, our commitment to Sustainable Development, and our Statement of Intent. We believe that the ecological integrity of the LMUs zoned as Integrated Management Areas are capable of accommodating responsible resource development, with the stipulation of best management practices, and full restoration of disturbed sites, including the decommissioning and restoration of access roads. The Commission's re-examination of these topics, and its sense of the public interest prompted its decision to zone 20 percent of the planning region as Integrated Management Area in this Final Recommended Plan. The Commission provided increased certainty for conservation values by recommending that 55 percent of the landscape be formally protected in SMAs.

The Yukon Government stated that it was providing its General Response per the process set out in UFA Section 11.6.3. It gave a broad critique of the Plan and requested a number of specific modifications. The Commission dealt with these specific requests in its Plan revision. The Yukon Government also addressed in a general way the amount of protected areas and provisions for managing access. Without specifying, the Yukon Government response urges the Commission to re-think and re-write the rationale for each SMA; revisit its assessment of resource conflicts between the values of conservation, non-consumptive resource use, and resource development; and reconsider its ban on surface access in much of the planning area.

The Yukon Government's response stated in general terms what it wanted, but it did not discuss why it wanted these changes and where it felt they might be appropriate. It did not discuss locations of concerns, or what modifications it sought. The Commission noted these general desires and interpreted the thrust of the Yukon Government response to be about the amount of land protected. For the Commission to adequately address this general critique, it would have to go "back to the drawing board" and return to a much earlier stage in the planning process, a step for which there was no provision.

In preparation of this Final Recommended Plan, the Commission fully considered the Yukon Government response concerning the amount of land protected. After much deliberation, the Commission concluded that its rationale for protecting these areas was sound, in view of its determination to preserve society's future options and the outstanding wilderness and cultural values documented in these landscapes. The Commission also reconsidered its recommendations on surface access in view of industry's rejection of full restoration of access roads and of the impacts access roads create in the Yukon under its current regulatory regime. Our decision was that since surface access is typically a permanent development, the responsible choice in the Peel region is to preserve options by denying new surface access across much of the area until society is clear on this highly controversial matter. In our modified land use designation system, 80 percent of the region is termed "Conservation Area", where new surface access is not allowed. Fifty five percent of these lands are SMAs. The Commission provided for flexibility in future land use options by recommending that 45 percent of the land zoned as "Conservation Area" is given interim protection, to be reviewed periodically, as part of the formal Plan review process. These areas are termed "Wilderness Areas".

With this Final Recommended Plan, the Peel Watershed Planning Commission concludes its work. We recommend this Plan to the Parties and to the people of the Yukon: it is carefully considered and it achieves the goals set out for it in a way consistent with the spirit and intent of the UFA, and upholds the principles of Sustainable Development. We emphasize again that this Plan is not a template for future planning efforts in other regions of the Yukon. We believe that in the Peel, this Plan is a responsible approach that enables Yukoners to serve as stewards of this extraordinary landscape. If this Plan is accepted, future generations will salute our foresight.

For the Peel Watershed Planning Commission

David Loeks, Chairman

Ray Hayes, Vice-chairman

Steve Taylor, Member

Peter J. Kaye, Member

Connie Buyck, Member

Robert Bruce, Jr., Member

Acknowledgements July 22, 2011

Several people contributed to this Final Recommended Plan. Foremost was the Peel Watershed Planning Commission, ably supported by its professional advisors Sam Skinner and Shawn Francis. The final document benefited greatly from the editorial assistance of Patricia Robertson. The Commission thanks the staff of the Yukon Land Use Planning Council: Ron Cruikshank, Gerald Issac, and office administrator Heidi Faulds, for their attention to details in supporting this final effort.

The Final Recommended Plan is the culmination of a six-year process. It is well to acknowledge the contributions of so many who participated at various stages of it, including: former chief planners Reg Whiten who formed the mass of data and opinions into the Draft Recommended Plan, and Brian Johnston who undertook much of the essential ground work in the initial stages. Special thanks to our former land-use planning staff member Nadele Flynn, for her contributions. Kathleen Zimmer, our initial office administrator, kept our fledgling ship afloat.

The Commission appreciates the assistance of key Plan partners including the Yukon Government, representatives of the Internal Working Group and other agency staff for their review of Commission outputs. We thank 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 our work. Thanks also to the Gwich'in Land Use Planning Board and the North Yukon Planning Commission for sharing their experience, insights and advice.

An important source of guidance in the Commission's work was provided through the 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 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), Shel Graupe and Lance Nukon (VG).

The Commission appreciates the contribution of colleagues within the Yukon Land Use Planning Council (Ron Cruikshank, Jeff Hamm, Gerald Isaac and Megan Schneider) in providing valuable support for financial administration, mapping, technical reviews, First Nation community liaison, and general advice. Thanks also to former YLUPC Chair Doug Phillips, and to Ian Robertson and Steve Buyck in their advisory roles in guiding the Commission through from inception to delivery of the Recommended Plan.

Thanks goes also the many individuals from stakeholder organizations who have kindly given their time and energy in reviewing earlier outputs, providing written comment and participating in meetings. Finally, we gratefully acknowledge the people of the Yukon for their continual engagement, their care, and their passion for the Peel Watershed. Reasonable people can differ about many things in a public planning process: we appreciate and recognize that Yukoners have participated with mutual respect and regard.

Appendix G: Letter of Understanding 2018

JOINT LETTER OF UNDERSTANDING (LOU) ON PEEL WATERSHED REGIONAL LAND USE PLANNING PROCESS

The purpose of this letter is to confirm the commitment by the Parties to the Peel Watershed Regional Land Use Plan to work collaboratively to complete, approve and implement a Regional Land Use Plan for the Peel Watershed (the "Plan"), pursuant to Chapter 11 of Yukon First Nation Final Agreements and in accordance with 7.1.1 of the Yukon Transboundary Agreement (YTA) in the Gwich'in Comprehensive Land Claim Agreement (GCLCA).

The Parties to the Peel Watershed Regional Land Use Plan and this LOU are the First Nation of Na-Cho Nyak Dün; the Vuntut Gwitchin First Nation; the Tr'ondëk Hwëch'in; the Gwich'in Tribal Council, and the Government of Yukon.

PRINCIPLES AND OBJECTIVES

In the process of completing, approving and implementing the Plan, the Parties agree to be guided by the objectives of Yukon First Nation Final Agreements and by the judgment of the Supreme Court of Canada (*First Nation of Na-Cho Nyak Dün v Yukon,* 2017 SCC 58).

Key objectives of the process set out in this LOU are to:

- work cooperatively to carry out joint consultation on the Final Plan;
- achieve consensus on a Final Plan;
- approve the Plan; and
- successfully implement the approved Plan.

CONSULTATION

The Government of Yukon and the relevant individual First Nations agree to jointly conduct community consultations in Whitehorse, Mayo, Old Crow, Dawson City, Fort McPherson, Tsiigehtchic, Aklavik and Inuvik. The other affected First Nations may choose to participate in these consultations.

The approach to the community and public consultations will be designed and implemented jointly using the Senior Liaison Committee, which includes representation from all the Parties.

Following consultation with affected communities and the general public, the Parties will proceed with formal intergovernmental consultation. The intent of these intergovernmental consultations is to achieve a shared position on the Plan and finalize and approve a Peel Watershed Regional Land Use Plan.

The Parties agree that the Senior Liaison Committee shall serve as the primary conduit for the intergovernmental consultations, supporting the principals of the Parties.

APPROVAL OF PLAN

Following consultations, the Parties will endeavour to reach consensus on the Final Plan.

If desired, opportunities will be provided for the elected leaders of the Parties to meet and work together towards this shared position.

If the Parties are unable to achieve consensus on all aspects of the Plan, the Parties may accept, reject or modify the final Recommended Plan in accordance with 11.6.3.2 and 11.6.5.2 and with the guidance set out by the Supreme Court of Canada in 2017 SCC 58.

TIMEFRAMES

The Parties will aim to work together to complete:

- Consultation with affected communities by the end of October 2018;
- Intergovernmental consultation by the end of November 2018;
- Approval of the Plan by the end of December 2018; and
- The determination of process for joint Implementation arrangements by the beginning of April 2019.

FINANCIAL SUPPORT

The Government of Yukon agrees to provide financial support to the First Nation of Na-Cho Nyak Dün, the Vuntut Gwitchin First Nation, the Tr'ondëk Hwëchi'in, and the Gwich'in Tribal Council in order to assist the affected First Nations towards undertaking the consultation required to approve the Plan.

COMMUNICATIONS

In order to promote collaboration, the Parties will use the Senior Liaison Committee as a forum for developing joint communications in respect of processes, progress and outcomes related to the Plan. The Parties will provide prior notification to each other of any media releases related to the Plan or the Peel land use planning process.

GENERAL

The Parties agree that this LOU is not legally binding; it is a statement of understanding between the Parties to complete the Peel Watershed Regional Land Use Planning process.

In conclusion, the Parties are committed to work collaboratively to complete and implement the Peel Watershed Regional Land Use Plan.

Signed this 1st. day of August, 2018

First Nation of Na-Cho Nyak Dün

Chief Simon Mervyn

Tr'ondëk Hwëch'in

Chief Roberta Joseph

Vuntut Gwitchin First Nation

Chief Bruce Charlie

Gwich'in Tribal Counci

Grand Chief Bobbie-Jo Greenland-Morgan

Government of Yukon

Minister of Energy, Mines and Resources

Ranj Pillai

Government of Yukon

Minister of Environment

Pauline Frost